ANCHORED IN LEGACY, STEERED BY INNOVATION

This book explores the evolution of the Indian Navy into a modernized blue-water navy. It shows how the Navy's ethos is anchored in ancient maritime heritage while it constantly innovates with the times. It traces how the modern Indian Navy emerged from the shadows of the Royal Indian Navy and transformed itself into a strong, united, reliable, and self-made force. The chapters in the volume explore: key naval campaigns of the Indian Navy such as the 1961 and the 1971 wars as well as recent contributions such as Operation Sindoor; key humanitarian and disaster relief operations across the Indian Ocean Region; assistance to other nations and navies; the development of the air arm, the submarine arm, and the indigenous aircraft carrier; and its progression from a "buyer's navy" to a "builder's navy".

The volume will be indispensable to military personnel, students, researchers, and enthusiasts of military and naval history, strategic studies, and India's maritime heritage.

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ANCHORED IN LEGACY, STEERED BY INNOVATION

75 Glorious Years of the Indian Navy

Commander Kalesh Mohanan
Lt Commander Anupama Thapliyal
Lt Jeevitesh Saharan

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Admiral Dinesh K Tripathi
PVSM, AVSM, NM
Chief of the Naval Staff



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Foreword

It is a matter of immense pride to present this book commemorating 75 years of the Indian Navy, since the birth of our Republic on 26 January 1950. Indian Navy's journey is deeply anchored in the millennia-long maritime history of India. From thriving maritime activity during the Harappan Civilization to the Chola expeditions across the seas; from the Zamorins' naval defences to the Maratha Navy's formidable fleets under Shivaji and Kanhoji Angre, India has a strong maritime legacy.

Since Independence, the Indian Navy has played a pivotal role in ensuring maritime security and protecting the sovereignty of our Nation. From the liberation of Goa in 1961, its valiant contribution in the Indo-Pak wars of 1965 and 1971, to its role in the Kargil conflict and recent Op Sindoor, the Navy has stood steadfast in the Nation's defence. Beyond conventional wars, *IN* has repeatedly demonstrated courage and professionalism; whether in Operation Cactus, or during the 26/11 terrorist attack in Mumbai, where our MARCOS were among the first responders.

Equally noteworthy has been the Navy's role in times of crisis, such as to provide humanitarian relief in the wake of the Tsunami in 2004, assistance during the COVID-19 pandemic, and protecting merchant shipping against piracy. It is not only Indians, but also citizens of other nations that have been beneficiaries of these valiant, as well as benign actions. The Indian Navy continues to build bridges of friendship with likeminded nations across the world, as we believe that the world is united through oceans. This has reinforced the Indian Navy's role as a Global Security Partner and enablers of MAHASAGAR.

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The Indian Navy's transformation from a 'Buyer's to a Builder's Navy' is a matter of National pride. Through sustained indigenization, we have achieved a measure of self-reliance that strengthens our operational capability and reflects that vision of *Atmanirbhar Bharat*.

As we celebrate 75 years of Service to the Nation since 1950, this book is a tribute to the generations of officers, sailors, and civilians whose dedication, sacrifice, and commitment have shaped the Indian Navy into a Combat Ready, Credible, Cohesive and Future Ready Force today. It is also an affirmation of our continuing journey, guided by the vision of a strong and *Viksit Bharat*.

This book provides an apt reflection of our past, a record of our present, and an inspiration for the future.

Jai Hind, Sam No Varunah!



(Dinesh K Tripathi)
Admiral
Chief of the Naval Staff

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Prologue

India's Maritime History till its Independence

Introduction

Conquests across different regions of the world have left lingering echoes of loss for the natives of those regions. The struggle, the stories, the memories—ancient India is no different—often vanished, buried beneath the unsparing injustices they endured. "He who rules the sea will shortly rule on the land also,"[1] it is believed that Khaireddin Barbarsa had told Sultan Suleiman the Magnificent—and nowhere has this been truer than that of India. As rightly observed by K.M. Panikkar, even though there were many invasions and conquests over land, "India never lost her independence till she lost the command of the sea in the first decade of the sixteenth century."[2]

India's extensive coastline stretches 11,098.81 kilometres,[3] and the Indian Ocean is home to about 36 countries, 35 per cent of the world's population and 40 per cent of the world's coastline.[4] The relationship between India and the sea reaches back to the dawn of civilization—maritime activity has been a defining feature since the days of the Indus Valley Civilization and has steadily grown across millennia. The Indian Ocean, ranking as the third largest ocean globally, has shaped epic traditions, inspired storytelling, and borne witness to acts of maritime activities and vast naval conflicts.

The shifting tides of this ocean have seen empires surge to prosperity and fade into obscurity, reflecting the long, complex history of the subcontinent. With roots stretching into the distant and undocumented pasts, India's maritime legacy is richly woven into archaeological remains and the testimonies of ancient travellers, waiting to be uncovered and explored. This prologue traces the long arc of Indian maritime history—from the brick docks of Lothal to the riverine battles of Assam, from the blue-water navies of the Cholas to the gunpowder seas of European expansion, from indigenous maritime resistance to colonial naval bureaucracy, and ultimately to the emergence of the modern Indian Navy.

Ancient Mariners: Lothal and the Harappans

Indian seafaring can be traced back to the Bronze Age with the Indus Valley Civilization, also known as Harappan Civilization—one of the world's earliest urban cultures.[5] Archaeologists researching the Indus Valley Civilization have marvelled at its city planning, drainage systems, and standardized brick architecture.[6]

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The inhabitants of the Indus Valley had also made maritime contact with Mesopotamia (a historical region in the Middle East, now mostly modern-day Iraq, named so for being situated between the Tigris and Euphrates rivers). This has been established through cuneiform records[7] gathered by historians. Evidence discovered in Mesopotamia from the reign of Sargon of Akkad (2300 BCE) further suggests that items such as copper, hardwoods, ivory, pearls, carnelian, and gold were acquired from the Indus Valley.[8] Archaeologists also found stamp seals, stone weights and colourful carnelian beads from sites such as Mesopotamia (Iraq), Dilmun (Bahrain) and Magan (Oman).

The discovery of an Indus Valley-era dock at Lothal, Gujarat (about 400 km southwest of present-day Ahmedabad), sheds light on the type of technology and maritime expertise that prevailed at the time. The dock's design, which was situated away from the Sabarmati River's main course to prevent silt deposition, demonstrates the inventiveness of the ancient Indians. The wet dock discovered at Lothal indicates that the Harappans constructed large ships for long-distance sea voyages. Located at the Gulf of Khambhat, where the Sabarmati and Bhogwa rivers meet, the baked-brick dock dating to around 2300 BCE may have served either large vessels or smaller boats.

Oceanographers suggest the Harappans possessed advanced knowledge of hydrography and marine engineering, as shown by the dock at Lothal on the changing Sabarmati River—the oldest known facility for docking and repairing ships.[9] There is similar evidence at Dholavira in Kutch, Gujarat, the largest Harappan city, built 161 km from the sea along a dry riverbed. Planned with three sections and constructed entirely of stone, Dholavira was likely the earliest fortified port city, linking trade routes from Lothal to the Makran coast. This maritime network, which began in the third millennium BCE, later expanded across the Arabian Sea and was a key influence in shaping global history.[10]

Songs of the Sea: Vedic and Epic Ages

India's diversity grew through different waves of migrations, and Indians have long contributed to other cultures through global exchange. From the Vedas and Puranas to epics like the Ramayana and Mahabharata, the sea has been central to Indian thought.

The tale of Vishnu's first incarnation, the Matsya avatar, describes a great flood that threatened the world's end. It tells of Manu, the first and most virtuous ruler, who, guided by Vishnu in the form of a growing fish, built a vast ship to preserve all life from destruction. Similarly, books like *Purananuru*, *Ahananuru*, and *Maduraikanchi* describe the different boats that used sails and wind to move, showing what life was like at sea back then. These books contain old Tamil stories from Sangam literature, written

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around 300 BCE to 300 CE. Often called the golden age of Tamil literature, most authors are anonymous.

Likewise, the Ramayana, originally composed in Sanskrit by Valmiki (5th–4th century BCE), spread across Asia through trade and exploration, inspiring localized versions in Cambodia, Java, Thailand, and beyond. It even reached Europe, where French historian Jules Michelet hailed its beauty, remarking, "Whoever has his heart dried up, let him drench it in the Ramayana." [11]

Also, a seal on the Gundestrup Cauldron from Denmark, dating between 200 BCE and 300 CE, closely resembles the Pashupati seal of the Indus Valley, hinting at early cultural links. The Gundestrup Cauldron is a large silver bowl that was found in a peat bog in Denmark in 1891. It is the biggest known piece of Iron Age silverwork in Europe and is now kept at the National Museum of Denmark.

Sea travel helped spread Indian religions and ideas to other places as well. The Celtic religious group named Druids are believed to have spiritual ideas that are similar to those of Hinduism, and it has been suggested that the word "Druid" may have parallels to a Sanskrit term meaning "immersed in knowledge".[12]

In addition, Kurukshetra in Haryana, India, is named after a king called Kuru and is famous as the big battlefield from the Mahabharata story. That's where Krishna taught his friend Arjuna important lessons of the Bhagavad Gita before the great war. This epic tale spread far away to places like Bali in Indonesia, shown in carvings and dances there. It goes to show that Indian seafarers carried not just things to trade, but also exciting stories that connected people's hearts and beliefs across the seas.

Sanskrit drama achieved its height with playwrights like Kalidasa. He created famous plays such as *Abhigyana Shakuntalam* and lyric poems such as "Meghadoota" (The Cloud Messenger) that found admirers even among Western poets like Goethe. In his epic poem "Raghuvamsa", Kalidasa vividly describes ships and maritime life, noting the ingenious "iron fish" compass or Matsya yantra that floated on oil and pointed north—an early example of India's scientific innovation, later acknowledged by chroniclers like Jacques de Vitry in the 13th century.

Empire and the State: Mauryas, Satavahanas, and the Science of Shipbuilding

Long ago, around 300 years before the common era, powerful leaders called the Nandas ruled India, followed by the Mauryas, during which India experienced the invasion by the Macedonian king Alexander. This event also brought the introduction of Hellenistic culture, blending Greek artistic, cultural, and intellectual elements into Indian society. Maritime commerce flourished under the Nandas and the Mauryas, with Greek and

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Roman writings documenting India's advanced shipbuilding and navigation expertise during this era.[13] Alexander built a harbour at Patala near the Indus, relying on local pilots to navigate the challenging tides to reach the sea. Upon learning of a direct sea route to Mesopotamia, Alexander ordered Admiral Nearchus to lead a fleet of riverboats from the Indus to the Euphrates, successfully sailing 1,500 miles despite rough seas, demonstrating the seaworthiness of Indian vessels.

Moreover, trade between the Seleucid Empire and India flourished via sea routes through the Persian Gulf, supporting a great influx of foreigners during the Mauryan period. The Seleucid Empire was a Greek kingdom founded in 312 BC by Seleucus I Nicator after Alexander's death. Kautilya's *Arthashastra*, an ancient Indian Sanskrit treatise on statecraft, politics, economic policy and military strategy, details the Mauryan administration's naval organization, including an admiralty (i.e., maritime law and naval administration) and a superintendent (i.e., general managerial or supervisory role) to oversee navigation, harbour management, and enforcement of port laws. The Mauryans maintained a mercantile fleet and naval vessels for trade protection, with government support for shipbuilding and repairs. Ships of various types facilitated river and ocean travel.

During the Mauryan era, artisans employed by the state included privileged shipbuilders and sailors. The Mauryan rulers built strong friendships and exchanged ambassadors with other great kingdoms like the Seleucids and Egypt. The Mauryan emperor Ashoka, also known as Ashoka the Great, ruled Magadha from about 268 BCE and encouraged sea missions to spread Buddhism. He kept a fleet of ships to help these missions travel to places such as Sri Lanka and beyond. This shows how important the Mauryans thought sea travel and trade were for their culture and religion.

In the same vein, by the 2nd century BCE, maritime awareness had grown significantly, and artists depicted this in beautiful stone carvings at Buddhist sites such as Bharhut and Sanchi in Madhya Pradesh. These were important sites for learning about the Buddha's teachings and to go on pilgrimage. Sanchi has a well-kept big dome called the Great Stupa, built by Emperor Ashoka. Bharhut's main stupa was destroyed, but its pretty carvings and pieces are safe in museums like the Indian Museum in Kolkata.

Historians note that the Mauryan empire encouraged industry and trade, with shipping reaching a new level of development and regulation. The *Navadhyaksha*, or controller of shipping, directed naval policies, while the *Pattanadhyaksha* oversaw port operations, including vessel docking, storage facilities, and maintenance such as repairs or decommissioning of damaged ships

In addition to maritime trade, the Mauryans built a large network of roads such as the royal highway from Taxila, historically known as Takshashila, an ancient city and UNESCO World Heritage site in Punjab,

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Pakistan, to Pataliputra, modern day Patna, India, connecting ports on both coasts to inland industrial centres. Riverine navigation was preferred for its economy and efficiency. The arrival of Greeks and Romans in Indian waters expanded maritime commerce and political ties, increasing sea voyages to western, eastern, and southern destinations.

Overall, the Nanda and the Mauryan periods marked an extensive maritime era that advanced trade, cultural exchange, and diplomacy, laying the groundwork for India's lasting overseas connections and prosperity.

After the Mauryan decline, various regional powers such as Kalinga and the Satavahanas in the Deccan emerged, with Kalinga temporarily capturing Pataliputra. The Satavahanas further promoted shipping, as seen in their coinage depicting two-masted and single-masted ships, signalling the importance of naval power and maritime trade in this era.

Furthermore, the Satavahana dynasty, also known as the Andhras, dominant in southern India from about the 2nd century BCE to the early 3rd century CE, built a vast sea trade network linking them closely to the Roman Empire. The period saw intricate commercial networks develop, with Roman gold coins found abundantly in south India, evidencing high demand for Indian luxury goods such as spices, textiles, and precious stones. Numismatic (studying and collecting coins, paper money, medals, and tokens) evidence like the coins made by Satavahana kings like Vaishthiputra Pulamayi and Gautamiputra Yagna Sri Satakarni shows images of two-masted sailing ships, indicating a maintained naval fleet. Notably, a coin from another Satavahana King Yajna Satakarani around 200 CE depicts a sailing ship and the "Ujjaini" symbol with four circles representing the "four seas", underscoring their maritime connections.

The Satavahanas controlled strategic ports like Sopara (modern-day Nala Sopara in Maharashtra), Kalyan (ancient port town of Kalyan in Thane district of Maharashtra), and Bharuch in Gujarat facilitated trade across the Indian Ocean to the Persian Gulf, Roman Empire, and Southeast Asia. Coasting voyages and longer oceanic routes flourished with the utilization of monsoon winds, a discovery often attributed to Hippalus or Eudoxus, which revolutionized sailing by shortening travel time significantly. Hippalus, a Greek navigator from the 1st century BCE, gained fame for discovering the direct monsoon route from the Red Sea to India by utilizing seasonal winds for faster sailing whereas Eudoxus, a fellow Greek explorer possibly from Cyzicus (now Mysia in Turkey), also voyaged to India, with some ancient accounts linking him to Hippalus—perhaps even sailing together on those wind-powered ships. These monsoons allowed for predictable, seasonal oceanic navigation between India, Africa, the Red Sea, and the Persian Gulf.

The *Periplus of the Erythraean Sea*, a 1st-century CE Greek text, provides valuable firsthand accounts of maritime trade during this era, describing ports, navigation challenges, and goods exchanged, illustrating

the importance of ports like Barbaricum (modern-day Karachi, Pakistan) and Barygaza (modern-day Bharuch, Gujarat, India). It also details government-managed pilot services assisting foreign ships.

The flourishing of maritime trade under the Satavahanas was accompanied by political and cultural ties with Rome, with Indian merchants residing in Alexandria, and frequent Roman imports into India. However, the decline of the Satavahana power in the south and the rise of the Kushan Empire (a powerful Central Asian empire from the 1st to the 3rd centuries CE, ruling over parts of what is now Afghanistan, Pakistan, and northern India) in the north, coupled with interference by the Sassanian Empire (a powerful Iranian dynasty) controlling Persian Gulf trade routes, eventually disrupted this trade network.

Merchant Guilds, Monsoons, and Maritime Networks

Sailing, though far riskier than traveling on land, was driven by the desire for new food sources and goods for barter and trade. Economic prosperity depended on fertile land, good governance, centralized rule, standardization of products, transport infrastructure, merchant guilds, shipbuilding, and well-equipped ports.

Vedic scriptures describe ceremonies aimed at ensuring safe travels and successful returns, indicating that early traders safeguarded their investments through what could be understood as an insurance system. Workers' groups also known as guilds were formed for artisans such as potters, metalworkers, carpenters, and goldsmiths. *The Mahavastu* ("Great Story" in Sanskrit), an extensive text chronicling the legendary life of the Buddha, mentions 24 such guilds, reflecting a thriving trade economy.

The merchant guilds established during the Mauryan reign were expanded and refined over time. Each guild was headed by an alderman (*sethi*) and operated from its own office or guildhall (*nigamasabha*). During the Gupta Empire's Classical Age, often hailed as India's golden era, guilds functioned as regular banks, handling deposits and loans. These guilds were major centres of production and commerce, wielding significant influence within the government. They collectively purchased raw materials, controlled manufacturing quality and pricing, financed trade expeditions, and owned ships for overseas trade. Their organization included judicial powers and social support systems, demonstrating their central role in the economic and political fabric of ancient India.

From the 10th century CE the expansion of agriculture and trade in south India led to the emergence of prominent merchant guilds known as *samaya*, organized by agreement among members to follow common rules. Prominent merchant guilds included the Ayyavole from Karnataka,

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Manigramam and Nagarattar from Tamil Nadu, Anjuvannam (linked to West Asian region often consisting of Jewish, Christian, and Muslim traders) along the Malabar and Coromandel coasts, and Valanjiyar from Tamil Nadu. These groups facilitated trade across regions spanning modern Karnataka, Tamil Nadu, Andhra Pradesh, and Kerala, with networks extending westward to Sri Lanka and eastward to Southeast Asia including islands of Indonesia such as Sumatra and Java.

Likewise, Manigramam was an ancient merchant guild that operated on the Kerala coast in the 9th century and expanded its inter-regional trade in cooperation with Ayyavole. Anjuvannam represented foreign merchants operating along the Kerala coast by the 8th or 9th century and spread to other south Indian coasts by the 11th century.

Manigramam Chetties were powerful and wealthy merchant guilds in early medieval South India. The term "Chetty" or Chettiar is derived from the Sanskrit word *Sresthin* which means "merchant", "leader of a guild" or "superior". In the past, it referred to a prominent and successful trading and entrepreneurial community in southern India. Manigramam Chetties engaged in global trade and were granted special privileges, as seen in the Bhaskara Ravi Varman (a Chera king in 10th century CE) plate of Kerala, which gave them a charter akin to that of European East India Companies, including "the sword of sovereign merchant ship" and trading monopolies.[14] Other notable merchant groups included the Nanadesis, Valangai, and Elangai, described in an inscription at Baligami, Mysore, as "brave men born to wander over many countries since the beginnings of the Krta age" of the Yuga cycle, trading horses, elephants, precious stones, perfumes, and drugs across six continents by land and sea, both wholesale and retail.[15]

An inscription at Takopa confirms the Hindu trading community of Manigramam operated centres in Malabar and acted as trustees for temples. The sustained cultural and economic ties of Hindu and Buddhist kingdoms in Southeast Asia—including Champa (Siam), Cambodia, Java, and Sumatra—with India were supported by continuous maritime trade. Regular shipping along the east coast of India is referenced in literary works like *Kathasaritsagara* and recorded by Chinese travellers, alluding to an active sea route system.

The Kalingas and Cholas conducted trading expeditions to establish maritime trade links with local rulers in Sumatra, the Malay Peninsula, Java, Thailand, and China. During this period, the knowledge of monsoon winds was developed, along with advancements in shipbuilding technology, which significantly enhanced trading activities between the Mediterranean Sea and the Indian Ocean.

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Navigate and Conquer: Kalingas, Sailendra, Srivijaya, & Chola Kingdom

The Kalingas played a significant role in India's maritime history, pioneering adventurous voyages to Java as early as 75 CE. Kalinga seafarers settled there, establishing trade links and introducing Hindu civilization to the region, supported by inscriptions and architectural evidence in Southeast Asia.[16] Although some suggest Gujarat as the origin of early immigration to Java, historians like Radha Kumud Mookerji argue that this was likely a later political link. Hindu influence, Indian art, architecture, and religious customs deeply shaped the Indonesian archipelago, especially evident in Bali, where traces of ancient Hindu culture persist.[17]

In Java, Buddhist influence is also significant, exemplified by the Borobudur temple's reliefs depicting Indian ships and perilous voyages, including one of a Gujarati prince.[18] Kalinga maintained maritime links through Chilika Lake (in modern day Odisha) and ports like Palura (an ancient port located in the Ganjam district of Odisha), which Kalidasa referenced with shiploads of spices. Kalinga also had maritime connections with Ceylon (modern day Sri Lanka), including Princess Hemamala, a legendary figure from 4th-century CE India, who along with her brother Prince Dantha, escaped from Kalinga to Sri Lanka carrying the sacred "tooth relic" of the Buddha. According to legend, Hemamala hid the relic in her hair ornament, and the two disguised themselves as Brahmins to avoid detection during their journey. They set sail from the port of Tamralipti (modern-day Tamluk in West Bengal) and safely brought the relic to Sri Lanka, where it became a highly revered symbol. [19]

The Odia people celebrate this oceanic heritage annually with the Boita Bandana festival, symbolically reenacting these ancient voyages.[20] Modern efforts like Mihir Sen's sailboat expedition have sought to revive this maritime spirit. Before the rise of the Cholas and the Srivijaya Empire, the Kalingas profoundly influenced maritime trade and cultural exchange in the Indian Ocean and Southeast Asia. Kalinga, with its strategic coastline and ports like Tamralipti, facilitated extensive maritime trade across Southeast Asia, trading goods such as elephants, spices, ivory, and textiles.

Similarly, a long time ago, Hindu kingdoms started spreading across the Far East, especially in Southeast Asia. The very first Hindu kingdom to be set up in the island of Sumatra was called Srivijaya. It began humbly around the 4th century CE, but over many centuries it grew into a powerful kingdom with a large navy and became important in trade and business by the end of the 17th century CE.[21]

The Srivijaya kings expanded their kingdom one island at a time—much like hopping across stepping stones in the sea. They controlled different islands starting from Sumatra, moving to western Java, and the Malay Peninsula (which is part of today's Malaysia). The Malacca Straits,

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an important and busy waterway of strategic importance, was under their control which made Srivijaya the strongest naval power in the eastern part of the Indian Ocean for a long time.[22] However, another powerful naval kingdom, the Sailendras, rose in a region farther east and challenged Srivijaya's control over the seas.

A strong navy was necessary to protect commerce from pirates. This helped trading grow over sea routes between Srivijaya and India. They had very strong ties with Indian kingdoms along the east coast of India, especially with the kings of Kalinga. Holding onto Malacca also gave them the power to control almost all sea travel in the region, including the lucrative sea trade with China. Even though Srivijaya was located outside India, the people there used names, customs, and rules that were similar to those in south India, possibly pointing to its Indian roots.

At one point, the Sailendra dynasty won control away from Srivijaya and settled in the island of Java by 782 CE. By the end of the 8th century CE, the Sailendras ruled Sumatra, Java, and the Malay Peninsula, which brought many Hindu kingdoms together in an area called Suvarnadvipa. They also attempted to take over another kingdom called Champa. Their navy was strong enough for the Sailendras to attack the "Hinduized" kingdom of Annam in Indo-China (modern-day Vietnam). Even though these attacks didn't bring many wins, they were a reminder of how powerful the Sailendra navy was.

The Arab writer Al Masudi in 943 CE described the Sailendra Empire as so big and spread out across many islands that even the fastest ships would take over two years to sail all around it. Within about a hundred years of their founding, the Sailendras became one of the greatest naval powers in the East.

The only other kingdom brave enough to challenge the Sailendras for control of the seas was the Chola dynasty from India. The Cholas were famous for their naval adventures that lasted nearly a hundred years. The Sailendras controlled most of the islands in the Indian Ocean, except for Sri Lanka. They wanted to add Sri Lanka to their empire too and their king Chandrabhanu made two big attempts, one in 1236 CE and another in 1255 CE. However, both attempts were expensive and didn't succeed. The historian K.M. Panikkar described these great invasions with many thousands of soldiers and hundreds of ships as the final major story of Hindu power over the oceans.[23]

The Cholas, Cheras, and Pandyas, known collectively as the Muventar or "The Three Crowned Kings," were dominant powers in peninsular India, with the Chola dynasty having the greatest maritime impact. Mentioned in early Sangam literature and Ashoka's inscriptions, the Cholas ruled southern India and extended their influence on island nations in the southern Indian Ocean, as well as parts of Malaysia, Indonesia, southern Thailand, and the east coast of India including present-day Bangladesh.[24]

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The foundation of their vast maritime empire began with their conquest of the Srivijaya Empire in Sumatra. Under Raja Raja Chola I, they maintained a strong maritime culture and mostly peaceful trade with Srivijaya. Inscriptions across the Bay of Bengal and Southeast Asia reflect large merchant communities and cultural exchanges, such as Srivijayan contributions to Hindu temples in Nagapattinam.

Rajendra Chola I launched naval invasions on Srivijaya in 1017 CE and 1025 CE, becoming the first Indian king to conduct overseas conquests, followed by campaigns in Burma and southern Thailand. His son Virarajendra expanded the empire to Malaysia's Kedah. The Chola navy was a key factor in establishing control over Southeast Asia, spreading Hinduism, Dravidian culture, and architecture, and combating piracy. Tamil merchant guilds flourished in this era, extending trade into Southeast Asia.

Other southern dynasties like the Pallavas and Pandyas also engaged in maritime ventures, with ports such as Calicut (modern day Kozhikode Port in Kerala), Pattanam (an ancient port city of Muziris in Kerala), Tuticorin (modern day Thoothukudi, a commercial port in Tamil Nadu), and Mamallapuram (modern day Mahabalipuram, a historic port town in Tamil Nadu) serving as key centres for trade and diplomacy reaching as far as China. The Vijayanagara and Kalinga kingdoms too influenced the region's linguistic, religious, and cultural landscape through maritime activities, patronizing Hindu and Buddhist establishments in Southeast Asia. The Chola maritime dominance reshaped economic and cultural ties between India and Southeast Asia during this period.

Medieval Shifts: The Age of Arabs, Ahom River Navy, and Decline

The Mughals were strong and influential rulers from Central Asia who controlled most of India from the 1500s until the mid-1800s. Their empire began in 1526 CE when Babur defeated the Delhi Sultanate and established Mughal rule.[25] They were well known for their strong armies, and there are many stories about their battles and governance. Even though the Mughal Empire emerged as the dominant power in India, it was primarily focused on land-based revenue and largely neglected naval affairs, viewing seafaring as unworthy of nobility.

Emperors such as Akbar, Jahangir, and Aurangzeb considered western ports mainly for the Haj pilgrimage, not as strategic naval bases. Nevertheless, Akbar, the third Mughal emperor who reigned from 1556 to 1605, maintained a modest navy, and Aurangzeb, the sixth Mughal emperor, reigning from 1658 until his death in 1707, commanded naval forces on both coasts.[26]

Meanwhile, the Ahoms were a group of people from the Tai ethnic family. In 1228, under the leadership of Prince Sukaphaa, they moved from present-day Myanmar and southern China and settled in the region now

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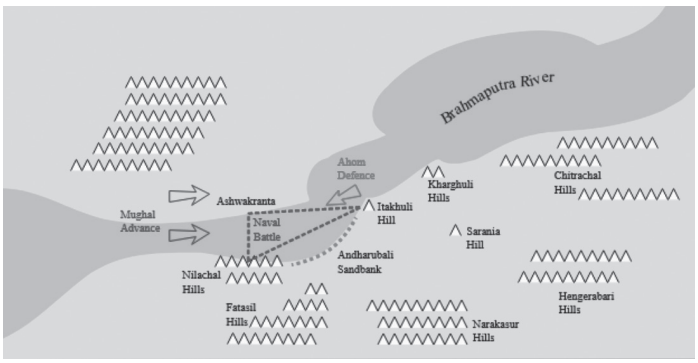
known as Assam. Over time, they intermingled with local tribes like the Morans and Borahis through marriages and alliances, forming a strong community.[27] They built and ruled a large kingdom in Assam for nearly 600 years, dividing it smartly for defence and growth until the British took over. The Ahom River Navy was a well-organized and powerful division within the Ahom military, mainly overseen by the Pani Phukan (the title of the commander in Ahom Navy), who led over 7,000 sailors even towards the end of the Ahom dynasty.[28] The Pani Phukan was directly subordinate to the Barphukan, the supreme military commander, who could also take direct control of the naval forces when needed, as during the Battle of Saraighat.[29]

The Ahom military followed a hierarchical system where ranks like Deka commanded 10 paiks (soldiers), and the Phukans oversaw broader forces of thousands, ensuring disciplined defence and coordination.[30] The region was politically fragmented with rival kingdoms such as the Kochs (ruling dynasty of Koch Kingdom in parts of present-day Assam and West Bengal) and Baro Bhuiyans (confederacies of soldier-landowners in Assam and Bengal) between the Ahoms and the expanding Mughal Empire. Relations deteriorated over time, culminating in Mughal attempts to control Assam.[31]

Fig P.1: Battle of Saraighat, Naval Battle



Source: Ministry of Culture, Government of India

The Battle of Saraighat was a crucial naval battle fought in 1671 on the Brahmaputra River between the Mughal Empire, led by Raja Ram Singh, and the Ahom Kingdom under Lachit Borphukan.[32] The Ahoms controlled a vast territory divided by the river, with their defensive capital at present-day Guwahati.

The Mughals had extended their influence into Assam through a series of conflicts and alliances, with Mughal generals such as Mir Jumla and Raja Ram Singh who served under the Mughal Emperor Aurangzeb, in their attempt to conquer the region. The Ahoms employed guerrilla tactics and leveraged their superior knowledge of the local terrain, especially their

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strong navy on the Brahmaputra, to resist the larger Mughal forces.[33]

Despite being outnumbered, the Ahom navy utilized small, manoeuvrable boats to counter the larger Mughal warships, which were equipped with heavy artillery. Lachit Borphukan, despite being ill, stayed with his forces and inspired them to a decisive victory that forced the Mughal army to retreat beyond the Manas River, establishing the western boundary of the Ahom kingdom.[34]

This battle effectively ended Mughal ambitions in Assam and preserved the independence of the Ahoms. It demonstrated the significance of naval power in riverine warfare and is remembered to this day as a symbol of resistance against imperial expansion. The combination of Ahom military strategy, naval strength, and strong leadership under Lachit Borphukan marked the Battle of Saraighat as one of the most memorable battles in Indian history.[35]

The Mughals' naval engagements were mostly limited to coastal battles. For such a wealthy empire, their failure to develop a powerful blue-water navy was a significant strategic shortfall which led to the decline of maritime activity in India.[36] They mostly trusted their big armies on land to protect their empire, even though much of their territory was near the sea. Their navy was mainly made of river boats, and they didn't build strong fleets to fight far out at sea.[37]

Historians believe the Mughals missed an important chance to create a powerful navy that could have kept European traders away. If they had built island bases and stronger ships like some European powers and the Maratha leader Shivaji did, they might have been able to control the seas. This enabled European powers to access India uncontested by sea. This had a major impact and changed India's history in many ways.[38]

Naval Resistance and Changing Tides: Zamorins, Marathas, and European Incursion

During the 16th century, the Arabs had a monopoly over Indian Ocean trade, prompting European nations to seek direct sea routes to India for better profits, with Portugal leading this effort. Vasco da Gama set sail in 1497, reaching Calicut in 1498 with the help of the Arab navigator Ibn Majid, marking a new era in Indian Ocean history. Initially, the Portuguese faced resistance from the powerful Zamorin rulers of Malabar, whose ports were prosperous trade hubs with large Arab settlements. The Zamorin welcomed Vasco da Gama but tension rose after Portuguese refusals to pay customs and attacks on Arab traders.[39]

Despite early setbacks, the Portuguese formed alliances with coastal kingdoms like Kochi and Cannanore, launching repeated assaults on Zamorin ports and gradually capturing key locations like Goa, which became their strategic base. The Portuguese introduced the 'cartaz' system,

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Fig P.2: Vasco da Gama at the Court of Zamorin of Calicut



Source: Naval History Division, Indian Navy

a naval trade licence that enforced their monopoly by controlling ship movements and taxing Indian Ocean trade.[40] Though eventually challenged by other European powers, the Portuguese dominance reshaped trade dynamics and marked the decline of Arab merchant control. The Zamorins, with commanders like the Kunjali Marakkars, resisted fiercely for over a century, showcasing tactical skill despite inferior firepower.

The Portuguese faced formidable resistance not only from the Kunjali Marakkars in Malabar but also from the Marathas along the Konkan coast. The Marathas' primary adversaries were the Siddis, Ethiopian mercenaries allied with the Mughals. Under Chhatrapati Shivaji Maharaj, the Marathas established a formidable naval force to defend the Konkan coast and bolster the Maratha power at sea.[41] His navy began development around 1661–63, comprising approximately 400 ships of various types, including battleships and smaller vessels like *ghurab*s (warships), *tarande*s (merchant or cargo ships), *galbat*s (large rowboats with sails), *shibad*s (another form of merchant ship), and *pal*s (largest battleship in the Maratha Navy). He focused on building a network of strategic coastal forts such as Vijaydurg, Sindhudurg, Kolaba, and Ratanagiri, which served as naval bases, supply depots, and staging points, enabling the Maratha navy to operate effectively across the western coast.

Shivaji personally oversaw shipbuilding activities, including the construction of ports and forts along the Konkan coast, with shipyards in places like Kalyan, Bhiwandi, and Panvel. He hired skilled artisans, including Portuguese craftsmen, to ensure advanced ship construction technology. His naval strategy prioritized coastal and riverine warfare, using small, swift

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ships to attack and capture enemy vessels, often employing hit-and-run tactics from advantageous positions such as forts and narrow waterways.[42]

The navy's main objective was to protect trade routes, maintain sovereignty over the coast, and counter the threats from Siddis, European colonial powers, and rival Indian states. Under Shivaji's leadership, the Maratha navy achieved significant victories, notably the capture of Khanderi Island in 1679 CE, and established maritime dominance that lasted for over four decades, making it a strong deterrent against European and other foreign naval powers.

After Shivaji, Sarkhel Kanhoji Angre was another legendary Maratha naval leader who revitalized the Maratha navy. When he became Admiral around 1699, the fleet had dwindled to just ten ships, but Kanhoji expanded it significantly to about 50 *galbats* and 10 *ghurabs*, restoring Maratha naval power.[43] During the Maratha internal split after Rajaram's death, Kanhoji initially sided with Maharani Tarabai (the regent of the Maratha Empire from 1700 until 1708) and captured forts but later exchanged them for strategic sea and land forts.

Kanhoji decisively defeated the Siddis, ensuring they could no longer challenge Maratha control at sea. He then focused on attacking Portuguese merchant ships, compelling them to purchase his naval passports, and successfully repelled Portuguese attacks, forcing them into a peace treaty. Kanhoji also confronted the British, avoiding direct conflict but engaging in prolonged naval skirmishes, notably at battles like Geriah and Khanderi (1679). After this the British respected his naval prowess.

Though no formal treaty was signed, Kanhoji and the British maintained a truce and even exchanged prisoners. After Kanhoji's death in 1729, the British eventually captured the Maratha stronghold Fort Geriah (Vijaydurg) in 1756, marking the decline of Maratha naval dominance. Throughout his career, Kanhoji was known for his strategic acumen, strong leadership, and unwavering dedication to defending Maratha maritime sovereignty.[44]

Portuguese Sea Power and Battle of Diu (1509)

The Battle of Diu, fought on 3 February 1509 off the coast of the island of Diu in Gujarat, stands as a watershed moment in the maritime history of India and the wider Indian Ocean region. Located strategically at the mouth of the Gulf of Khambhat on the western coast of India, Diu had long been a significant mercantile port under the Gujarat Sultanate, serving as a vital hub for trade between East Africa, the Middle East, and South Asia. Over many centuries, this region was ruled and shaped by several native dynasties. The Kshatrapas, rulers of Saka origin, controlled western and central India, mainly in areas now known as Gujarat, Maharashtra, and Rajasthan, from the 1st to 4th century CE. Following them, the Maitrakas governed Gujarat and Saurashtra (Kathiawar) from the 5th to 8th century CE. The powerful

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Chalukya empire ruled parts of southern and central India from the 6th to the 12th century through three related dynasties: the Badami Chalukyas, Eastern Chalukyas, and Western Chalukyas. Additionally, foreign invaders also entered the region, highlighting its significance in regional politics and trade.

However, the advent of European maritime ambitions, especially by Portugal in the late 15th century, marked the beginning of a new, turbulent chapter in control over Indian Ocean trade routes. After Vasco da Gama's historic sea voyage to India in 1498 opened the route from Europe around the Cape of Good Hope, the Portuguese sought to establish their dominance over the lucrative spice trade that was hitherto dominated by Arab traders, the Mamluk Sultanate of Egypt, the Gujarat Sultanate, and the Zamorin of Calicut. Their initial efforts met with resistance, including a significant setback at the Battle of Chaul in 1508 where Portuguese forces suffered defeat at the hands of a coalition of Mamluks, Gujaratis, and other regional powers.

Driven by the desire to avenge this defeat and solidify their foothold, Portuguese Viceroy Francisco de Almeida assembled a fleet of eighteen heavily armed carracks and other ships to confront the combined naval forces near Diu. The coalition arrayed against them was formidable, comprising ships from the Gujarat Sultanate, the Mamluk Sultanate, the Zamorin of Calicut, and admirals and volunteers from the Ottoman Empire, Venice, and the Republic of Ragusa (modern-day Dubrovnik, Croatia) which could be considered one of the first international battles fought in the Indian Ocean. However, the Portuguese held significant advantages in terms of naval technology, firepower, and professional seamanship. Their ships were equipped with powerful cannons manned by experienced artillery crews, and their vessels were designed to withstand the rough Atlantic conditions, making them well-suited for open-sea combat against the smaller, less armed dhows and galleys employed by the coalition.

The battle began with a fierce Portuguese naval bombardment followed by close-quarter combat within the harbour of Diu. The superior artillery of the Portuguese proved decisive, preventing the smaller Arab and Indian vessels from getting close. The archers and light artillery of the coalition were ineffective in countering the heavy Portuguese cannon fire. Furthermore, the Portuguese demonstrated ruthless discipline and fierce fighting tactics, which overwhelmed their opponents. Malik Ayyaz, the governor of Gujarat, had tried to rally his defences but was undermined by the presence of the Portuguese-aligned contingents and the overwhelming Portuguese firepower.

Portuguese victory at the Battle of Diu effectively marked the collapse of Mamluk naval power in the Indian Ocean and significantly weakened the influence of the Gujarat Sultanate and other Muslim powers in the region. This triumph enabled the Portuguese to rapidly expand their reach, subsequently acquiring key ports such as Goa, Ceylon, Malacca, and Ormuz,

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thereby establishing a sprawling maritime empire. The Portuguese enforced their control over these trade routes, disrupting the centuries-old spice trade network that had passed through the Red Sea and Persian Gulf under the dominion of Arab and Venetian merchants and diverting it along a new path rounding the Cape of Good Hope.

The battle also had wider geopolitical implications, representing the extension of the Mediterranean Christian–Islamic conflict into the Indian Ocean and setting the stage for European colonial domination across Asia. The Portuguese commemorated this victory by constructing the imposing Diu Fort in 1535, which remained under their control until it was liberated by India in 1961 during Operation Vijay.

Importantly, the Battle of Diu introduced a paradigm shift in maritime warfare and trade control in the Indian Ocean. It revealed the transformative power of new naval technologies and European maritime strategies that had been developed to cope with Atlantic storms and warfare, including the use of heavily armed multi-rigged carracks bristling with cannons. This battle not only reshaped Indian and regional histories but also contributed to the expansion of European imperialism and the integration of the Indian Ocean into global trade networks dominated by European powers for the next century.

Battle of Swally (1612): Birth of British Naval Presence

The East India Company was established on 31 December 1600, under a royal charter granted by Queen Elizabeth I to a group of London merchants. Captain Hawkins arrived at Surat in 1612 and subsequently met Emperor Jahangir at the Mughal court, seeking permission to trade in India.[45] Despite their commercial intentions, the British encountered resistance from the Portuguese, French, Marathas, and various smaller regional powers.

A pivotal naval engagement during this period was the Battle of Swally in 1612 near Surat, led by Captain Thomas Best. The British victory in this battle marked the foundation of the Indian Marine, the precursor to the Indian Navy, and signalled the decline of Portuguese dominance in the Indian Ocean. Over time, the East India Company transitioned from merchants to political and military actors, leveraging superior naval power to defeat smaller regional rulers and withstand navies such as those of the Marathas and Hyder Ali. Hyder Ali's son Tipu Sultan, a significant opponent of British expansion, acknowledged British sea power's supremacy and sought French help to counter it.

The Company also developed major port cities—Madras, Bombay and Calcutta—that became hubs for maritime trade and shipbuilding. Mumbai, in particular, became a centre for ship production, with Wadia family shipyards building scores of warships and merchant vessels over the 18th and 19th centuries.

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The Indian Marine helped fight pirates, especially in a big 1809 battle against the Joasmi tribe—what the British called the Al Qasimi (or Qawasim), a strong Arab group that still rules parts of the UAE like Sharjah and Ras Al Khaimah today. This victory kept British trade ships safe on the Arabian Sea. After 1858, when Britain's Queen took direct control from the East India Company, they made tough new maritime controls and economic policies, which severely restricted indigenous maritime trade activities.

Battle of Colachel (1741): Indigenous Naval Resistance

There are many accounts of Indian rulers protecting their land, which are often forgotten, especially those challenging colonial powers. One such episode is the Battle of Colachel fought on 10 August 1741, near Thiruvananthapuram in South India. Here, King Marthanda Varma's Travancore army defeated the mighty Dutch navy—the world's strongest at the time—making India a naval powerhouse. No enemy dared attack India's southern coast afterwards, and it spelled disaster for the Dutch East India Company.

The Dutch craved control of the pepper trade in Kayamkulam, demanding "it all and nothing less" from local rulers. They stirred fights among princes to weaken the region. Travancore was then a patchwork of small states without a strong central army. Born in 1705, Marthanda Varma unified it by crushing rivals and expanding into neighbouring kingdoms.

In February 1741, Dutch forces from Ceylon, led by Captain Eustachius De Lannoy, raided Colachel with heavy guns, looting and advancing to the capital, Padmanabhapuram. While Marthanda Varma negotiated elsewhere, he tasked the commander Ananthan Padmanabhan Nadar with rallying 108 Tamil Nadar warriors, fishermen, and others. Ananthan boldly charged the Dutch, striking hard alongside local forces. Marthanda Varma then arrived from the south, trapping and crushing the Dutch forces.

Victory came swiftly: 24 Dutch surrendered, including De Lannoy. The Dutch lost their grip on Indian trade. Impressed by De Lannoy, Marthanda Varma hired him as an army commander. He modernized Travancore's forces with European tactics, built forts, and aided expansions until his death in 1777. A statue honours this triumph today.

The Battle of Colachel became a milestone in Asian history: for the first time, an Asian kingdom defeated a European power, crippling Dutch ambitions in India. The encounter also reshaped Travancore, as the captured De Lannoy won the king's trust, rose to Senior Admiral, and modernized the army, helping realize Varma's vision of a unified state.

The Colonization of the Sea: Bombay Marine to Royal Indian Navy

The East India Company formed a naval force known as the Honourable East India Company's Marine in 1613 at Surat to safeguard its expanding trade routes in the Indian Ocean. This early force was created mainly to

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protect merchant ships from pirates and rival European powers. In 1686, the organization was moved to Bombay and renamed the Bombay Marine, which gradually grew in size and responsibility. Over the next two centuries, the force underwent multiple changes in structure, training, and duties, and in 1892 it officially assumed the name Royal Indian Marine.

By the time the First World War began, the Royal Indian Marine had developed into a small but capable maritime arm consisting of six armed ships. These vessels were commanded by British officers while the majority of the sailors were Indian. During the war, the force played an important role in patrolling crucial sea routes, especially in the Red Sea and the Persian Gulf, ensuring safe passage for Allied ships and protecting them from enemy threats.

A major transformation took place in 1934, when the government passed a bill to create a full naval service for India. As a result, on 2 October 1934, the Royal Indian Marine was reconstituted as the Royal Indian Navy (RIN). This new organization gave India a modern, structured naval force with clearly defined ranks, training systems, and operational duties. After India became a republic on 26 January 1950, the prefix "Royal" was removed, and the force became known simply as the Indian Navy, the title it holds today.

During the Second World War, the Royal Indian Navy expanded rapidly and served across a vast area ranging from the Atlantic Ocean to the China Sea. Its ships performed a wide variety of tasks, including escorting convoys, sweeping mines, conducting anti-submarine patrols, and supporting coastal operations. Their contributions were significant: the frigates *Sutlej* and *Jumna* fought in the Battle of the Atlantic and were among the last Allied ships to withdraw from Singapore before it fell. Other vessels supported naval bombardments along the Arakan coast in Burma, while smaller craft took part in coastal patrols and helped Allied troops during key landings at Myebon and Harve.

The Royal Indian Navy's efforts throughout the war earned it a reputation for discipline, efficiency, and courage, laying the foundation for the powerful Indian Navy that emerged after Independence.

Birth of the Indian Navy

During the Second World War, Britain had drawn heavily on India's manpower, finances, and industrial capacity to sustain its war effort, leaving the country economically and militarily strained at the moment of Independence. When India became independent at midnight on 15 August 1947, the Royal Indian Navy was suddenly divided between two new states. Although India formally inherited about two-thirds of the ships and personnel, the actual balance of capability was far more uneven.

British manpower policies—shaped by the broader colonial idea of "martial race" theory—had long influenced recruitment and training within the navy, concentrating technical expertise such as gunnery, signals, and

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specialist seamanship among selected communities. When personnel were allowed to choose their nationality at Partition, a large number of highly trained and experienced sailors, including many senior ratings, opted for Pakistan, depriving India of critical skills at the very moment it needed them most.

This loss of manpower was intensified by the transfer of key naval training establishments to Pakistan. Major institutions such as HMS Himalaya, the principal gunnery school at Karachi, and HMS Akbar, the boys training establishment at Manora, were allocated to Pakistan, meaning that it inherited not only trained sailors but also the infrastructure that produced future expertise. Indian officers later recalled that these departures delayed ship commissioning, disrupted refits, and forced the navy to restart training almost from scratch, including sending new batches of sailors to Britain. The situation left India with a numerically larger but operationally handicapped navy. Nevertheless, with the adoption of the republican constitution on 26 January 1950, the word "Royal" was dropped, symbolizing the beginning of a fully sovereign naval identity.

However, at the time, the highest-ranking Indian naval officer was only at the commander level. Consequently, the Government of India chose to retain senior British officers in command of the Navy for the next eleven years. In 1958, Vice Admiral R.D. Katari became the first Indian Chief of Naval Staff—this delay reflected both institutional inertia and the legacy of colonial command structures, which limited indigenous leadership during the navy's formative years.

Despite these early constraints, the Indian government articulated a clear maritime vision: to secure freedom of the seas without pursuing aggression. India's strategic location astride major sea lanes, combined with its population and resources, led leaders to believe that a strong navy was essential for protecting trade routes through the Arabian Sea, Bay of Bengal, and the wider Indian Ocean. Initially dependent on foreign-built ships, submarines, and aircraft, India soon recognized the dangers of overreliance on external suppliers. This realization drove a sustained push towards indigenization, with shipyards such as Mazagon Dock, Hindustan Shipyard, and Garden Reach Shipbuilders gradually developing the capacity to design and construct warships domestically.

Over time, this emphasis on self-reliance transformed the navy. Indigenous programmes produced advanced destroyers, stealth frigates, and nuclear-powered submarines such as INS *Arihant*, culminating in the commissioning of INS *Vikrant* in 2022, India's first indigenously built aircraft carrier. These achievements marked a decisive shift from dependence on imported platforms to an autonomous naval-industrial ecosystem. Supported by partnerships with private industry and selective foreign collaboration for technology transfer, the Indian Navy became more flexible, resilient, and tailored to national requirements.

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Today, India stands as the world's fourth largest Navy and most capable maritime force and is increasingly recognized as a "net security provider" in the Indian Ocean Region. Through doctrines such as SAGAR (Security and Growth for All in the Region), it plays a stabilizing role by safeguarding sea lanes, responding swiftly to humanitarian crises, and contributing to regional security. The navy's evolution—from a Partition-era force handicapped by colonial manpower policies and institutional losses to a modern, self-reliant maritime power—highlights how early structural disadvantages ultimately shaped India's long-term commitment to indigenization, leadership autonomy, and strategic maritime responsibility.

The Indian Navy has undergone a phoenix-like resurgence from post-colonial constraints—emerging from dependency as a "buyer's navy", reliant on foreign platforms, to a self-sufficient "builder's navy", that echoes its pre-colonial maritime prowess, exemplified by the Chola Empire's thalassocratic fleets navigating distant seas in sturdy teak vessels. Transitioning from a 'brown-water' orientation confined to coastal and littoral defence, it has ascended to "blue-water" capabilities, enabling power projection across expansive domains from the Persian Gulf to the South China Sea.

This book's chapters dive into India's Blue Water Navy—a strong, united, reliable, and self-made force. They cover mighty destroyers, frigates, and corvettes; jets like MiG-29K from carriers; helicopters hunting subs; and stealthy submarines like INS *Arihant*. From the 1971 Karachi strike and disaster rescues to guarding coasts and training with friendly navies, it highlights India's sea power in the Indo-Pacific.

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Part I
Wars and Operations

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Chapter 1

The Liberation of Goa

Operation Vijay and Operation Chutney, 1961

Four Centuries of Colonial Dominance

The Portuguese colonial presence in Goa began with Afonso de Albuquerque's conquest of the territory in 1510,[1] establishing what would become one of the longest-lasting European colonial centres in Asia. Unlike other European powers which initially arrived as traders and gradually assumed political control, the Portuguese, on reaching India, immediately tried to establish themselves as both commercial monopolists and territorial rulers, claiming divine authority across the seas under the legitimacy of Papal Bull.[2] This marked the beginning of over four-and-a-half centuries of colonial administration that would fundamentally transform the social, cultural, and economic fabric of the region.

The economic foundation of Portuguese colonial rule rested on monopolistic control of maritime trade routes, particularly the lucrative spice trade. Portuguese merchants established extensive trading networks connecting European markets with Asian suppliers, using Goa as the primary hub for transshipment of goods between the East and the West. However, Portuguese commercial dominance began declining significantly during the 18th century due to their rigid religious policies, corrupt administrative practices, and inability to compete effectively with Dutch, English, and French trading companies, which offered more favourable terms to local merchants and rulers.

Perhaps the most controversial aspect of Portuguese colonial rule was their systematic policy of cultural assimilation through forced religious conversion, implemented through the infamous Goan Inquisition that operated from 1560 to 1814.[3] This religious tribunal systematically persecuted non-Catholics, destroying temples and mosques while forcibly converting local populations to Christianity. The Inquisition's brutal methods created deep social divisions within Goan society, though it also resulted in a unique cultural synthesis that blended Portuguese and Indian traditions in terms of architecture, cuisine, music, and religious practices.

The Portuguese colonial system created a complex demographic composition by 1960, with a population of nearly 600,000 people

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predominantly of Indian origin, following both Hinduism and Christianity. This religious diversity reflected the limited success of Portuguese conversion policies, as substantial Hindu populations persisted, particularly in the interior regions. The linguistic landscape demonstrated similar complexity, with most Goans speaking Konkani with Portuguese linguistic influences, though Portuguese remained the official language spoken by only approximately three per cent of the population.

Portuguese military organization in Goa relied primarily on European troops, supplemented by local recruits and soldiers brought from Portuguese colonies in East Africa. The colonial army maintained strategic fortifications at key locations including Mapuçá (Mapusa), Bicholim, Ponda, and other important towns, supported by artillery companies equipped with modern howitzers and coastal defence batteries protecting major harbours. Portuguese naval forces consisted of small patrol vessels and frigates that maintained communications between Goa, Daman, and Diu while conducting surveillance of surrounding Indian territorial waters.

By the mid-20th century, Portuguese colonial administration in Goa had become increasingly anachronistic, maintaining authoritarian control through extensive police surveillance and restrictions on civil liberties. The colonial government prohibited political organizations, censored publications, and restricted movement between Portuguese territories and independent India. This repressive system created growing resentment among the local population, who witnessed India achieving independence and modernization while Goa remained under colonial control, setting the stage for the liberation struggle that would culminate in Operation Vijay.

The Freedom Movement: From Satyagraha to Armed Resistance

The movement for Goa's liberation from Portuguese colonial rule evolved from peaceful civil resistance into an organized struggle, developing unique characteristics shaped by Goa's geographic isolation and Portuguese authoritarian control. Unlike British India, where mass movements mobilized millions, Goan freedom fighters faced extraordinary challenges in organizing resistance within a small, heavily policed colonial enclave where Portuguese authorities maintained strict surveillance and severely punished anti-colonial activities.

Early Goan nationalism emerged during the late 19th and early 20th centuries, influenced by the broader Indian independence movement and modern education among Goan elites who increasingly questioned Portuguese colonial authority. The formation of the Goa National Congress in 1928 by Tristao de Braganca Cunha marked a significant turning point. It adopted non-violence as its creed and conducted peaceful propaganda to mobilize public opinion inside and outside Goa.[4]

India's independence in 1947 fundamentally transformed the context of the liberation struggle, eliminating British rule while leaving Portuguese enclaves as isolated colonial remnants surrounded by independent Indian territory. Prime Minister Jawaharlal Nehru initially adopted a patient diplomatic approach, believing international pressure and peaceful negotiations would eventually convince Portugal to voluntarily transfer sovereignty. The Government of India closed land routes between Indian and Portuguese territories, imposed economic restrictions, and appealed to the United Nations to pressure Portugal into decolonization.[5]

However, Portuguese dictator António de Oliveira Salazar refused to compromise, declaring that Goa, Daman, and Diu were integral parts of metropolitan Portugal rather than colonies. Salazar's authoritarian Estado Novo[6] regime viewed overseas territories as essential to Portuguese national identity, making territorial concessions politically unacceptable regardless of international pressure.

The liberation movement intensified during the 1950s as peaceful methods proved ineffective. The formation of the Azad Gomantak Dal and other resistance organizations marked a shift towards militant tactics, with freedom fighters conducting raids into Portuguese territory, distributing nationalist literature, and organizing demonstrations despite severe Portuguese repression.

The Satyagraha movement of 15 August 1954 represented the most significant organized peaceful resistance, as thousands of Indian volunteers crossed into Goan territory conducting nonviolent civil disobedience inspired by Mahatma Gandhi's methods. Portuguese security forces responded with extreme violence, opening fire on unarmed demonstrators, resulting in a number of deaths. This brutality generated widespread international condemnation and strengthened Indian public opinion favouring direct action.

The liberation of Dadra and Nagar Haveli enclaves in July-August 1954 by volunteers of the United Front of Goans marked the beginning of the end of Portuguese colonial rule in India. The International Court of Justice at The Hague ruled in April 1960 that India's refusal to allow Portuguese armed forces passage through Indian territory to these liberated enclaves was legal, effectively confirming their independence.

By late 1961, mounting Portuguese provocations including unprovoked firing on Indian merchant vessel *Sabarmati* on 17 November and the fatal shooting of Indian fishermen in 20 boats on 24 November from Anjadip Island led to the final crisis. Speaking at a public meeting on 1 December 1961, Prime Minister Nehru declared, "We cannot tolerate such acts. We will take the necessary steps at the right time," signalling India's resolve to end Portuguese colonialism through military action if necessary.[7]

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Geopolitical Scenario at the Time[8]

The geopolitical landscape in the early 1960s was characterized by the Cold War, decolonization movements across Asia and Africa, and shifting alliances. India, having gained independence in 1947, was navigating its path in a world divided between the United States and the Soviet Union.

Cold War Context

The global rivalry between the US and the USSR influenced the foreign policies of many nations, including India. India sought to maintain a non-aligned stance, advocating for peaceful coexistence, and supporting anti-colonial movements. However, the presence of Portuguese colonies in India presented a unique challenge, as Portugal was a NATO member, aligned with the West.[9] The Cold War context also meant that any military action taken by India could have repercussions on its international standing. India was keenly aware of the need to justify its actions to the global community, particularly to avoid alienating potential allies. The Indian government emphasized that the liberation of Goa was a necessary step to end colonial rule and restore the rights of the Goan people.

Decolonization Movements

The post-World War II era saw a wave of decolonization, with many countries in Asia and Africa gaining independence from European powers. This trend put pressure on colonial nations, including Portugal, to relinquish their overseas territories. India's push for the liberation of Goa aligned with this broader movement, as it reflected the aspirations of colonized peoples for self-determination. The decolonization process was often fraught with conflict, as colonial powers resisted relinquishing control. In many cases, nationalist movements resorted to armed struggle to achieve their goals. The situation in Goa was no different, as the Goan Liberation Movement sought to mobilize support for armed resistance against Portuguese rule.

Regional Dynamics

The liberation of Goa was also influenced by regional dynamics. Neighbouring countries, particularly Pakistan, were closely monitoring India's actions, given the historical tensions and conflicts between the two nations. The Indian government was acutely aware of the potential repercussions of military action in Goa on its relations with Pakistan and other regional powers. India's decision to liberate Goa was also influenced by its desire to assert itself as a regional power. The successful liberation of Goa would not only enhance India's territorial integrity but also bolster its standing in the international community as a champion of anti-colonialism.

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International Reactions

The planned military operation faced a potential diplomatic backlash. Countries with historical ties to Portugal, including the United States and the United Kingdom, expressed concern over India's intentions. However, India justified its actions by emphasizing the need to end colonial rule and restore the rights of the Goan people. The international community's response was mixed. While some nations condemned India's military action, others recognized the legitimacy of India's claims and supported its efforts to liberate Goa. The Indian government worked diligently to garner support from non-aligned nations and sought to frame the operation as a necessary step in the global struggle against colonialism.

Support from the Soviet Union

As India prepared for military action, it received tacit support from the Soviet Union,[10] which was keen to expand its influence in South Asia. The USSR's backing provided India a degree of confidence, as it signalled that India would not face significant opposition from one of the major global powers. The Soviet Union viewed India's actions as aligned with its own anti-colonial agenda and was eager to support nations seeking to assert their sovereignty.

Impact of the Suez Canal Closure

The geopolitical context was further complicated by events surrounding the Suez Canal. The Suez Crisis of 1956 had resulted in the canal's temporary closure, which significantly impacted global maritime trade and military logistics.[11] Although the canal reopened in March 1957, the tensions surrounding its control continued to affect naval operations. The crisis underscored the declining influence of European colonial powers and the rise of nationalist movements, which resonated with India's objectives in Goa. The geopolitical instability created by the Suez Crisis allowed India to act decisively in Goa, as European powers were preoccupied with their own challenges and less able to respond to India's military actions. The closure of the canal had demonstrated the vulnerability of maritime routes and the importance of securing strategic chokepoints, further emphasizing the need for India to assert control over its territorial waters.

Operation by Indian Navy[12]

Action Plan

The Indian Navy's role in Operation Vijay encompassed establishing complete maritime control around Portuguese territories, preventing external reinforcement, conducting amphibious operations, and providing naval gunfire support for land forces. The Chief of Naval Staff, Vice Admiral

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R.D. Katari, appointed Vice Admiral B.S. Soman as Flag Officer Commanding Indian Fleet (FOCIF)[13] to command the Naval Task Force responsible for all maritime operations.

Naval planning divided operational forces into two principal groups: the Surface Action Group and the Carrier Task Group, each with distinct missions supporting the overall operational objectives. The Surface Action Group comprised INS *Mysore*,[14] a cruiser, and frigates INS *Betwa*, INS *Beas*, and INS *Trishul*—assigned to operate directly off Goa and Anjadip Island. The Carrier Task Group included aircraft carrier INS *Vikrant*,[15] cruiser INS *Delhi*, three frigates—INS *Khukri*, INS *Kuthar*, and INS *Kirpan*—and destroyer INS *Rajput*. Two additional groups were also part of the Task Force, namely Minesweeping Group comprising the minesweepers *Karwar*, *Kakinada*, *Cannanore* and *Bimlipatam*, and the Support Group with one ship, *Dharini*.[16]

For the action at Goa, the Naval Task Force was to enforce a blockade of the ports of Marmagao and Panjim,[17] neutralize the coast batteries defending these ports, and sink or immobilize units of the Portuguese Navy deployed inside the Goa harbour or patrolling its sea approaches. An amphibious operation by the Army, i.e., landing of troops, was ruled out as the required number of assault craft was not available, the troops deployed had not been trained in amphibious operations, there was no time available for such training, and it was felt that such an operation did not offer any particular tactical advantage.

For capturing Daman, the 1st Maratha Light Infantry was to enter the territory from the direction of Vapi, capture the airfields north of Daman town and then capture the town itself. The Navy was to enforce a blockade in the entire sea area off Daman and prevent the ingress and egress of all vessels.

In the absence of assault craft for the capture of Diu, which is separated from the mainland by a narrow creek, a battalion of 20th Battalion of the Rajput Regiment was to cross the creek on improvised rafts and land on the north of the island during the night preceding the operation, move south-east and capture the airfield and then move eastwards and capture the town and fort of Diu. One company of 4th Battalion of the Madras Regiment was to capture Gogla, which is north-east of the citadel of Diu, before the landing by Rajput battalion and to provide covering fire to the troops attacking the fort from the west. The requirement of air support was considered minimal and so only one aircraft was positioned at Jamnagar for the purpose. The Navy was to provide adequate support by deploying a cruiser off the island so that it could provide naval gunfire support to the Army, neutralize the fort and citadel, if necessary, and land an assault or occupation force, if required.

The island of Anjadip was to be captured by the Navy by landing a naval assault force after softening up the island beaches with close range weapons and then providing adequate gunfire support to the assault force.

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The Navy was also to deploy its carrier task group in order to be able to use Alize and Seahawk aircraft to carry out reconnaissance of the sea area off Bombay, to prevent any Portuguese warships from coming within the gun range of Bombay or approaching the Indian coast anywhere else, to carry out strikes on Portuguese warships breaking through the patrol line off Goa or as required by the Flag Officer Commanding the Indian Fleet, to carry out searches of specific sea areas and to provide necessary naval air support to the Army in all the three sectors.

The task of conducting maritime air reconnaissance and providing integral air support to the Navy was assigned to the Air Force and was to be carried out from the Navy's maritime operations room at Bombay. An officer from the Air Force was placed at the headquarters of the Flag Officer, Bombay (FOB, the earlier incarnation of the FOCINC, WNC, or Flag Officer Commanding-in-Chief, Western Naval Command) for coordinating maritime reconnaissance operations and two officers were positioned on board *Mysore* and *Delhi* for advising, controlling and directing Air Force strikes against targets in the Goa and Diu sectors and for surveillance of the tactical areas.

The Assault on Anjadip Island

The capture of Anjadip Island on 18 December 1961 represented the Indian Navy's most significant independent amphibious operation during Operation Vijay. This small yet strategically vital island, located eight kilometres southwest of Karwar, had served as a Portuguese outpost for centuries. Its capture required meticulous planning, exceptional courage under fire, and demonstrated the Indian Navy's growing capability in combined arms operations. The operation would be marked by both Portuguese treachery and extraordinary valour by Indian naval personnel.

Preparation and Planning

The Anjadip assault had its genesis in early November 1961, when a naval landing platoon was formed at INS *Venduruthy* in Cochin under the command of Lieutenant Arun Auditto. Initially presented as a demonstration unit for Navy Week celebrations, the 75-man force consisted primarily of young Seaman Gunners fresh from the Boys Training Establishment, supplemented by a specialized demolition section of TAS (Torpedo Anti-Submarine) sailors. The platoon faced significant challenges as the personnel had limited weapons training and were equipped only with their standard naval blues, lacking proper field equipment.

Lieutenant Auditto recognized these deficiencies and successfully advocated for intensive field training, practical weapons firing, and the provision of khaki uniforms and field dressings. After weeks of rigorous preparation including weapons training, grenade-throwing exercises,

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and disembarkation drills using scrambling nets,[18] the platoon achieved operational readiness. On 16 December 1961, the landing party embarked aboard INS *Trishul* at Cochin and sailed to join the fleet assembling off Karwar.

The Tactical Plan

On the evening of 17 December, Rear Admiral B.S. Soman, the Task Force Commander, transferred from INS *Mysore* to INS *Trishul* to finalize the assault plan with Captain K.L. Kulkarni, the frigate's Commanding Officer, and Lieutenant Auditto. Initial planning proposed landing at the main northeastern beachhead near the garrison.

Lieutenant Auditto challenged this approach, arguing that landing in open boats directly before heavily defended positions would prove suicidal. He recommended an alternative landing site approximately three kilometres south of the garrison, which, despite being surrounded by thickly wooded terrain of the central plateau, would provide tactical surprise and reduce initial exposure to enemy fire. Rear Admiral Soman endorsed this modification, recognizing that the officer commanding the landing party possessed the best judgment of tactical conditions.

The revised plan called for pre-dawn beach preparation using *Trishul's* 40-mm Bofors[19] guns, followed by a two-wave landing. At 0500 hrs on 18 December 1961, all hands were called aboard *Trishul*. The landing platoon mustered in the ship's antisubmarine mortar well, where Lieutenant Auditto briefed his men on tactical deployment. Each sailor received a tot of brandy as they waited in anticipation. As dawn broke over the tropical blue sky, *Trishul* steamed into Binge Bay and commenced a brief bombardment of the area surrounding the southern beach, carefully avoiding all structures. The entire island appeared deathly still, with no lights or personnel movement visible.

At approximately 0715 hrs, the first wave departed *Trishul* in the ship's cutter, landing unopposed on the southern beach. The boat returned to collect the second wave. At approximately 0745 hrs, as the second wave approached the beach under Senior Commissioned Gunner Noel Kelman's command, Portuguese machine-gun positions opened heavy fire on the approaching boat from a pillbox on the south hilltop. Senior Commissioned Gunner Kelman sustained wounds on both thighs, while several sailors were killed or grievously wounded.

Able Seaman Jaswant Singh Bawa, serving as Bren Gunner in the boat's bow, was among the first to be wounded. He was shot through the right ankle, but despite the injury he remained at his post, returning accurate and effective covering fire against the Portuguese positions ashore. Bawa's actions disrupted enemy fire accuracy and contributed significantly to preventing even greater casualties among the landing party.

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INS *Trishul* immediately responded to the attack, engaging the Portuguese machine-gun emplacement with 40-mm Bofors fire. Captain Kulkarni maneuvered the frigate to the centre of Binge Bay and commenced bombardment with 4.5-inch high-explosive shells and 40-mm guns, carefully directing fire into the woods behind buildings on the eastern beaches to avoid hitting the landing party. After approximately five minutes, the naval gunfire silenced the Portuguese position. INS *Mysore* simultaneously engaged other enemy concentrations with its 40-mm Bofors guns and deployed its own landing party to establish communications links.

By noon, the force approached the area overlooking the garrison but faced an exposed 200-yard crossing with minimal cover. At this critical juncture, the landing party established walkie-talkie communications with *Trishul*. The frigate informed Auditto that INS *Mysore* had landed an additional party on the beach. By approximately 1600 hrs, Indian forces reached the garrison area.

After both landing parties withdrew to the southern beaches, a coordinated naval bombardment was executed with INS *Mysore* engaging from the southwest and INS *Trishul* from the southeast. Recognizing the futility of further resistance, Portuguese forces began emerging from their positions with hands raised, one soldier waving a white cloth in surrender. Indian personnel surrounded the barracks and northern church, taking custody of 35 Portuguese soldiers who surrendered without resistance. Throughout the day's operations, several sailors distinguished themselves through extraordinary valour.

Following the initial surrender, mopping-up operations continued through 18 December, apprehending additional Portuguese troops and local sympathizers. At 1425 hrs, the Indian Tricolour was hoisted atop the flagstaff on Anjadip Island, symbolizing the end of Portuguese sovereignty. The operation concluded successfully despite the difficult terrain that complicated tactical maneuvers.

Lieutenant Arun Auditto was awarded the Naosena Medal (NM) for exceptional devotion to duty, with his citation noting that he "conducted land-fighting operations with imagination, vigour and determination" despite having no previous jungle warfare experience. His "calmness and courage inspired the officers and men under his command to go forward in the face of stiff opposition to final victory."[20]

The liberation of Goa involved multiple coordinated naval operations beyond the initial Anjadip assault. The establishment of communications ashore, the neutralization of Portuguese naval forces, and the systematic mopping-up of the remaining resistance demonstrated the Indian Navy's operational versatility and professional execution of complex missions under combat conditions.

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The Communications Team Lands

Commander A.F. Collaco, a communications specialist serving as Fleet Operations Officer aboard INS *Mysore*, volunteered to lead a communications team ashore to establish contact with Lieutenant Auditto's beleaguered landing party on Anjadip Island. As a Goan with knowledge of Portuguese, Collaco was considered ideal for communicating with Portuguese forces and interrogating prisoners if required. His actions during the operation would earn him a Mention in Dispatches.

When the first landing party's wireless equipment failed and the second wave sustained heavy casualties from Portuguese fire, Rear Admiral B.S. Soman, Flag Officer Commanding Indian Fleet, found himself without communications from either force. Observing approximately ten men from the second landing party still pinned down on the beach, Commander Collaco proposed leading a communications team ashore to establish contact and determine the tactical situation. Despite initial reluctance, given the dangers evident from the blood-soaked boat that had returned with casualties, Rear Admiral Soman approved the mission.

Commander Collaco assembled a volunteer team consisting of two wireless operators with backpack radios and two signals sailors with portable Aldis signalling lamps.[21] A Squadron Leader from the Indian Air Force serving as Defence Public Relations Officer aboard *Mysore* requested permission to accompany the party with a cameraman, which Admiral Soman granted.

The communications party reached ashore under difficult conditions, negotiating rocks and ongoing fire. Finding Senior Commissioned Gunner Kelman dazed from his wounds, Commander Collaco assumed command of the remaining second landing party personnel while Kelman returned to the ship with the wounded. The fire had decreased sufficiently to allow movement, and Collaco's team began advancing to higher ground in a single file while maintaining constant wireless contact with both *Trishul* and *Mysore*.

Moving along a narrow two-foot-wide path, Collaco glimpsed lighter-complexioned skin approximately fifty feet ahead. Drawing his handgun for the first time in combat, he fired and dove left, as did the Squadron Leader and one sailor. The fourth member, Able Seaman R. Singh, failed to react quickly enough and received a fatal bullet wound in the stomach. Attempts to recover Singh proved futile as the path remained under fire from both sides. The wounded sailor gradually moved further right and fell down the steep hillside, where he lay dying, unseen by his comrades.

After this stalemate, Commander Collaco successfully established contact with Lieutenant Auditto's party and served as communications relay between the landing force and *Trishul*. When Auditto requested naval gunfire support, Collaco directed the frigate's fire with precision. The spectacle of

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Trishul firing from seaward, Portuguese soldiers fleeing toward buildings, and trees being uprooted by accurate naval gunfire combined scenic beauty with deadly effectiveness. By 1500 hrs, the engagement concluded with Portuguese surrender. Lieutenant Auditto returned to *Trishul* while Collaco's party remained ashore to coordinate mopping-up operations. They found R. Singh, but he died en route to Karwar despite receiving immediate medical attention.

Fig 1.1: Memorial at Anjadip Island



Source: Naval History Division, Indian Navy

Portuguese Capitulation and Immediate Aftermath

Following concentrated naval bombardment and surrounded by Indian forces, Portuguese defenders recognized the futility of continued resistance. Emerging from their positions with hands raised near the northern church, the garrison formally surrendered. Lieutenant Commander M.N. Neogi, *Trishul's* Supply Officer, led an armed party ashore with a megaphone to accept the formal capitulation and to secure the prisoners.

By approximately 1400 hrs on December 18, Indian forces had swept the island from south to north and hoisted the national flag at the flagstaff point. Both *Mysore* and *Trishul* anchored in Binge Bay while additional personnel landed with food, water, and supplies. A muster revealed three personnel missing, prompting an immediate reconnaissance despite

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approaching darkness. The sweep recovered all three individuals—seven Indian sailors had been killed and numerous others wounded. Portuguese casualties included one confirmed dead and one missing person.

Destruction of Portuguese Frigate *Afonso de Albuquerque*[22]

While operations progressed on Anjadip, a separate naval action unfolded off Marmagao that would eliminate Portuguese naval resistance entirely. Under Operation Chutney, INS *Betwa* (Commander R.K.S. Ghandhi), INS *Beas* (Commander T.J. Kunnenkeril), and INS *Cauvery* (Lieutenant Commander S.V. Mahadevan) maintained patrol stations off the Goan coast throughout early December 1961.

The Portuguese frigate *Afonso de Albuquerque*, a 1,788-ton vessel armed with four 4.7-inch guns, two 3-inch anti-aircraft guns, eight 20-mm anti-aircraft guns, and four depth-charge throwers, had been moving between Anjadip and Marmagao carrying supplies and reinforcements for the garrison. On the morning of December 18, the 27-year-old frigate lay anchored in Marmagao harbour and shot anti-aircraft rounds at Indian Air Force planes. *Betwa* moved in to engage with *Albuquerque*.

At approximately 1215 hrs, as *Albuquerque* became visible through numerous merchant ships anchored in the harbour at a range exceeding 7,000 metres, Commander Ghandhi signalled by light: "Please surrender or I open fire." The Portuguese frigate responded: "Wait." Commander Ghandhi had already resolved not to delay. After precisely three minutes measured on his wristwatch, he gave the order: "Open fire!"

Betwa's second broadside scored a direct hit on *Albuquerque's* anti-aircraft gun director, which toppled onto the main director. Shrapnel killed two Portuguese sailors and wounded the then Captain, later Commodore, Antonio da Cunha Aragao. *Albuquerque* immediately slipped its cable, turned towards the harbour exit, and commenced firing at *Betwa* and *Beas*. Its fire proved furious but erratic, falling predominantly short, though one shell landed barely 25 yards beyond *Betwa's* bow.

Betwa's gunnery, particularly the high-explosive variable-time (HE/VT) shells,[23] proved devastating. The VT fuses detonated at close proximity to the target, creating a shrapnel cloudburst over *Albuquerque*. Taking shelter among merchant vessels, thereby creating potential danger of collateral damage, *Albuquerque* continued engaging the Indian frigates instead of exiting the harbour for open-water combat.

The engagement lasted approximately ten minutes. *Beas* and *Cauvery* joined the action, the latter delivering the coup de grâce with accurate 4-inch salvoes. *Albuquerque*, burning amidships and severely damaged, hoisted an oversized white flag, turned back into the harbour, and beached itself off Dona Paula jetty. Through binoculars, Commander Ghandhi observed Portuguese sailors abandoning ship. He ordered a ceasefire and signalled

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Naval Headquarters that *Albuquerque* had been destroyed and lay beached in Marmagao harbour.

The Capture of Diu

On the morning of 18 December 1961, Indian Army forces attempted to enter Diu but encountered determined Portuguese resistance. The Air Force and Navy received orders to neutralize all enemy vessels and soften Portuguese defences. As planned, INS *Delhi* arrived at a position 16 km off Diu at 0330 hrs, awaiting H-Hour scheduled for 0400 hrs to commence operations.

Captain N. Krishnan, who had been Commanding Officer of INS *Shivaji*, the Naval Mechanical Training Establishment at Lonavala, received orders from Admiral R.D. Katari to assume command of the cruiser INS *Delhi*. Within an extraordinarily compressed timeframe of seven days, *Delhi* was stored, ammunitioned, fueled, and declared fully operational, a remarkable achievement requiring round-the-clock work by the ship's company. The enormity of embarking a full wartime outfit of ammunition in a cruiser, which normally requires a minimum of three days, was accomplished in under twenty hours through extraordinary dedication and effort.

Opening Engagement

At approximately 0430 hrs on D-Day, *Delhi's* radar detected two echoes closing in at high speed. Tracking the contacts carefully until they approached within five miles, *Delhi* opened fire at 0515 hrs, first illuminating them with star shells. The targets were identified as shore patrol craft.[24] When challenged and ordered to surrender, both craft attempted to escape towards the harbour at high speed. *Delhi* engaged immediately, sinking one patrol craft almost instantly. The second craft retreated towards the harbour.

As dawn broke, Captain Krishnan observed that Diu Island was relatively flat with open beaches. At the eastern end, where Indian Army forces were to cross, stood an elevated ground crowned by a solidly constructed citadel from which Portuguese artillery had opened fire, offering stiff resistance and inflicting heavy casualties on converging Indian forces.

The Army liaison officer onboard *Delhi* communicated with forces ashore. The battalion commander reported that accurate, heavy fire from the citadel was halting the Indian attack and causing significant casualties. *Delhi* decided to close in on the shore in order to provide support to the Army.

In bright daylight, *Delhi* enjoyed a commanding view of shore operations. *Delhi* signalled the citadel's watchtower: "Strike your flag immediately and surrender." Receiving no response, *Delhi* opened fire with all six of its six-inch guns. The deafening broadside proved terrifying at the receiving end. The first salvo found its target and the entire lighthouse lifted

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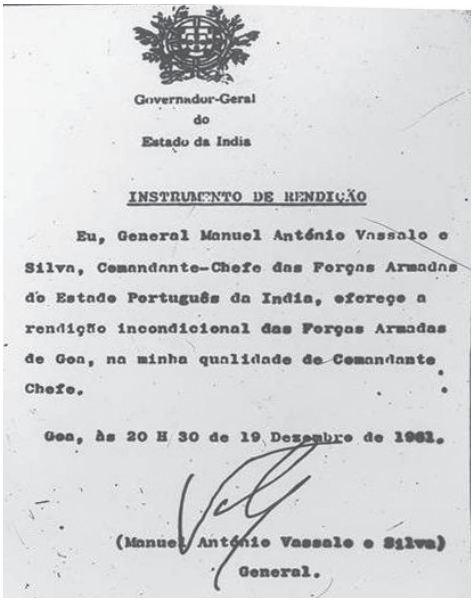
into the air and disintegrated. Fifteen minutes later, the Portuguese flag came down, replaced by a white surrender flag.

Surrender and Complications

Following *Delhi's* bombardment, the Army reported neutralization of Portuguese resistance, white flag display at the citadel, and their advance to accept formal surrender. *Delhi* was asked to send a naval representative to witness the surrender ceremony before proceeding to hoist the Indian flag at the citadel. When the landing party arrived ashore and marched into the fort, they discovered the Indian Army had not yet arrived. The Portuguese, having genuinely surrendered, had laid down arms and congregated in one location. Thus, the Indian Navy became the first to reach and take over the citadel, with Sub-Lieutenant Suresh Bhandoola hoisting the Indian Tricolour at the flagstaff.

Fig 1.2: Instrument of surrender signed by General Vassalo e Silva



Governador-Geral
do
Estado da India

INSTRUMENTO DE RENDIÇÃO

Eu, General Manuel António Vassalo e Silva, Comandante-Chefe das Forças Armadas do Estado Português da India, ofereço a rendição incondicional das Forças Armadas de Goa, na minha qualidade de Comandante Chefe.

Goa, às 20 H 30 de 19 Dezembro de 1961.

(Manuel António Vassalo e Silva)
General.

Source: Naval History Division, Indian Navy

When the Army arrived and formal surrender was signed, Lieutenant B.S. Ahluwalia informed the Portuguese that *Delhi* still needed to hoist the flag at the southern fort. The senior Portuguese officer became alarmed, revealing that contrary to intelligence, the fort was not deserted but held approximately ten Portuguese soldiers, and the intended landing beach was heavily mined. Any landing party approaching via that beach would be

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"blown to smithereens". Having no communication with the fort, it was decided that an Indian Army platoon accompanied by a Portuguese officer would approach from landward, with the officer verbally conveying the surrender to avoid unnecessary bloodshed.

By 19 December evening, Panikota Island,[25] located 16 km east-northeast of Diu and secured by a Portuguese-manned fort, had also been captured, yielding one Portuguese officer and twelve soldiers as prisoners.

Challenges Faced

Despite the successful execution of Operation Vijay, several challenges were encountered. They included:

Logistical Issues: Coordinating the movement of troops and supplies across the Arabian Sea posed logistical challenges, particularly in ensuring that forces were adequately equipped. The Indian military had to ensure that troops were supplied with food, ammunition, and medical support throughout the operation.

Intelligence Gaps: Initial intelligence on Portuguese defences was limited, requiring rapid adjustments to the operational plan as new information became available. The Indian military had to rely on reconnaissance missions to gather information on enemy positions and capabilities.

Civilian Safety: Ensuring the safety of Goan civilians during the operation was a priority, necessitating careful planning to minimize collateral damage. The Indian military took measures to avoid civilian casualties, emphasizing the need to protect the local population during the conflict.

International Reactions: The operation drew criticism from various international quarters, particularly from countries that had historical ties with Portugal, necessitating diplomatic efforts to justify India's actions. The Indian government worked to frame the operation as a necessary step in the global struggle against colonialism, seeking to garner support from non-aligned nations.

Post-Conflict Governance: Following the liberation of Goa, the Indian government faced the challenge of integrating the territory into the Indian Union. This involved addressing the concerns of the local population, many of whom had mixed feelings about the transition from Portuguese to Indian rule. The Indian government implemented measures to ensure a smooth transition and promote stability in the region.

Lessons Learned

The liberation of Goa provided several key lessons for the Indian military:

Importance of Joint Operations: The success of Operation Vijay underscored the effectiveness of joint operations between the Navy, Army, and Air Force, highlighting the need for continued integration and

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coordination among the services. The operation demonstrated that a unified approach could lead to rapid and decisive outcomes in military engagements.

Need for Preparedness: The operation emphasized the importance of being prepared for rapid military action in response to geopolitical challenges, reinforcing the need for a well-equipped and trained military. The Indian military recognized the necessity of maintaining readiness to respond to potential threats to national security.

Intelligence Gathering: The challenges faced in gathering accurate intelligence highlighted the necessity for improved reconnaissance and intelligence capabilities in future operations. The Indian military invested in enhancing its intelligence-gathering capabilities to ensure better situational awareness in future conflicts.

Civil-Military Relations: The operation demonstrated the importance of maintaining positive civil-military relations, particularly in post-conflict scenarios, to ensure stability and governance in liberated regions. The Indian government recognized the need to engage with local populations and address their concerns to foster a sense of belonging and integration.

Diplomatic Engagement: The international response to the operation highlighted the importance of diplomatic engagement in the aftermath of military actions. The Indian government learned the value of proactively communicating its objectives and justifications to the global community to mitigate potential backlash.

Conclusion[26]

The liberation of Goa stands as a significant chapter in India's history, symbolizing the end of colonial rule and the assertion of national sovereignty. The operation showcased the Indian Navy's maturation as a three-dimensional force capable of integrated amphibious operations, surface warfare, and carrier-based air power projection. The successful execution of Operation Vijay demonstrated the effectiveness of the Indian military and the importance of joint operations in achieving strategic objectives.

The geopolitical context of the time, marked by the Cold War and decolonization movements, played a crucial role in shaping India's actions. The lessons learned from the operation continued to inform India's military strategy and diplomatic engagements in the years that followed.

As India moved forward, the liberation of Goa served as a reminder of the importance of self-determination and the struggle against colonialism. The integration of Goa into the Indian Union not only strengthened India's territorial integrity but also reinforced its commitment to supporting anti-colonial movements worldwide. The legacy of the liberation of Goa remains a source of pride for the Indian people, symbolizing their resilience and determination in the face of colonial oppression.

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Notes

1. Albuquerque led two campaigns for the conquest of Goa. He first took control of the region in February 1510, but was forced to withdraw. He succeeded in his second attempt in December 1510.
2. The papal bull Romanus Pontifex (1455) granted Portugal monopoly over newly discovered territories and authorized conquest in the name of Christianity.
3. Rear Admiral Satyindra Singh, *Blueprint to Bluewater: The Indian Navy 1951-65*, Lancer Publishers, New Delhi, 1992, p. 344. The Goan Inquisition was requested by St. Francis Xavier in 1546, and it was formally established in 1561. It was another manifestation of the Spanish Inquisition, which was established in 1478 and abolished in 1834. The Goan Inquisition has been described in the historical novel *Guardian of the Dawn* by Richard Zimler, who called it the "machinery of death".
4. Tristão de Bragança Cunha (1891–1958) was a Goan nationalist who established the Goa National Congress in exile in Bombay (Mumbai) since political organizations were banned in Portuguese Goa. He advocated peaceful methods inspired by Mahatma Gandhi's non-violent resistance philosophy.
5. Singh, *Blueprint to Bluewater*, p. 345.
6. Estado Novo (New State) refers to Portugal's authoritarian corporatist regime (1933–74) that viewed overseas territories as integral parts of Portugal.
7. Singh, *Blueprint to Bluewater*, p. 351.
8. Liberation of Goa, Naval History Division archives.
9. Portugal was a founding member of NATO (North Atlantic Treaty Organization), having signed the treaty in 1949. This created diplomatic tensions as India was non-aligned but Operation Vijay targeted a Western alliance member.
10. Soviet Premier Nikita Khrushchev's government supported India's position on Goa and subsequently used its veto power in the UN Security Council on 18 December 1961 to block a Western-backed resolution demanding Indian withdrawal. The Soviet support proved crucial in preventing international intervention to reverse the liberation.
11. The Suez Crisis (29 October–7 November 1956) occurred when Britain, France, and Israel invaded Egypt following President Nasser's nationalization of the Suez Canal. The crisis demonstrated declining European imperial power when both the United States and Soviet Union opposed the invasion, forcing Anglo-French withdrawal. This emboldened anti-colonial movements globally.
12. Liberation of Goa, Naval History Division archives.
13. FOCIF was the senior operational command responsible for all deployed naval forces during operations.
14. INS *Mysore* was a light cruiser, originally HMS *Nigeria*, commissioned into the Royal Navy in 1940. It was acquired by India in 1957.
15. INS *Vikrant* (formerly HMS *Hercules*) was commissioned into the Indian Navy on 4 March 1961, mere months before Operation Vijay. It operated Hawker Sea Hawk fighter-bombers and Breguet Alizé anti-submarine aircraft, and represented India's emergence as a carrier-capable blue-water navy.
16. Singh, *Blueprint to Bluewater*, pp. 361–62.
17. Marmagao (now Mormugao) was Goa's principal deepwater port and naval base, capable of accommodating large vessels. Panjim (now Panaji) was the administrative capital with smaller harbour facilities. Blockading both ports prevented Portuguese reinforcement by sea and isolated the colonial garrison from external support.

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18. Scrambling nets are rope nets hung over a ship's side, allowing personnel to climb down to small boats or climb up from the water. Essential for amphibious operations, they require practice to be used safely by personnel carrying weapons and equipment, particularly in rough seas or under fire.
19. The Bofors 40mm L/60 automatic anti-aircraft gun, designed in Sweden in the 1930s, became one of history's most successful naval weapons. Capable of firing 120 rounds per minute to ranges exceeding 7,000 metres, these guns provided effective close-in fire support for amphibious operations.
20. Gallantry awardees associated with the operation include Senior Commissioned Gunner N. Kelman, who received the Ashoka Chakra Class II (Kirti Chakra); Chief Petty Officer Gunnery Instructor Ali Mohammed who received the Ashoka Chakra Class III (Shaurya Chakra); Ordinary Seaman Bechan Singh and Ordinary Seaman Vijendra Pal Singh Tomar who received posthumous awards of Ashoka Chakra Class II; Ordinary Seaman Bachan Singh who received a posthumous Ashoka Chakra Class III; and Able Seaman Jaswant Singh Bawa who received the Ashoka Chakra Class III.
    In order of precedence, the Indian gallantry awards include Param Vir Chakra (the highest award), Ashoka Chakra Class I (Maha Vir Chakra), Class II (Kirti Chakra), and Class III (Shaurya Chakra).
21. The Aldis lamp, invented by Arthur C.W. Aldis in 1917, is a visual signalling device using focused light beams to transmit messages. These portable lamps provided backup communications when electronic wireless equipment failed or when radio silence was required.
22. The *NRP* (Navio da República Portuguesa) *Afonso de Albuquerque* was originally HMS *Peony*, launched in 1941 for the Royal Navy. Transferred to Portugal in 1943 and extensively modified, it was named after the Portuguese conqueror of Goa. It was Portugal's most powerful naval asset in Goan waters.
23. VT (Variable Time) proximity fuses detonate shells automatically when near a target, creating a devastating airburst shrapnel effect without requiring direct hits.
24. Portuguese shore patrol craft were small motor launches (MLs) and patrol boats used for harbour defence and coastal surveillance. Lightly armed with machine guns and possibly small-caliber cannon, they posed minimal threat to major warships but could harass landing operations.
25. Panikota (also spelled Panikotha) contained a small Portuguese fort and garrison. Its capture completed the liberation of all Portuguese-held territories in the Diu sector. The fort had been constructed to control sea approaches to Diu and protect against maritime threats from rival powers in previous centuries.
26. Liberation of Goa, Naval History Division archives.

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Chapter 2

The Role of the Indian Navy in The 1962 and 1965 Wars

The 1962 Indo–Sino War represented a critical juncture in India's military history, exposing vulnerabilities in its defence strategy and prompting a revaluation of its naval capabilities. The Indian Navy, while not directly engaged in the land battles along the Himalayan front, played a crucial role in the broader context of national security and maritime defence. This chapter explores the Indian Navy's perspective during the Indo–Sino War, examining its operational readiness, strategic assessments, and the implications of the conflict on India's maritime policy.

Historical Context

India's relations with China had been characterized by a mixture of cooperation and contention since India's independence in 1947. Initially, the two nations shared a vision of non-alignment and mutual respect, particularly in the context of the newly formed Asian solidarity. However, border disputes, particularly over the McMahon Line and Aksai Chin, soon escalated tensions. The 1950s saw increasing friction as both countries asserted their territorial claims, culminating in a series of diplomatic failures.

The war erupted in October 1962, following a series of skirmishes along the disputed borders. China's military actions were swift and decisive, leading to significant territorial gains in both the eastern and western sectors. While the Indian Army bore the brunt of the fighting, the Navy's role became increasingly pertinent as the conflict unfolded. The Navy was tasked with ensuring maritime security, protecting India's coastline, and preparing for potential naval engagements.

Naval Preparedness and Strategic Assessments

Key Concerns: The minutes of the Nineteenth Senior Officer's Conference held on 19-23 November 1963 provide critical insights into the Indian Navy's mindset during this tumultuous period.[1] The officers expressed concerns about the Navy's preparedness and the need for a clear mission in the context of the war.

(a) **Strategic Preparedness:** The conference emphasized the necessity for the Navy to remain prepared for all eventualities. The officers were reminded of their duty to maintain readiness and to consider tactical

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and strategic scenarios that could arise from the ongoing conflict. The acknowledgment of potential Chinese naval activities underscored the need for vigilance in maritime operations.

(b) **Mission-oriented Approach**: The senior officers were urged to adopt a mission-oriented approach, focusing on how each individual could contribute to the Navy's overall objectives. This call for self-reflection aimed to instil a sense of purpose and urgency within the ranks, emphasizing the importance of proactive engagement in their respective roles.

Evolving Naval Strategy: Considering the ongoing conflict, the Navy recognized the need to reassess its strategic priorities. The Nineteenth Senior Officer's Conference, held in November 1963, further elaborated on the Navy's evolving strategy in response to the Indo–Sino War and the changing geopolitical landscape. Key Strategic Directions derived were as follows:

(a) **Strengthening Coastal Defence**: The Defence Minister's inaugural address highlighted the importance of strengthening coastal defences and enhancing maritime power. The Navy was urged to prioritize the development of its capabilities in light of the lessons learned from the Indo–Sino War.

(b) **Ship Replacement and Indigenous Construction**: The conference underscored the urgent need to replace aging ships and to focus on indigenous construction. The recognition that a significant portion of the fleet was over-aged prompted discussions about long-term planning for naval expansion and modernization.

(c) **Acquisition of Submarines**: The need for a submarine arm was identified as a critical area for development. The potential threat posed by neighbouring countries, particularly China and Pakistan, necessitated the establishment of a capable submarine fleet to ensure naval superiority and deterrence.

(d) **Expansion of Dockyard and Repair Facilities**: The conference emphasized the importance of expanding dockyard and repair facilities to support the growing naval fleet. The establishment of new workshops and repair facilities was seen as essential for maintaining operational readiness.

Operational Implications of the War

Naval Exercises and Readiness

The Navy's operational readiness was put to the test during the Indo–Sino War. Prior to the conflict, the Indian Navy had engaged in intensive exercises with Commonwealth navies, which provided valuable experience in maintaining fighting efficiency and battle readiness. However, the war revealed significant shortcomings in the Navy's capabilities.

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(a) **Lack of Submarine Targets**: One of the most pressing issues highlighted during naval exercises was the absence of live submarine targets for anti-submarine training. The potential submarine threat from China and other regional actors underscored the need for the Navy to develop effective anti-submarine warfare capabilities.
(b) **Geopolitical Considerations**: The Navy's strategic assessments recognized the growing naval power of neighbouring countries, particularly China and Indonesia. The expansion of Chinese naval capabilities, including submarines, posed a significant challenge to India's maritime security. The Navy acknowledged that its modest resources would be stretched in attempting to provide a deterrent in the face of these developments.

Maritime Security and Coastal Defence
As the conflict unfolded, the Indian Navy's role in ensuring maritime security and protecting the coastline became increasingly important. The Navy was tasked with monitoring maritime activities and deterring potential incursions by Chinese naval forces.

(a) **Garrisoning Island Territories**: The Navy was entrusted with the responsibility of garrisoning India's island territories, which had previously been taken for granted. The presence of naval forces in these areas was seen as a deterrent against potential Chinese expansionism in the Indian Ocean.
(b) **Protection of Maritime Trade**: The Navy recognized its responsibility to protect maritime trade routes that were vital for India's economic stability. The conflict underscored the need for a robust maritime strategy to safeguard trade interests and ensure the security of shipping lanes.

Reflections on the Indo–Sino War

Lessons Learned
The Indo–Sino War provided critical lessons for the Indian Navy, prompting a re-evaluation of its role within the broader defence framework. The following lessons emerged from the conflict:

(a) **Need for Comprehensive Maritime Strategy**: The Navy recognized the importance of developing a comprehensive maritime strategy that encompassed not only coastal defence but also blue-water operations. The conflict highlighted the necessity for the Navy to operate effectively in the Indian Ocean and to engage in regional maritime security initiatives.
(b) **Investment in Indigenous Capabilities**: The need for indigenous shipbuilding and technological advancements became apparent. The

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Navy acknowledged that reliance on foreign suppliers for critical capabilities could jeopardize national security. Investments in indigenous construction and research and development were deemed essential for building a self-reliant naval force.

(c) **Enhanced Training and Preparedness**: The conflict underscored the need for enhanced training programs to prepare naval personnel for potential future conflicts. The Navy recognized the importance of realistic training scenarios and the need for live exercises to improve operational readiness.

(d) **Inter-Service Coordination**: The Indo–Sino War highlighted the importance of inter-service coordination among the Army, the Air Force, and the Navy. Effective collaboration was deemed essential for achieving strategic objectives and ensuring a unified response to potential threats.

(e) **Overcoming the Limits of Geography**: The Indo–Sino war essentially being a land-based conflict limited the participation of the Navy. The takeaway sparked the need for jointness and achievement of synergy among the armed forces, especially the development of assets required to achieve the aim together.

Future Outlook

In the aftermath of the Indo–Sino War, the Indian Navy began to chart a new course for its future. The recognition of evolving geopolitical dynamics and the need for a robust maritime presence shaped the Navy's long-term vision.

(a) **Expansion of Naval Capabilities**: The Navy set ambitious goals for expanding its fleet and enhancing its operational capabilities. Plans for acquiring modern vessels, including frigates and submarines, were prioritized to ensure maritime superiority. The importance of providing integral air support was realized.

(b) **Strengthening Regional Partnerships**: The Navy recognized the importance of strengthening partnerships with regional navies to address common security challenges. Collaborative exercises and information sharing were seen as vital components of enhancing regional maritime security.

(c) **Focus on Technological Advancements**: The Navy committed to investing in technological advancements, including advanced surveillance systems and anti-submarine warfare capabilities. The integration of modern technologies into naval operations was deemed essential for maintaining a competitive edge.

The Indian Navy's perspective during the 1962 Indo–Sino War was characterized by a mixture of frustration, determination, and a renewed

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commitment to maritime security. The conflict served as a wake-up call, prompting the Navy to reassess its strategic priorities and operational readiness. As India navigated the complexities of a changing geopolitical landscape, the lessons learned from the war would shape the Navy's future trajectory, ensuring that it remained a vital component of India's national security framework.

Indo–Pak War,1965: Reflections for Future

In the early 1960s, Pakistan sought to exploit India's perceived vulnerability following its defeat in the Sino-Indian War of 1962. This led to the launch of Operation Gibraltar in August 1965, aimed at infiltrating forces into Jammu and Kashmir to incite a rebellion against Indian rule. However, the operation escalated into full-scale war when India retaliated by attacking Pakistan's territory in Punjab. The Indian Navy was put on full alert and tasked with seeking and destroying Pakistani forces while maintaining operations below 21°N latitude. The 1965 Indo–Pak War marked a significant escalation in the long-standing rivalry between India and Pakistan, rooted in historical grievances and territorial disputes that had been brewing since the partition of British India in 1947. The conflict primarily revolved around the princely state of Jammu and Kashmir, a region claimed by both nations and a flashpoint of tension since the first Indo–Pak War in 1947–48. Characterized by large-scale military operations and significant battles, the war also involved a complex interplay of international relations, ultimately shaping the geopolitical landscape of South Asia for decades to come.

Historical Significance

The 1965 Indo–Pak War holds immense historical significance for several reasons. Firstly, it was a demonstration of the unresolved issues stemming from the Partition, particularly the Kashmir dispute. The war reignited debates over national identity, territorial integrity, and the legitimacy of statehood in the context of colonial legacies. The conflict also highlighted the limitations of the United Nations' role in mediating disputes between member states, as previous resolutions regarding Kashmir had failed to bring about a lasting solution.

Secondly, the war had profound implications for military strategy and defence policy in both India and Pakistan. For India, the conflict underscored the necessity of a robust military framework to counter perceived threats from its western neighbour. The Indian military, which had been largely untested since Independence, gained valuable experience and confidence through its operations during the war. Conversely, Pakistan's military faced a crisis of confidence, as the war exposed weaknesses in its strategic planning and operational execution. The defeat in 1965 led to a revaluation of Pakistan's

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military doctrine and its reliance on foreign alliances, particularly with the United States and China.

Moreover, the 1965 war had significant repercussions for regional politics. It prompted a shift in alliances and influenced the foreign policies of both India and Pakistan. The conflict drew the attention of global powers, particularly the United States and the Soviet Union, who were keen to expand their influence in South Asia during the Cold War. The U.S. had been a key ally of Pakistan, providing military aid and support, while India sought to strengthen its ties with the Soviet Union. The war ultimately led to the Tashkent Agreement in January 1966, brokered by the Soviet Union, which aimed to restore peace and normalize relations between the two countries. However, the agreement did little to resolve the underlying issues, particularly the Kashmir dispute.

Geopolitical Scenario

The geopolitical scenario leading up to the 1965 Indo–Pak War was marked by a complex interplay of regional and global dynamics. The early 1960s saw heightened tensions in South Asia, driven by a combination of nationalistic fervour, territorial ambitions, and external influences. The Kashmir issue remained at the forefront of Indo–Pak relations, with both countries asserting their claims over the region. Pakistan, emboldened by its military alliances and support from the United States, adopted a more aggressive stance towards India, believing that a limited war could achieve its objectives in Kashmir.

In the years preceding the war, Pakistan's military strategy was heavily influenced by its alliance with the United States, which provided military assistance and training. This relationship was rooted in the Cold War context, where Pakistan positioned itself as a bulwark against communism in South Asia. The US viewed Pakistan as a strategic ally, providing it with military hardware and economic aid. However, this reliance on American support also created a sense of vulnerability, as Pakistan sought to assert its independence and regional influence.

On the other hand, India, under Prime Minister Lal Bahadur Shastri, was determined to maintain its territorial integrity and sovereignty. The Indian leadership recognized the need to address the Kashmir issue decisively, especially considering Pakistan's increasing military capabilities. The Indian military underwent significant modernization efforts, focusing on enhancing its operational readiness and capabilities. The 1965 war was seen as an opportunity for India to assert its dominance in the region and to counter Pakistan's aggressive posturing.

The war itself was characterized by several key battles, including the Battle of Asal Uttar, the Battle of Khem Karan, and the Battle of Lahore.

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These engagements showcased the bravery and resilience of both Indian and Pakistani forces, with heavy casualties on both sides. The conflict also witnessed the use of armoured divisions and air power, marking a shift in warfare in the region. The Indian Air Force played a crucial role in achieving air superiority, while the Pakistan Air Force struggled to match its capabilities.

Internationally, the 1965 Indo–Pak War drew the attention of major powers, particularly the United States and the Soviet Union. The US was concerned about the potential for a broader conflict in South Asia that could disrupt its strategic interests. In contrast, the Soviet Union sought to expand its influence in the region by positioning itself as a mediator. The Tashkent Agreement, which followed the war, reflected this geopolitical manoeuvring, as the Soviet Union aimed to establish itself as a key player in South Asian politics.

The 1965 Indo–Pak War was a significant event in the history of South Asia, with far-reaching implications for both countries and the broader geopolitical landscape. The conflict highlighted unresolved issues stemming from the Partition, particularly the Kashmir dispute, and highlighted the complexities of military strategy and foreign alliances. The war not only shaped the trajectory of India-Pakistan relations but also influenced the dynamics of international politics in the region. As both nations emerged from the conflict, the lessons learned would resonate in their future interactions, setting the stage for ongoing tensions and conflicts that continue to this day.

Operation by the Indian Navy

Objectives

The Indian Navy was primarily asked to restrict operations below 21°N and undertake the following primary tasks:

(a) Destruction of the Pakistan naval forces,
(b) Sweep off the west coast of Pakistan to disrupt the port of Karachi and inflict vital damage on port installations, if ordered,
(c) General support for the defence of the major ports on the west coast,
(d) Providing general cover and protection to Indian merchant ships in the Arabian Sea—ships plying to and from the Persian Gulf and the Red Sea.

Disposition of the Fleet

The disposition of the fleet during the hostilities on 1 September 1965 are as follows:

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Table 2.1: Disposition of Fleet on 1 September 1965

Ser	*Ships*	*Status*	*Remarks*
(a)	*Vikrant*	Not available	Undergoing normal refits
(b)	*Mysore*	Available (7 Sep 1965) BTR and BEA reached on 9 Sep 1965	East coast (undertaking A/S trg with S/M HMS Astute)
(c)	*Khukri*		
(d)	*Kuthar*		
(e)	*Kirpan*		
(f)	*Ranjit*		
(g)	*Brahmaputra*		
(h)	*Beas*		

Source: Naval History Division, Indian Navy

Comparison of Forces

The comparison of Indian Fleet vis-à-vis Pakistan Fleet was as follows:

Table 2.2: Comparison of Indian and Pakistani Naval Fleet

Ships	*Indian Forces*	*Pakistan Forces*	*Remarks*
Surface	*Khukri*, *Kuthar*, *Kirpan*, *Ranjit*, *Brahmaputra*, *Beas*, *Talwar*, *Mysore*, *Rajput*	6 Destroyers, one Cruiser and Oiler Decca at Sea	Superior to PN in gun power. Enemy had greater advantage in torpedo attacks (42 V/s 08). Enemy surface forces had distinct advantage over Indian forces (22 Vs 15). Enemy had better maritime reconnaissance and strike capability.
Air Force assets for Navy	MR Aircraft from Poona for general search, two Alizé and eight Hawks for air defence of Bombay	04-06 LRMR with Radar and Homing capabilities; Sabre fighters-300 nm; B57 Bombers-650 nm	
Submarine	Nil	PNS *Ghazi*	Distinct advantage

Source: Naval History Division, Indian Navy

Surface Operations

The surface operations were limited by the Government of India below 21°N. However, the Indian fleet was deployed actively in the northern Arabian Sea to undertake probe and seek and destroy enemy surface forces. The details of surface operations are as under:

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(a) **Pre Hostilities Deployment to Eastern Theatre:** The Fleet was sailing for close to two-and-a-half months on the east coast before 1 September 1965 for exercise with the UK Submarine HMS *Astute*. Since the Indian Navy did not have a live submarine for exercises, the presence of a UK submarine was a great opportunity to train the crew on the live submarine. This sustained deployment resulted in development of defects in the fleet ships. However, the dockyard and ship staff did a great job in preparing maximum ships for action.

(b) **Deployment on 7 September 1965—Attack on Dwarka:** There was intelligence that a naval attack on Bombay was planned on 7 September 1965 by the enemy. Therefore, the fleet sailed out with *Mysore*, *Ranjit*, *Rajput*, *Rana* and *Betwa*. The fleet was carrying out patrolling off Bombay. However, the Pakistan fleet carried out the attack on Dwarka to target radar installation and oil reserve storing naval stocks. It is pertinent to mention that INS *Talwar* was deployed for patrolling off Saurashtra and was carrying out emergency repairs at Okha.

(c) **Deployment on 10–14 September 1965**: The fleet comprising *Mysore, Ranjit, Talwar*, 14th FS squadron, 16th FS squadron sailed on the night of 10-11 September 1965. The aim was to probe north as close as possible to detect the enemy. However, the limited air surveillance ability was a limiting factor during the deployment. The fleet entered Mumbai on 17 September 1965. Salient activities undertaken during the operations are as under:

  (i) **Poor integration between Maritime Operation Room (MOR)-Fleet-Aircraft:** Two Alizés were staged at Jamnagar for air search operations north of 21°30'N. The first Alizé was airborne on 11 September at 2000 hrs, picked up contacts by 2030 hrs and confirmed the presence of two groups of enemy surface ships. The Alizé made amplifying reports on enemy contacts. However, the report never reached the fleet commander due to poor wireless propagation conditions that night. The reports did not reach Jamnagar-Mumbai till after midnight when the Alizé had landed. Further, the reports rebroadcasted by Bombay did not reach the fleet due to complete fade out of broadcast. The contacts picked up by Alizé 1 at 2030 hrs did not reach the fleet till 0130 hrs on 12 September when the Alizé 2 was airborne. This lack of proper communication between aircraft, MOR and fleet resulted in the enemy slipping away untouched. It was also a lesson to remember the varying propagation conditions that exist in the northern Arabian sea during various times of the year.

  (ii) **Enemy Air Surveillance:** *Beas* picked up unidentified air contacts on 11 September at 0600 hrs at 42 nm and it was assumed to be a "Snooper". The aircraft continuously shadowed the forces. Two

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Sea Hawks were launched from Jamnagar. No interception was carried out but it was a clear indicator that the force was always under enemy air surveillance.

(iii) **Submarine Contact by *Kuthar/Khukri***: At 1000 hrs on 13 September 1965, *Kuthar* gained a sonar contact of a possible submarine and *Khukri* joined the hunt. *Kuthar* undertook deliberate attacks. However, contact was lost. The lost contact search was carried out without success and anti-submarine action was terminated. The contact was estimated to be tracking at about 7 knots and assessed to be *Ghazi*.

(iv) It is pertinent to mention that the 14th Frigate Squadron carried out anti-submarine sweep off Bombay from 17 September to 22 September 1965 and covered around 5,000 sq. nm. Since these ships did not have a gun at all, gun support was provided by *Ganga/Rana*.

(d) **Deployment on 18-23 September 1965**: The fleet sailed out again on 17 September 1965 to carry out an offensive sweep in the Arabian Sea in the general direction of the Gulf of Aden to provide support for a number of merchant ships bringing vital defence cargo from the United Kingdom. The distance from Bombay to Aden was 1,650 nm and the intelligence was that the Pakistanis were aware of the defence cargo. However, this aim had to be altered virtually at the last minute to meet likely Pakistani seaborne landings on the Kathiawar coast.

(i) **Threat of Seaborne Landings by Enemy**: On 18 September 1965, there was a threat of seaborne landings by the Pakistani force off the Kathiawar coast. The fleet sailed at maximum speed of 22 Knots towards the Kathiawar coast. Post threat not materializing, the fleet turned further north towards Karachi. The offensive sweeps were carried out on 20, 21, and 22 September in the same area. The fleet turned west on the 22nd towards the central Arabian Sea to provide support to merchant ships. However, the fleet came to know that the Indian government had accepted ceasefire at 0330 hrs on 23 September. Therefore, with suspicion that Pakistan may attack Saurashtra as a last-minute attempt to gain propaganda value, the fleet rushed towards the Kathiawar coast. However, no such attacks materialized.

(ii) **False Enemy Transmissions**: As enemy transmissions were being encountered in the northern Arabian Sea, it gave the Indian Navy to understand that the enemy was operating close by. This resulted in Indian forces closing the transmission direction only to find nothing there. This was concluded to be the result of anomalous propagation existing in the area. The enemy units were assessed to be operating off Karachi.

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Anti-Submarine Operations: The biggest force multiplier for the Pakistan Navy was the availability of PNS *Ghazi*. The speculation of the deployment of PNS *Ghazi* off the Bombay coast kept the entire Indian Surface Fleet engaged in anti-submarine operations. The following aspects are relevant:

(a) PNS *Ghazi* operated unrestricted off the Bombay coast to focus on larger targets. However, due to shallower depths off Bombay harbour, the submarine maintained sufficient distance from the coast and could not target reliable targets in 1965. The lack of potent Anti-Submarine (A/S) units and suitable training to the crew/operators affected the A/S capability of the force. This was the biggest disadvantage during the war.
(b) **Pickup of Submarine Contact by INS *Beas***: On passage to Bombay from Visakhapatnam, *Beas* picked up a submarine contact 45 nm south of Bombay at 1230 hrs on 9 September 1965. An anti-submarine attack was carried out. Contact was then lost. The senior officer of the search, considering the depth of water in the area, which was 18 fathoms, decided it was a non-sub contact. However, this could have been *Ghazi* considering it was operating in the area.
(c) The Indian surface forces were not sufficiently trained in anti-submarine war due to non-availability of live target for training. The last exercise undertaken by Indian surface forces was in August 1965 with HMS *Astute* in the east coast. Synthetic training is never enough to match the experience provided by real targets.
(d) The probability of PNS *Ghazi* looking for INS *Vikrant* was very high and the availability of support forces was also limited.

Challenges Faced

The 1965 war presented unique challenges to the Indian Navy, exposed weaknesses and was instrumental in shaping policies for overcoming these in the post war period. The conclusions arrived at by Flag Officer Commanding Indian Fleet (FOCIF) post-war are as follows:

(a) Operating within Enemy Strike Range: The Indian forces would be operating within the enemy aircraft strike range. This could mean accepting losses without corresponding gains. However, despite enemy air strike range of 650 nm the surface fleet decided to operate up to a range of 200 nm from Karachi by day, since it was considered that the enemy's reconnaissance and air strike direction over the sea was limited. It was also appreciated that all the B57s and Sabres in Karachi would not be made available for maritime strike purposes. By night, however, the Indian forces were prepared to operate as close as possible and

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accept risk of air strikes. Unfortunately, the extent of the probe during the dark hours was determined by the need to be about 200 nm from Karachi or Badin by first light. With a speed limitation of 15 knots, the farthest north the Navy could operate was in the vicinity of Okha.

(b) Enemy could track fleet movement with impunity as India had no aircraft to shoot them down.

(c) The enemy could refuse battle as they had superior speed. It was also assessed that the enemy was not seeking battle and was keeping away from it.

(d) The enemy might repeat earlier attempt to bombard a port on the west coast of Saurashtra.

(e) Attack on Dwarka: There was intelligence that a naval attack on Bombay was planned on 7 September 1965 by the enemy. Therefore, the fleet sailed out with *Mysore, Ranjit, Rajput, Rana* and *Betwa*. The fleet was carrying out a patrol off Bombay. However, the Pakistan fleet carried out an attack on Dwarka to target a radar installation and oil reserve storing naval stocks.

Lessons Learnt

The important lessons learnt during the 1965 war are as follows:

(a) Restriction of Operations below 21°N: The insistence on operations below 21°N restricted the movement of the Navy. The naval forces were on defensive approach whereas the enemy had a free hand over the west coast. Without the restriction, the Navy would have had an opportunity to plan and act better, arriving at a superior outcome.

(b) Inadequate Maritime Air Reconnaissance: The most important operations at sea are to find the enemy and having reliable resources to detect the enemy. It was observed that at no time did the maritime recce aircraft detect enemy ships whereas enemy maritime aircraft continuously shadowed India's fleet. The limited air resources affected the ability of Indian forces to keep under surveillance the approaches to the west coast from the Persian Gulf and Gulf of Aden.

(c) The strike and search ranges of India's maritime aircrafts Alizé and Sea Hawk, which were taking off from Bombay, were restricted due to limited endurance. Therefore, it was felt that staging facilities in Saurashtra region were essential for operational purposes as well as diversion. This was considered necessary not only to increase the strike and search range, but also for the times when the aircraft could be diverted owing to lack of fuel or damage when *Vikrant* was operating in the Northern Arabian Sea.

(d) Formulation of Surface Doctrine: The operations of the 1965 war brought out the need for formulation of effective surface doctrine

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comprising plans for protection of the east and west coasts and Andaman and Nicobar Islands. A doctrine needed to be envisaged to formulate operations for long term planning.

(e) Acquisition of Submarines: The major drawback of the war was lack of submarines with the Indian Navy. The entire force was concentrated in anti-submarine operations against the only enemy submarine PNS *Ghazi*. Most efforts of the force were concentrated towards evading a sub or anti-submarine operations. The important lessons learnt and outcomes from the war were as follows:
   (i) Formation of Submarine Arm
   (ii) Acquisition of submarines from foreign countries (US, UK, USSR etc.) that are proficient in submarine operations
   (iii) Fitment of state-of-the-art technologies, sonar, weapons in the training schools to augment training of the personnel
   (iv) Fitment of state-of-the-art Anti-Submarine Warfare (ASW) Weapons and Sensors onboard the surface ships to increase the ASW capabilities of the force
   (v) Deputation of Indian submariners (officers/sailors) to foreign countries to be trained in ASW operations and current tactics, weapons, and sensors
   (vi) Augmentation of maintenance facilities for the submarine in the east and west coasts

(f) Construction of Dockyards: The lack of dockyards and maintenance facilities to rectify, maintain and repair the surface forces on both coasts was acutely felt. The augmentation of dockyards with state-of-the-art technologies and workforce was felt essential to meet the growing demands of the Navy.

(g) Need for Reliable Tanker: The Indian Navy was considerably hampered without the availability of replenishment at sea. The ranges of the fleet were considerably limited, and they had to afford cover to merchant ships whose sustenance was solely based on Indian tanker *Shakti*, which had only one boiler available. The emerging defects on the tanker restricted the speed of the tanker, and it was not available during maximum duration of the hostilities. The sustenance of Indian surface forces was thus limited and it was felt that a high-capacity high-speed reliable tanker was a necessity to sustain and provide long legs to the surface fleet.

(h) Coordination of Merchant Shipping: The coordination of merchant shipping was a difficult task considering the large number of ships. Therefore, FOCIF observed identification and classification of friendly, neutral, and enemy ships:
   (i) The need for protection of merchant shipping was felt acutely by the Indian Navy during the war. FOCIF specifically observed that

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the local naval defence of ports needed to be improved so that the fleet could concentrate on operations at sea. The availability of fourteen ships was not sufficient to protect merchant ships coming to Bombay from the approaches of the Persian Gulf and the Gulf of Aden.

(ii) The need for IFF and SHF/DF equipment was sorely felt and considered essential for fitment onboard all the ships.[2]

(i) Training of Personnel: The defence minister during the senior officers' conference highlighted that the officers and sailors should be proficient in foreign languages in Indian Ocean Region (IOR). Each officer/ sailor should be trained in at least one foreign language of the IOR.

(j) Indigenization: The learning that there are no permanent friends or foes in geopolitics ignited India's pursuit for indigenization. Today, India stands at the helm of self-reliance, emerging as Atmanirbhar Bharat.

Conclusion

To conclude, the Indo–Pak Wars imparted crucial lessons for the Indian Navy, emphasizing the importance of strategic preparedness, joint operations, and technological advancement. The conflicts highlighted the need for enhanced naval capabilities and better coordination with other military branches. Additionally, the significance of intelligence gathering and maritime security became evident, shaping future naval doctrines. Ultimately, these experiences fostered a more resilient and adaptive Indian Navy, better equipped to address contemporary challenges and safeguard national interests in an evolving geopolitical landscape.

Notes

1. Minutes of Senior Officers' Conference, 1963, Naval Headquarters, Naval History Division.
2. Advanced Electronics Systems for Communication, Radar and Intelligence.

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Chapter 3

Naval Operations During the Indo–Pak War of 1971

Political Background of the 1971 War

After the partition of India in 1947, the eastern part of Bengal had become East Pakistan. Its Bengali-speaking Muslim-majority people became a part of Pakistan. However, it had a smaller land area, and from the very beginning, West Pakistan had political, military and economic clout. East Pakistan felt neglected by the Urdu-speaking Punjabi rulers, more than a thousand miles away in Karachi and Rawalpindi, which led to growing tension between the two parts of Pakistan.

General elections in 1970 gave the East Pakistan-based Awami League an absolute majority in the National Assembly and committed it to a programme of autonomy. The military rulers and political parties in West Pakistan could not countenance this. After unsuccessful negotiations, the Awami League leader was arrested and imprisoned. A ruthless military crackdown began on 25 March 1971. The authorities declared martial law and unleashed severe repression to suppress the agitation. Within months, the flood of refugees fleeing into India from East Pakistan swelled to several millions. This massive influx into the border districts of West Bengal and other border states created severe complications. It became impossible for India to cope with such a vast refugee problem. The Indian government initiated immediate diplomatic action, to apprise the world of the atrocities being perpetrated in East Pakistan, to mobilize pressure to persuade Pakistan to stop the genocide and to create conditions for the refugees to go back. Initial responses were tardy. Eventually, the international media's poignant accounts of the genocide awakened the conscience of the world.

Refugee communities formed in the camps, driven by a desire for retribution against West Pakistani forces who had destroyed their homes and committed atrocities against them, especially women. These groups came to be called the "Mukti Bahini"—the freedom fighters—whose aim became to liberate East Bengal from West Pakistan and form a new independent state of Bangladesh. The core of the military wing was East Bengali officers and soldiers who had either deserted or been retrenched from the Pakistan Army for suspected disloyalty. According to one account, "In April, the refugees started flooding into the border districts of West Bengal, bringing with them harrowing tales of massacre, rape and plunder. This steadily increasing influx created a serious risk of communal riots."[1]

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Another account describes the situation thus: "The political deadlock over the transfer of power from the Martial Law administration to an elected government developed into full-fledged insurgency in East Pakistan in early 1971. The insurgency had India's full moral and material support from the outset. It was India's strategic aim to exploit Pakistan's predicament and the growing discontent in the eastern wing to its own advantage and cut Pakistan to size."[2]

By end April 1971, a political decision had been made to prepare for military intervention in East Pakistan by the end of the year, in case a satisfactory political situation had not been found by then. "India made the political decision as early as April 1971 to provide assistance to the irregulars of the Mukti Bahini who were operating frequently from bases across the border against the Pakistani forces. India was directly involved both in providing intensive training to volunteers of Mukti Bahini and in launching a campaign of sabotage against strategic facilities and installations such as power stations, communication systems and ships in Chittagong harbour."[3]

Plan of Naval Operations

When the military crackdown occurred in East Pakistan on 25 March 1971, the Eastern Naval Command deployed a few ships on patrol across the sea lane to Chittagong and Khulna. In so far as the Navy's role was concerned, Admiral S.M. Nanda (then Chief of the Naval Staff) recalls that in the meetings of the Chiefs of Staff with the Prime Minister, discussions mainly centred on the Army and the Air Force. After each meeting, the Prime Minister would politely ask the Naval Chief whether he had anything to say and Admiral Nanda would say no.[4] To him, this was a clear indication that not even the Prime Minister expected the Navy to make any significant contribution to the forthcoming operations. Admiral Nanda resolved that the Navy had to prove its mettle this time. In May, Naval Headquarters started formulating tasks to be assigned to the Western and Eastern Naval Commands and deciding on the allocation of forces. These tasks had to correspond with the capabilities and limitations of the ships, submarines and aircraft at that time. The Navy's success in December 1971 was the outcome of the altogether unexpected way in which these tasks eventually synthesized. From June 1971 onwards, Pakistani Army formations started moving up all along the India–Pakistan border. In July 1971, it seemed prudent that although vigorous diplomatic efforts for a political settlement should continue, preparations should also be made to meet any Pakistani aggression. In August 1971, the President of Pakistan, General Yahya Khan, announced that India and Pakistan were very close to war. On 23 November, all the Commanders in Chief of the three services made a presentation of their operational plans to the Chiefs of Staff in New Delhi.[5] The Defence Minister and Defence Secretary were also present. These presentations

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enabled each C-in-C to know what the others were planning to do and tie up any loose ends.

Taking the Offensive—The Navy's Early Operations, 1971

When the military crackdown began in East Pakistan on 25 March 1971, the Eastern Naval Command promptly deployed several ships on patrol across the vital sea lanes leading to Chittagong and Khulna. The move was precautionary, designed to monitor maritime activity and maintain a state of operational readiness in anticipation of further escalation.

Shortly thereafter, in April 1971, the Indian Navy was called upon to assist a neighbouring nation in distress. The Government of Ceylon (now Sri Lanka) sought India's help in containing an imminent leftist insurrection. Intelligence reports suggested that North Korean merchant vessels were ferrying arms and ammunition to the insurgents.

The Indian Navy responded swiftly and discreetly. Without fanfare or public announcement, ships of the Western Fleet were deployed to patrol the west coast of Ceylon, maintaining positions out of visual and radar range. A frigate entered Colombo Harbour to serve as a communications link between the Indian High Commission and naval authorities. Simultaneously, ships from Visakhapatnam patrolled the island's eastern seaboard, also remaining hidden from view.

For several weeks, Indian naval vessels maintained their silent vigil as the crisis unfolded. Eventually, the situation stabilized, and the threat of armed rebellion receded. The Indian Navy's prompt and professional response averted potential turmoil in the region. Upon completion of the mission, the deployed ships returned to their base ports.

This episode marked the first-ever deployment of the Indian Navy in direct support of foreign policy, aimed at assisting a neighbouring state in crisis. The quiet success of the operation earned widespread appreciation within both the Ministry of Defence and the Ministry of External Affairs, establishing the Navy's credibility as an instrument of India's regional diplomacy and security policy.

However, the naval effort came at a cost. The ships that had participated in the Ceylon operation required several weeks of maintenance, which had originally been scheduled for the first half of 1971. The sustained high-speed steaming during the mission had placed heavy strain on their machinery and systems.

Vice Admiral N. Krishnan, in his memoir *No Way But Surrender*, described the state of affairs candidly:

> Our ships were in a fairly bad way, as they had to do a considerable amount of steaming at high speeds in connection with the operations off Ceylon in response to that Government's appeal for help. To get them all operational in the time available would need an all-out effort.[6]

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Despite these challenges, by May 1971, Naval Headquarters had begun formulating the specific operational tasks to be assigned to the Western and Eastern Naval Commands, along with the allocation of available forces. These tasks were carefully structured around the Navy's existing capabilities and limitations in ships, submarines, and aircraft. The remarkable naval successes achieved in December 1971 would ultimately stem from the unexpected synthesis of these planning efforts, executed with ingenuity and determination under wartime conditions.

When Admiral Nanda later asked his staff at Naval Headquarters to assess what the Pakistan Navy might do in the event of hostilities, the consensus was that the adversary would avoid engagement on the high seas and instead remain under the protective cover of the Pakistan Air Force for the defence of Karachi, West Pakistan's only major seaport. He then posed the question of what posture the Western Fleet should adopt. The staff recommended a defensive deployment, to guard the coasts of Saurashtra and Bombay, and prevent a repeat of the 1965 Dwarka raid, when Pakistani ships had conducted a brief bombardment of Indian shores.

Admiral Nanda found this line of thinking unacceptable. To him, a defensive strategy represented a continuation of the frustration experienced during the 1965 war, when the Navy had been denied the opportunity to strike effectively. He was determined that such passivity would not define India's maritime posture again. Thus emerged the fundamental concept that would shape the Navy's role in the 1971 war—to take the offensive, to attack Karachi, to lure the Pakistan fleet into open battle, and to sever the sea lines of communication between West and East Pakistan.

This strategic shift from a posture of coastal defence to one of decisive maritime offence laid the foundation for the Indian Navy's bold and historic operations later that year, culminating in one of the most successful naval campaigns in modern South Asian history.

The Western Theatre

Naval Operations in the Western Theatre, 4–16 December 1971

The objectives of the 1971 action as defined by the Chiefs of Staff and by each respective Service Chiefs was to gain as much ground as possible in the East to neutralize the Pakistani forces there, and to establish a base as it were for a possible State of Bangladesh. In the West, the objective was to hold the Pakistani forces. It was realized that the war could not go on indefinitely, not so much because of limitations of manpower or aircraft but because the UN Security Council and other influential bodies were bound to intervene. It was realized that any territories that might be gained in the

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West would most likely, as earlier, have to be handed back to Pakistan at the end of the fighting.

The main thrust of the Western Naval Command plan was to engage and destroy as many Pakistani naval units as possible. Their destruction would deny the Pakistan Navy any chance to interfere in India's trade or to mount any bombardment attacks on India. The second and complementary aim was to attack Karachi and to carry out a bombardment at Gwadar and Pasni and along the coast up to Karachi to create panic in the minds of the coastal populations and weaken confidence in their navy and government. A blockade of Karachi was to be instituted to prevent petroleum and petroleum products and other essential supplies needed in war from reaching Karachi.

The Western Fleet was given a broad directive to seek and destroy enemy warships, protect Indian merchant shipping, deny sea lanes to enemy shipping and render ineffective the maritime line of communication between West Pakistan and East Pakistan to prevent any reinforcements from reaching the beleaguered Pakistani forces at that end. A submarine patrol was to be instituted off Karachi to sink their warships and merchant ships proceeding to Karachi. Elaborate plans were made to deal with the threat from the Pakistani midget submarines and chariots, which could be carried on board merchant ships, warships or large dhows and be released in the vicinity of Bombay harbour. Liaison was established with police, fishermen and port authorities to report any such activity. The water around Indian ships in the stream was floodlit to enable sentries on board to see any approaching underwater craft carrying limpet mines. To deter chariots, special two-pound charges were dropped frequently by harbour patrol boats and craft.

To destroy the enemy's main units and harbour installations, the Navy intended to launch an operation to attack Karachi from Bombay on the first day of a war. The fleet would then launch their attack with missile boats on the second day from a south-westerly direction. After observing the outcome of these attacks, a third attack would be launched from Bombay.

The plan provided for "War Stations" for different naval forces, to which they were to proceed in time for effective offensive action as and when hostilities became imminent. The Western Fleet comprised the cruiser *Mysore*, the 15th Frigate Squadron *Trishul* and *Talwar*, the 14th Frigate Squadron *Khukri*, *Kuthar* and *Kirpan*, *Betwa* (an anti-aircraft frigate) *Kadmatt* (a Russian Petya), *Ranjit* (an old destroyer), *Deepak* (a tanker), *Sagardeep* (a requisitioned lighthouse tender), and two missile boats *Vijeta* and *Vinash*. The special task group for the missile attacks on Karachi comprised *Kiltan* and *Katchall* (Russian Petyas), and four missile boats. *Tir* (a training frigate), *Darshak*, *Investigator* and *Sutlej* (survey ships) were utilized for towing missile boats to and from Saurashtra. *Cauvery* and *Kistna* (training frigates) were used for coastal patrol. All smaller patrol

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craft, seaward defence boats and requisitioned dhows were used for harbour patrols and limited seaward patrol.

Three Super Constellations were available for maritime reconnaissance. Surveillance of the coastal belt would be carried out by two IL-14 aircraft operating from Santa Cruz. The medium-range surveillance would be carried out by the Navy using Alizé aircraft.

Operation Trident

Naval Headquarters had decided that in the event of a war, the Navy would use the OSA class missile boats for carrying out an attack on Karachi harbour. However, C-in-C of Western Naval Command disagreed to execute the attack on Karachi by using the OSA class missile boats. His view was that Karachi was a very heavily defended port with all ships of the Pakistani Navy patrolling outside the harbour, as well as the availability of Pakistan air cover from the two airfields of Drigh Road and Malir, from where Pakistani aircraft could attack Indian forces. They also had sixteen-inch gun batteries at Manora and Sandspit, which could blast Indian ships out of the water. He also felt that Pakistan had superiority in gun power with their destroyers acquired from the British Navy and that it would be a suicidal attempt on India's part to try and attack Karachi. These views were expressed by C-in-C West at a presentation of Cs-in-C of all the three services at New Delhi.[7] However, NHQ had decided to utilize the newly acquired OSA class missile boats to carry out the attack on Karachi.

"After Pakistan proclaimed a National Emergency on 23 November, three missile boats were placed at Okha to carry out patrols. They gained very valuable experience of the area and the waters around and in the vicinity of Okha and also proved the facilities provided at the advance base there.

As the fleet would be operating not far from Karachi, a demarcating line was established which neither the ships of the fleet nor the missile boats would cross. This would prevent any unfortunate incidents of own forces engaging each other."[8] The Pakistani authorities had warned all merchant ships bound for Karachi not to approach the harbour to within 75 miles between sunset and dawn. This meant that any unit picked up on the radar within that distance was most likely to be a Pakistani naval vessel on patrol.

"The Karachi strike group consisted of two Petyas and four missile boats armed with four missiles each. One of the four boats was to remain on patrol off Dwarka in order to provide cover for the force on its way back. The Petyas were intended to provide communication and control and, with their better radar, give indication of suitable targets. In the event of an emergency, they could take a boat in tow and, if necessary, supply fuel. After arriving at a certain point south of Karachi, the Task Group Commander in the Petya was to release the missile boats to proceed at maximum speed towards Karachi; the Squadron Commander embarked in one of the boats

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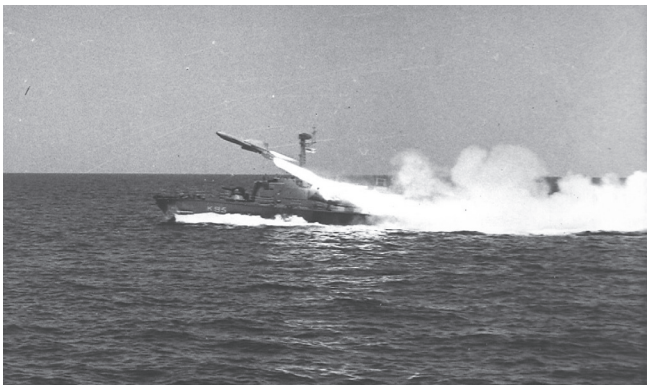
Fig 3.1: Missile Boat in Action



Source: Naval History Division, Indian Navy

would allocate targets and the boats thereafter would act independently keeping in touch with the Squadron Commander. The Petyas would follow at a slower speed, but stay not too far away from the rendezvous. Naval Headquarters and Headquarters of Western Naval Command were to listen in on Pakistani wireless circuits and pass the relevant intelligence to the force. The plan had been to strike Karachi with a composite force on the very day that Pakistan carried out their first act of war. Pakistan attacked Indian airfields on the evening of 3 December 1971. Since it was not possible for our forces to attack Karachi the same evening, it was decided to launch the operation on the following day, that is, on the night of 4 December and early hours of 5 December."[9]

On the afternoon of 4 December, when the strike group was on its way to Karachi, Flag Officer Commanding-in-Chief (FOC-in-C) West sent a signal directing the Petyas and the missile boats to remain in company throughout. The Task Group's approach to Karachi was by and large uneventful. Despite some confusion, contacts detected en route were eventually analyzed as undeserving of missile attack. When 70 miles south of Karachi, a target was detected to the northwest at a range of 45 miles. It was classified as a warship. A second target was detected to the northeast at a range of 42 miles, heading for Karachi. Both targets were tracked and missiles prepared for launch.

The contact to the northwest was engaged by missile boat *Nirghat* with two missiles. The target sank. It was later learnt that this was the Pakistan Navy destroyer *Khaibar*. According to Commodore K.P. Gopal Rao, "The Pakistan destroyer *PNS Khaiber* was patrolling the southwest approaches to Karachi and only at about 2215 hrs was she able to appreciate that an enemy force was approaching Karachi. She then altered course and increased speed

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to intercept us, the rate of closing was about 60 knots. At about 2240 hrs when *Khaiber* was within the range, *Nirghat* fired her first missile. *Khaiber* opened fire with her close range anti-aircraft guns but did not succeed in preventing the missile from hitting her. Her boiler room was hit and her speed came down to eight knots. Thereafter, a second missile was fired at *Khaiber* and after the second hit, her speed came down to zero and dense smoke started rising from the ship. *Khaiber* sank after about 45 minutes, approximately 35 miles south-southwest of Karachi. She had mistaken this to be an air attack and reported accordingly to Maritime Operations Room (MOR) Karachi, which perhaps resulted in the anti-aircraft guns in Karachi opening fire for a few minutes. The trajectories of these tracer shells were seen by us from seaward. *Khaiber*'s VHF transmission to Karachi in plain language was picked up by our shore wireless stations due to anomalous propagation."[10]

The contact to the northeast was engaged by missile boat *Nipat* with two missiles. The target sank. This was a merchant ship *MV Venus Challenger*. Commodore K.P. Gopal Rao remembered, "The other large unidentified ship to the northeast was completely darkened and was proceeding at 16 knots. At about 2300 hrs *Nipat* was able to get her within range and fired the first missile which scored a hit. A second missile was fired soon after and when this hit the ship, I saw a huge flash going up to about twice the height of the ship. My inference at that time was that ammunition had exploded on board. The ship was seen on radar to have broken into two and she sank in less than eight minutes, about 26 miles south of Karachi. After the war, it was reliably learnt from merchant shipping circles and from Pakistan Navy officers who went over to Bangladesh, as well as from Military Attachés of foreign embassies in Pakistan that this ship had been carrying a near full load of US ammunition from Saigon, for the Pak Army and the Pak Air Force. Lloyds register of shipping, London, gave the name of the ship as *MV Venus Challenger*, a ship chartered by Pakistan, which had sailed from Saigon, called at Singapore en route and was due to arrive at Karachi at 0130 hrs, on 05 December 1971. In addition to the ship's crew, the ship was reported to have had on board a small number of Pakistan naval officers and sailors for communication and ordnance duties."[11]

PNS Shahjahan, a destroyer, was now ordered by MOR Karachi to proceed to the assistance of *Khaiber*. But it regretted its inability to do so, due to engine problems. Then *PNS Muhafiz*, an ocean-going minesweeper, was detailed and it was approaching the Task Group from right ahead. INS *Veer* was designated to fire on this target. The speed of advance of the Task Group was 28 knots and *Veer* was unable to go faster than 29 knots at this time due to a minor engine problem. Since *PNS Muhafiz* had come well within the missile range, Veer was ordered to fire the missile at the Pak warship from inside the formation. Veer fired the missile at about 2320 hrs.

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PNS Muhafiz was set on fire by this missile hit and it burnt fiercely for over 70 minutes, and finally sank in that position, about 19 miles to the south of Karachi.

At this stage of the attack, when there were no contacts on radar, what should have happened was that all ships of the task group should have continued to close Karachi and, from the predetermined point promulgated by *Kiltan*, each missile boat should have fired one more missile at Karachi. This did not happen. Missile boat *Nirghat* mistook anti-aircraft tracer shells and reported sighting aircraft. Fear of Pakistani air attack sharply increased. *Kiltan*'s accurate and aircraft radar also mistook as aircraft the shells being fired from Karachi's gun defences. It took some time for this confusion to clear.

Meanwhile, K25, the commander of the missile boats, ordered the missile boat *Nipat*, on which he was embarked, to fire one of its two remaining missiles towards Karachi, which *Nipat* duly did. K25 then issued the order for the boats to withdraw. Due to a fadeout in communications, the commander of the task group in *Kiltan* did not receive this withdrawal signal. It continued to close in on Karachi. When it arrived at the predetermined point, 20 miles south of Karachi, it found itself alone. Except for missile boat *Veer*, every vessel had turned round and headed back towards Saurashtra at full speed. Due to a machinery problem, *Veer* had reduced speed to effect repairs. At about 0100 hrs on 5 December, the Task Force Commander sent the message "Angar" to the C-in-C signifying the completion of Operation Trident. In due course, ships of the Task Group arrived on the Saurashtra coast in ones and twos, refuelled on 5 December and arrived in Bombay on 6 December 1971.

Operation Python

> FOC-in-C WEST ordered FOCWEF [Flag Officer Commanding Western Fleet] to execute Operation Python–the attack on Karachi–during the night 7/8 December if feasible. The forces to be used were left to the discretion of FOCWEF. In another message, the C-in-C directed FOCWEF to press home the attack as the enemy forces were in disarray. FOCWEF reported inability due to weather conditions. The weather improved on 8 December and the fleet planned the next attack on Karachi on the night of 8/9 December.[12]

On 8 December, FOCWEF split his force into three groups:

(a) The fast frigates of the 15th Frigate Squadron, *Trishul* and *Talwar* to escort missile boat *Vinash* for the second missile attack on Karachi
(b) The cruiser *Mysore* accompanied by *Betwa* and *Ranjit* to raid Makran
(c) The tanker *Deepak*, accompanied by *Kadmatt*, to continue contraband control. *Kadmatt* had dropped out of the Karachi strike group due to a last-minute defect.

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FOCWEF's primary concern now was to distract the Pakistan Navy's attention towards the *Mysore* group so as to reduce the probability of the Karachi group being detected during approach and withdrawal. *Trishul*, *Talwar* and *Vinash* set course for Karachi at high speed. En route, electronic emissions were detected on a Pakistan Naval frequency which was being monitored. A vessel was reporting the presence of the group to Karachi. The vessel was soon sighted. *Talwar* was told to sink the vessel which it did and rejoined. During the approach to Karachi, *Trishul*'s electronic surveillance reported that the radar at Karachi had stopped rotating and was pointed directly at the group, a sure sign that the group had been detected. At 2300 hrs, the group arrived off Karachi and on radar detected a group of ships. FOCWEF had already told the Commanding Officer of *Trishul* that *Vinash* should fire all four missiles. *Vinash* proceeded to do so. The first missile homed on to the oil tanks at Keamari and started a huge fire. The second and third missiles homed on to merchant ships. It was subsequently learnt that the British vessel *Harmatton* had been damaged and the Panamanian vessel *Gulf Star* had sunk. The fourth missile homed on to the Pakistan Navy's tanker *Dacca,* which had been camouflaged and anchored amidst the merchant ships because, laden with oil, it could not seek safety inside Karachi port as the other Pakistani naval ships had done. It had been pre-arranged that the Indian Air Force would attack Karachi's airfields at Masroor and Drigh Road at the same time as the second missile attack. It so happened that the *Trishul* group arrived off Karachi and carried out its attack before the prearranged time. The air attack commenced soon thereafter. The anti-aircraft guns at Karachi opened fire as the *Trishul* group withdrew unobserved. Post-war intelligence indicated that Karachi's guns set fire to a Greek ship *Zoe* which Lloyds list of 10 December stated as "set ablaze and sunk". During the withdrawal, *Vinash* reported defects and had to stop. However, before the need arose to take it in tow, *Vinash* repaired its defect and the group continued its withdrawal at high speed. They rendezvoused (R/V) the fleet on 9 December.

The second missile attack had unexpected results. As is evident from the Pakistan Navy's account, the hit on one oil tank set several adjacent oil tanks on fire. The ships of the Pakistan flotilla which had withdrawn into harbour the previous day were told to reduce their outfits of ammunition so as to minimize explosion damage in case of being hit. Most significant of all, the neutral merchant ships which had witnessed the two missile attacks started seeking assurance of safe passage from the Government of India before sailing out of Karachi. Since no neutral shipping was heading for Karachi either, the Western Fleet, despite its limited resources, had achieved a de facto blockade without it having been declared. With the Pakistani flotilla in harbour, the Western Fleet controlled the approaches to West Pakistan from 9 December onwards.

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Raid on the Makran Coast

At the same time that the *Trishul* group had been detached to attack Karachi, FOCWEF had detached the *Mysore* group to bombard Jiwani. On the evening of 8 December, 75 miles south of Jiwani, the *Mysore* group encountered a merchant ship which, on seeing the *Mysore* group, reversed course towards Karachi and was heard calling Karachi on a frequency being monitored. The ship was signalled to stop but it did not comply. *Mysore* fired a broadside ahead of it and it stopped. *Ranjit* was sent to investigate and reported that it was the Pakistani merchant ship *Madhumati* registered in Karachi that had painted over its name to read *Adamant* to masquerade as a neutral ship registered in Manila. The ship was boarded and apprehended. FOCWEF assessed that the *Madhumati*'s call to Karachi would have diverted attention from the *Trishul* group headed for Karachi. This was confirmed when, soon after sunset, *Betwa* reported a slow-moving aircraft circling with lights on but staying out of gun range. FOCWEF told CO *Mysore* that there was no need to bombard Jiwani. The *Mysore* group withdrew with *Madhumati* and headed for the R/V where all groups were to rejoin on 9 December. All groups rejoined on that evening and were replenished. By the morning of the next day, the fleet had been steaming at high speed for eight days and cumulative defects were beginning to reduce the speeds that ships could sustain. FOCWEF decided that the fleet should return to Bombay, effect repairs, pick up two missile boats and return to the operational area. To outflank the enemy submarines deployed off Bombay, FOCWEF maintained absolute wireless silence, made landfall well south of Bombay and proceeded up the coast inside the 10-fathom line, through waters too shallow for submarines to operate. The ruse had succeeded and the fleet arrived safely at Bombay on 13 December. By the time the ships were ready to sail again, the Pakistan Army in the East had surrendered on 16 December and West Pakistan had accepted India's unilateral offer of ceasefire on 17 December 1971.

Operation Hunter Killer (Sinking of INS* Khukri*)

In his comparative assessment of the naval forces, FOC-in-C West had accepted that the Pakistan Navy's latest Daphne class submarines were far superior to not only Indian submarines but also Indian surface ships. Accordingly, all naval ships coming to or departing from Bombay hugged the shallow waters of the coast north and south of Bombay and altered landwards/seawards at random so that enemy submarines could never predict where to wait for targets. Immediately after Pakistan attacked on 3 December, systematic attempts were commenced to interfere with the Pakistan Navy's shore to submarine broadcast. This yielded a series of Direction Finding (D/F) positions of Pakistani submarines transmitting messages to Karachi. Progressively these D/F positions helped to confirm

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that one submarine was moving northwards off the coast of Bombay towards Diu. Since Diu was the assembly area for ships to be deployed for missile attacks on Karachi, this submarine threat started causing concern. However, all the anti-submarine frigates were away with the Western Fleet and no ships were immediately available to deal with this submarine.

The 14th Frigate Squadron (FS) *Khukri*, *Kuthar* and *Kirpan* had sailed with the Western Fleet on 2 December. *Kuthar* suffered a boiler explosion in the pm of 4 December. FOCWEF detached *Kirpan* to tow *Kuthar* back to Bombay escorted by Captain F14 in *Khukri*. En route to Bombay, at midday on 5 December, *Khukri* carried out an attack on a submarine, recorded the entire attack and explosions on tape and signalled that it considered the submarine destroyed. The 14 FS arrived at Bombay in the am of 6 December and *Kuthar* was taken in hand for repairs. FOC-in-C West decided to deploy the 14 FS along with the Navy's latest Seaking anti-submarine helicopters operating from Bombay to eliminate the submarine threat off Diu. The Seaking helicopters were to operate in the southern sector of the search area closer to Bombay and thereby have longer time on task. The frigates were to operate in the northern sector of the search area, closer to Diu Head.

> As expected there were sonar contacts and reports of occasional sightings of periscopes by Indian ships and maritime reconnaissance aircraft. There were subsequently confirmed sighting reports of an enemy submarine in the area west of Diu Head. D/F bearings obtained of a submarine which had transmitted a wireless message to Karachi also confirmed the position. This submarine was a potential threat to our shipping, and it was decided by the Western Naval Command to eliminate this threat. The 14th anti submarine squadron comprising Khukri (F14), *Kirpan* and *Kuthar* were the only force available for the task, together with some Seakings.
>
> Urgent operational orders for a hunt were prepared in consultation with Captain M.N. Mulla, Senior Officer of the Squadron, requiring the squadron to sail on 08 December for the last known position of the submarine. *Kuthar*'s problems were too serious to permit early readiness of the ship for sea. After considering the gravity of the situation and in consultation with F14, who accepted decreased anti-submarine capability of the two ships, *Khukri* and *Kirpan* were sailed for the hunt.[13]

It emerged that with the assistance of the Bhabha Atomic Research Centre in Bombay, a secret but promising experiment had been initiated to increase the range at which ship sonars could detect submarines. The modification equipment had been tried at sea, results were promising but further improvements were needed. These were completed after the Western Fleet sailed on 2 December. After the 14 FS returned to Bombay, approval was given by Admiral Kohli, FOC-in-C West, for the modification kit to be embarked in *Khukri* when it sailed on 8 December. Throughout the search on 8 and 9 December, when the modification equipment was connected up

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to *Khukri*'s sonar, the CO of *Khukri* had detailed discussions on the pros and cons of doing slow speed to increase detection range vis-à-vis doing higher speeds and decreasing detection range. A conscious decision was taken by him to move at a slower speed. The slow speed made *Khukri* vulnerable to a submarine attack.

PNS Hangor had sailed from Karachi on 22 November for a patrol off the Saurashtra coast. On 1 December, it was ordered to shift to the area off Bombay to relieve its sister submarine *Mangro,* which was completing its patrol. On 2 December, *Hangor* sighted the Western Fleet which was on its way to its patrol area. Hangor reported this to Karachi and continued its patrol off Bombay.[14] It was unable to find good warship targets. Thereafter, *Story of the Pakistan Navy* states: "in an effort to locate the evasive enemy, Hangor extended her patrol northwards to investigate some radio transmissions that she had intercepted on her sensors. In the early hours of the morning of 9 December, when she was off the Kathiawar coast, two contacts were picked up on her passive sonar on a north-easterly bearing. They were easily identified as warships by their sonar transmissions; radar indicated a range of 6 to 8 miles. A pursuit of the enemy began. When the first attempt to intercept the ships failed, the submarine began snorkelling to gain speed. Hangor, however, failed to attract the attention of the ships and contact was lost as the range increased. By the evening of 09 December, she was able to make out the pattern of their movement by tracking them with the aid of her sensors. The ships were carrying out a rectangular anti-submarine search."[15]

While in the process of hunting, the enemy submarine with its superior sonar facility located *Khukri* before it was detected by the ship, and fired a salvo of three torpedoes in quick succession that struck *Khukri*. The ship sank in a matter of minutes at 2055 hrs on 9 December, taking down with it 18 officers and 176 men including the Commanding Officer, Captain M.N. Mulla. It was a serious blow in an encounter in which the superior underwater destruction capability and its allied weapons systems of a modern submarine turned the scales and thus the hunter became the hunted. A subsequent technical enquiry also revealed certain failings and non-compliance on the part of *Khukri*'s anti-submarine (A/S) team with the laid down A/S doctrine. *Kirpan*, which had been searching for the submarine together with *Khukri*, reported detecting torpedoes going past it at the time *Khukri* was torpedoed. *Kirpan* took vigorous evasive action and fired mortars on the torpedo bearing. After a few salvoes, its mortars went non-operational. *Kirpan* now faced a dilemma: should it rescue *Khukri*'s survivors by going amidst them on a dark night or should it lower boats to rescue survivors? Both actions would require *Kirpan* to stop and this would make it an easy target for the submarine, if it chose to attack *Kirpan*. Or should *Kirpan* leave the area, repair its mortars and return to the area with

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an additional ship to rescue the survivors and start hunting the submarine? This, however, would give the submarine time to get away from the scene of the sinking and consequently greatly enlarge the area to be searched. The CO of *Kirpan* decided to withdraw from the scene and return later.

Operation Falcon

A massive hunt was launched for the submarine with all available anti-submarine ships, Seakings and Alizés. The Alizés laid a barrier of sonobuoys and the Seakings continued to operate from Diu until the passage became so long that time on the job was much reduced. The IAF mounted sustained maritime reconnaissance searches in search of the submarine. For the next four days, all forces were engaged in relentless and coordinated activity. Ships reported successful attacks on all four days. The submarine was slowly making its way towards Karachi where air cover would prevent further attacks and save it. It was evaluated by those taking part in the hunt that the submarine had been severely damaged and that its arrival in Karachi was problematic. The hunt was terminated reluctantly on the evening of 13 December as Indian forces were approaching within range of shore-based Pakistani aircraft.

The Eastern Theatre

The Operational Plan of the Eastern Naval Command

The formulation of the Eastern Naval Command's operational plan was based on a comprehensive analysis of the maritime theatre in the Bay of Bengal and the anticipated objectives in East Pakistan. From this assessment, a set of definitive operational tasks emerged. These were: (a) to launch attacks from the sea on Chittagong Harbour; (b) to conduct similar naval assaults on the harbours at Cox's Bazar, Chalna, Khulna, and Mongla; (c) to destroy enemy shipping both off the ports and at sea; (d) to undertake subsequent offensive actions against targets of opportunity; and (e) to carry out diversionary or actual amphibious landings as required.[16]

Keeping these tasks in mind, the submarine INS *Khanderi* was to be deployed across the shipping lanes extending from south of Ceylon to Chittagong. Its mission was to intercept and attack Pakistani naval and merchant vessels transiting the area, while simultaneously providing intelligence on the movement of Pakistani maritime forces.

The logistic backbone of the operation was formed by three landing ships, INS *Magar*, an older vessel, and two newly acquired ships from the Soviet Union, INS *Gharial* and INS *Guldar*. These were grouped into a logistic support squadron and tasked with general support duties. Their role was to sustain naval operations until an amphibious landing was ordered.

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Among the older vessels, the former British destroyer INS *Rajput* had previously been decommissioned and sent to Visakhapatnam for disposal. However, it was refitted locally to impart basic seamanship training to newly recruited sailors. Once restored to seaworthy condition, *Rajput* was reassigned to general patrol duties, thus augmenting the limited assets available to the Eastern Command.

The patrol component consisted of three Russian-built P-class patrol boats: INS *Panvel*, INS *Pulicat*, and INS *Panaji*. Of these, *Panvel* was specially fitted with twin 40 mm guns and assigned offensive patrol duties in the riverine approaches to the Khulna–Mongla–Chalna port complex. The remaining two, *Pulicat* and *Panaji*, were tasked with local patrols and security operations, operating in concert with the seaward defence boat INS *Akshay*.

In July 1971, the Flag Officer Commanding-in-Chief, Eastern Naval Command (FOC-in-C East), proceeded to New Delhi to present his analysis and detailed operational plan for approval. The proposals received broad acceptance, and the Chief of the Naval Staff (CNS) granted authorization for their implementation should hostilities arise. The FOC-in-C East was also empowered to coordinate directly with his counterparts in the Eastern theatre, the General Officer Commanding-in-Chief, Eastern Command, and the Air Officer Commanding-in-Chief, Eastern Air Command.

Deployment of INS *Vikrant*

Since June 1970, the aircraft carrier INS *Vikrant* had remained non-operational in Bombay Harbour due to serious structural failures in its propulsion system. Radiographic examination revealed cracks and leaks in the water drum of the A1 boiler, and subsequent inspection showed that the other three boilers also suffered from extensive internal fatigue fissures at their circumferential riveted joints. These defects were beyond repair by conventional welding methods.

Given the severity of the damage, long-term indigenous repair was deemed unfeasible. Orders were accordingly placed in the United Kingdom for four new water drums. In the interim, Naval Headquarters directed that the boilers not be used until further notice, and the A1 boiler was sealed off.

Preliminary Restoration and Trials

After months of inaction, *Vikrant* was moved on 26 February 1971 from the Ballard Pier Extension to the anchorage, executing what was termed a “cold move”. The objective was to flash up each boiler at reduced steam pressure and to test the main and flight deck machinery, which had remained idle for nearly seven months.

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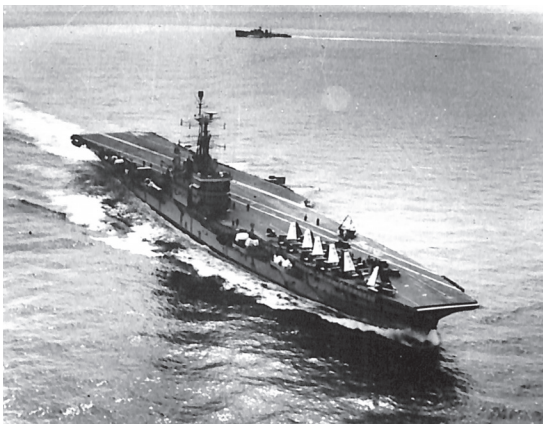
Fig. 3.2: INS *Vikrant*



Source: Naval History Division, Indian Navy

On 1 March 1971, the boilers were first ignited, and basin trials were carried out up to 40 revolutions per minute (RPM), both ahead and astern, while the ship was secured to E1 Buoy. Fast pull-out catapult trials were successfully completed the same day. A modification to the catapult steam supply system in the forward machinery room was also tested and proved fully satisfactory; an alteration that would later prove crucial in the 1971 war, as it enabled the Seahawk aircraft to be launched at 160 RPM. *Vikrant* then proceeded to sea for preliminary sea trials from 18 to 20 March 1971, followed by another sortie on 26 April, returning the next day. The results of these trials indicated that it was technically feasible to operate the boilers at 400 psi pressure, thereby restricting the ship's speed to 14 knots, with a maximum of 120 revolutions ahead and 60 astern.

The Strategic Dilemma

By May 1971, as Naval Headquarters began to outline operational concepts for potential hostilities, the central question arose: what should be done with *Vikrant*?

Admiral S.M. Nanda, then Chief of the Naval Staff, later recalled:

> When the circumstances became clear that we might have to go to war, there was a feeling that we should leave *Vikrant* in Bombay Harbour. I said no, because during the 1965 war *Vikrant* had also remained in harbour and did not go to sea. If the same thing happened again in 1971, *Vikrant* would be called a white elephant, and Naval Aviation would be written off. *Vikrant* had to be seen as operational, even if we did not fly aircraft. [17]

He acknowledged the apprehensions surrounding such a decision:

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> There was fear, and probably rightly so, that if *Vikrant* were torpedoed or sunk, India and the Navy would lose immense prestige. To send her to sea was a difficult decision. Her speed was restricted, and her boilers were damaged. It was uncertain whether she could operate aircraft or the catapult system. I asked, "If we operate on three boilers, what will happen?" The answer was, "We may not be able to catapult aircraft." Knowing that, I asked, "Can we at least steam—even at limited speed?" When the answer was yes, I said, "Alright, let her steam." And so we sent *Vikrant* out from Bombay.[18]

Professional Debate and Risk Assessment

In *No Way But Surrender*, Vice Admiral N. Krishnan described the prevailing professional doubts regarding the carrier's deployment:

> There were many in the service, including senior officers, who considered *Vikrant* a liability in any war with Pakistan. They argued that her deployment involved inherent risks, particularly from underwater threats, which would require considerable escort effort. Some suggested that *Vikrant* should take no part in the war but remain tucked away inside Cochin.
>
> The pessimists were not without reason. The three newly acquired Daphne class submarines of the Pakistan Navy posed a grave threat. Their detection systems and torpedoes were sophisticated; once *Vikrant* was detected and her escort screen penetrated, she would be in mortal danger. Even six escorts could not guarantee her safety.
>
> Moreover, morale and national prestige weighed heavily on our minds. If *Vikrant* were sunk, it would be a catastrophic loss, both strategically and psychologically. She was the core around which our Fleet was built, and her destruction would have been a national disaster.[19]

These concerns underscored the magnitude of the decision before the naval leadership.

Admiral Nanda's Leadership Approach

Admiral Nanda's leadership style was pragmatic and participatory. When faced with difficult operational or technical challenges, he preferred to visit the ships personally, consult those with direct knowledge, listen to differing viewpoints, and ask commonsense questions before formulating a decision. Once he had gathered all perspectives, he would return to Naval Headquarters to discuss the options with his staff, weigh risks against potential gains, and ensure a collective understanding of responsibility. His approach fostered professional confidence and ensured that decisions, though bold, were founded on reasoned consensus.

In May 1971, Admiral Nanda chaired multiple discussions on the *Vikrant* issue, evaluating the risks and benefits of deployment. After careful deliberation, it was decided to operate the three functional boilers for 500

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hours under controlled conditions, followed by radiographic examination to monitor the behaviour of existing cracks. The trial results were encouraging, and no further deterioration was detected. In June 1971, Naval Headquarters authorized sea trials under strict safety measures. To allay fears among the engineering crew, steel safety harnesses were strapped around the water drums of the remaining boilers to prevent rupture. Observation windows were also installed to detect early traces of steam leaks.

Further, to stabilize steam pressure during aircraft launches, a modification was introduced on the main steam range. This allowed the two aft boilers to be cross-connected to the catapult steam accumulator, balancing the forcing rates of the forward and aft boilers.

By the end of June, the sea trials were deemed successful. As a precautionary measure, Naval Headquarters formally restricted *Vikrant*'s maximum speed to 14 knots, ensuring safe operational limits while preserving its readiness for deployment.

Vikrant's Passage to the Eastern Coast

On 23 July 1971, the aircraft carrier INS *Vikrant* sailed in company with units of the Western Fleet, bound for Cochin. Lieutenant Commander (later Vice Admiral) B. Bhushan, then Senior Engineer Officer of *Vikrant*, later recalled that even this transit was not without complications.[20] Shortly after departure, it was discovered that one of the boiler feedwater tanks was contaminated, leaving the ship short of usable feedwater. A "council of war" was convened in the engine room to assess whether to return to harbour or proceed. Bhushan reported that the distilling plants had begun producing clear water, and unless a further breakdown occurred, feedwater reserves could be replenished en route. The decision was taken to continue with the voyage, a decision that proved sound in hindsight.

After an intensive shakedown during the passage, *Vikrant* conducted landing trials with Seaking helicopters before entering Cochin on 26 July 1971. Two days later, it sailed again for radar and communication trials, after which it proceeded to Madras escorted by INS *Brahmaputra* and INS *Beas*.

Initial trials off Madras revealed that *Vikrant* could maintain a speed of 16 knots at maximum revolutions of 140, without undue strain on her three operational boilers. This outcome restored confidence in the carrier's machinery, which had been operating under considerable limitations due to age and maintenance challenges.

Admiral Nanda later recalled that the next crucial question was whether *Vikrant* was capable of launching and recovering aircraft under these constraints.[21] He visited the ship personally, accompanied by Vice Admiral N. Krishnan, FOC-in-C East, to evaluate its operational readiness.

Captain (later Vice Admiral) S. Parkash, the Commanding Officer

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of *Vikrant*, remembered the meeting vividly. He expressed concern that possessing an aircraft carrier that could not operate its aircraft would severely affect morale. He sought permission to embark and operate Alizé aircraft, even under restricted speed conditions. Admiral Nanda, after some discussion, encouraged him to attempt flying trials at his discretion, an informal yet decisive approval that set the stage for *Vikrant*'s eventual combat readiness.

To achieve limited flight operations, two conditions were identified: the need to steam the second forward boiler at full load to increase speed, and the acceptance of launching and recovering aircraft under marginal conditions. Commander (E) B.R. Chowdhury (later Vice Admiral), *Vikrant*'s Engineer Officer, whose prior experience on board proved invaluable, advised that the machinery's performance on passage from Bombay to Madras justified operating all three boilers independently at full load. This approach would enable sufficient speed for limited flying operations.

The aircrew's determination and professionalism were exemplary. Despite the risks, they willingly undertook flight trials under marginal conditions. Initial trials were successful, and an Alizé aircraft was eventually hooked on board without incident. Naval Headquarters subsequently signalled formal approval to embark additional Alizés and, later, the Sea Hawk squadron, thereby restoring *Vikrant*'s air capability.

Work-Up for War

Between August and October 1971, *Vikrant* and her escorting ships underwent a rigorous work-up programme. Initially, a few Alizé aircraft conducted short landings and take-offs, followed by Sea Hawk fighters. Gradually, the entire air wing achieved operational proficiency. In mid-September, FOC-in-C East embarked on *Vikrant* off Visakhapatnam to oversee a comprehensive exercise programme. His official account records that the fleet was put through a demanding series of manoeuvres, culminating in a simulated attack on Visakhapatnam. Despite progress, he remained dissatisfied with the fleet's overall efficiency and the coastal defences of the port, ordering intensified training to correct deficiencies.[22]

On 24 September, Naval Headquarters issued the operational directive outlining FOC-in-C East's wartime objectives:

(a) Destruction of enemy forces and shipping
(b) Strikes on enemy ports and bases, with support to ground forces where feasible
(c) Denial of access to East Bengal by ships of all nations through contraband control and blockade measures
(d) Security of Indian ports and bases, including the Andaman and Nicobar Islands

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Rear Admiral S.H. Sarma was appointed as the Flag Officer Commanding, Eastern Fleet (FOCEF) designate, and arrived at Visakhapatnam on 14 October 1971. In mid-October, intelligence suggested that Pakistan might launch a pre-emptive strike. All ships were ordered to immediate readiness, though the alarm later subsided. Further tactical exercises followed, culminating in a mock night attack on Visakhapatnam on 26–27 October. *Vikrant* then returned to Madras for final maintenance.

Final Preparations and Dispersal

The Eastern Fleet was formally constituted on 1 November 1971. On 6 November, the CNS embarked for a day of sea exercises. By 13 November, all ships had departed Madras and assembled in the Andaman and Nicobar Islands. As hostilities loomed, it was decided that *Vikrant* and her escorts would be concealed at a remote anchorage, isolated from external communication, to complete final preparations. Simultaneously, a series of deception signals were transmitted to suggest that *Vikrant* was still operating between Madras and Visakhapatnam.

The submarine *Khanderi* sailed for its patrol area in mid-November with orders to return on 14 December. To sustain operations in distant waters, the old landing ship *Magar* was modified to carry furnace fuel oil to replenish *Vikrant*. The carrier also provided its escorts with fuel, water, bread, and workshop support. On 21 November, Indian and Pakistani troops clashed at Boyra in East Pakistan. The next day, FOC-in-C East proceeded to New Delhi for a joint briefing of the Army, Navy, and Air Force Commanders-in-Chief before the Defence Minister. That night, President Yahya Khan of Pakistan publicly declared that his nation would soon be at war. On 23 November, a state of emergency was proclaimed in Pakistan. By 2 December 1971, the Eastern Fleet had sailed toward its patrol area, anticipating a Pakistani pre-emptive attack. The stage was thus set for the opening naval operations of the Bangladesh Liberation War. Having sailed from the Andaman Islands on 2 December, the Eastern Fleet was within striking distance of Cox's Bazar on the morning of 4 December. As previously planned, the Air Force had carried out strikes on Cox's Bazar and Chittagong, after which Vikrant was cleared to strike these ports.

Contraband Control

Due to shortage of ships to escort apprehended ships all the way to Sandheads, an assembly anchorage was established. Apprehended ships were made to anchor in this area and, when a sizable number had been assembled, one ship would escort them to Sandheads. On the night of 9-10 December, pursuant on a report from Commander Samant's Commando Force Alfa which was on its way to attack Chalna-Mongla, Pakistani merchant ships *Anwar Baksh* and *Baqir* were apprehended whilst leaving the

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Pussur River. *Anwar Baksh* was masquerading as a Japanese ship and had some Pakistan troops on board disguised as civilians. In addition, another ship was apprehended.[23] On 10 December, Alizés bombed the runway of Cox's Bazar. A merchant vessel of the Shipping Corporation of India was commissioned as INS *Deshdeep* and directed to anchor in the approaches to the Matla River. At about 5.30 pm on Friday 10 December, the Eastern Command intercepted a signal to the effect that the US Navy was sending ships into the Bay of Bengal, for possible withdrawal of the Pakistani Army. It was a message from Commodore Chittagong to the FOC East Pakistan Navy: "Two coasters ready at Gupta Crossing. A/A defence strengthened. All foreign ships cleared of harbour. Own merchant ships disguised. Naval personnel deployed in defensive positions and integrated with fortress defence. Pilot for RK 623 will be ready by 1800-1900 in speed boat. Further mining of approaches will be carried out after RK 623 enters."[24] Vice Admiral Krishnan goes on to say, "By this time it was also becoming clear that the US Seventh Fleet was in fact speeding towards the Bay of Bengal and the Fleet was a large one and included the nuclear-powered aircraft carrier USS *Enterprise*. But this Fleet was still far away and it would be at least 72 to 96 hours before they could make their presence felt in the Bay. But once the Fleet reached near enough to the operational area, the situation could well change with a dramatic suddenness that would make us lose all the initiative in the naval war."[25]

Sinking of PNS *Ghazi*

The Pakistani submarine PNS *Ghazi* was despatched on 14 November 1971 to the Visakhapatnam naval base in the Bay of Bengal with the primary objective of destroying the Indian aircraft carrier INS *Vikrant*, which was reported to be operating in the area. "*Ghazi* which had sailed towards Visakhapatnam with special instructions, had to reach its destination on 26 November 1971."[26]

According to Vice Admiral N. Krishnan, "The problem of *Vikrant*'s security was a serious one and brought forth several headaches. By very careful appreciation of the submarine threat, by analyzing data such as endurance, distance factors, base facilities, etc. we had come to the definite conclusion that the enemy was bound to deploy the submarine *Ghazi* against us in the Bay of Bengal with the sole aim of destroying our aircraft carrier *Vikrant*. The threat from *Ghazi* was a considerable one. Apart from the lethal advantage at the pre-emptive stage, Vikrant's approximate position would become known once she commenced operating aircraft in the vicinity of the east Bengal coast. Of the four surface ships available, one had no anti-submarine detection device (sonar) and unless the other three were continually in close company with *Vikrant* (within a radius of 5 to 10 miles), the carrier would be completely vulnerable to attack from PNS

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Ghazi which could take up her position surreptitiously and at leisure and await her opportunity."[27]

On the night of 3 December 1971, *PNS* Ghazi was in the waters of Visakhapatnam. INS *Rajput* sailed from Visakhapatnam harbour before midnight of 3–4 December 1971 and, on clearing harbour, proceeded along the narrow channel. Having come clear, the Commanding Officer saw what he thought was a severe disturbance in the water, about half a mile ahead. He rightly assumed that this might be a submarine diving. He closed the spot at speed and dropped at the position two depth charges (an underwater explosive weapon dropped from a ship/ aircraft to destroy a submerged submarine). A little later, a very loud explosion was heard and PNS *Ghazi* had sunk. It was subsequently established that the position where the depth charges were dropped was very close to the position of the wreck of the *Ghazi*.

Naval Commando Operation at Mongla–Khulna, 8–11 December 1971

Lieutenant General J.F.R. Jacob, in his account of the 1971 Bangladesh Liberation War, provides detailed insights into the naval operations conducted in the Chalna–Mongla and Khulna regions. According to him, a naval task force was ordered to attack Pakistani shipping anchored at Chalna and Mongla. Commander M.N.R. Samant, who was leading the force, initially expressed his intention to advance further and attack Khulna. However, he was instructed not to proceed beyond Chalna–Mongla, as Indian ground forces were simultaneously preparing an assault on Khulna, where substantial Pakistani defences were stationed.

In his book, *Surrender at Dacca*, Lieutenant General Jacob writes: "Since the Mukti Bahini later would need more craft to convert into gunboats in the event of full scale hostilities, we approached the West Bengal Government for assistance. They were most helpful and gave us two craft on loan, MV *Palash* from the Calcutta port trust, and MV *Padma*. Our workshops reinforced the decks and mounted Bofors L/60 anti-aircraft guns on them. Crews for these were to be found from amongst Bengali Naval personnel of the Pakistani Navy. Cdr Samant of the Indian Navy, an outstanding submariner, was assigned to assist. The Task Force was, in the event of war, to operate directly under the orders of Eastern Command at Fort William and not Eastern Naval Command. Later, when operations commenced, these two gunboats operated with considerable success."[28]

Commander Samant was informed of the "bomb line" established for the Indian Air Force operations, which included Khulna within its target zone. To prevent misidentification by friendly aircraft, the Advance Headquarters of the Eastern Air Command instructed that the superstructures of the

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vessels be painted yellow for identification. Once this was completed, the air squadrons operating in the region were duly informed.

Formation and Early Movements of Force Alpha

Commander (later Captain) M.N.R. Samant later recalled that a composite group, designated Force Alpha, was formed for the operation. This force comprised the Mukti Bahini gunboats *Padma* and *Palash*, the Indian Navy's INS *Panvel*, and the Border Security Force craft *Chitrangada*. Captain Samant served as the Senior Officer of this formation. The group sailed from Hasnabad on the Indian side, navigating through the intricate backwaters of East Pakistan with the assistance of Indian Army Ordnance maps. They reached Akram Point, near the entrance to the Pussur River, early in the morning around 0200 hours.

> In addition to the air strikes and the blockade, we decided to mount a special commando operation on the harbours of Chalna and Khulna. Cdr Samant was allotted Panvel and in company with two gunboats Padma and Palash, manned mostly by the Mukti Bahini, they would enter these harbours and attack the ships and soldiers there. Cdr Samant describes the sequence of events. This operation took place on 09 and 10 December.[29]

Commander M.N. Samant recalls: "After the war was declared, Lt General Arora and Major General Jacob ordered me to organise a maritime attack on Chalna and Mongla. This was because the Indian Army's 41 Brigade was directly locked in combat with its Pakistani counterpart to take over the Chalna and Khulna area, which was not falling. So the next best alternative was to mount an attack from seaward to dislocate the Pakistan troops."[30]

Upon arrival, radar detected two contacts moving seaward. These could not be engaged as they were beyond the effective range of the Bofors 40/60 guns aboard. Samant immediately transmitted a flash signal to FOC-in-C East, *INS Vikrant*, and Headquarters Eastern Command. Subsequently, both vessels, identified as the Pakistani merchant ships *Baqir* and *Anwar Baksh,* were captured at sea. These ships were carrying Baluchi troops and their families attempting to evacuate to Pakistan.

Attack on Chalna–Mongla and Advance to Khulna

Following this success, Force Alpha advanced toward Chalna–Mongla, arriving by midnight. The harbour was already ablaze, with two merchant vessels, the *North Pole* and the *Ocean Enterprise* (the latter a Pakistani ship), burning as a result of earlier air strikes by the Indian Air Force and Fleet Air Arm. By the following morning, the force found that Pakistani forces had largely abandoned the area, leaving behind only minor resistance, which was quickly neutralized.

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Encouraged by this progress, Samant decided to advance toward Khulna to capture it and provide support to Indian Army operations from the rear. The force reached the vicinity of Khulna by 1100 hrs. The town appeared to function normally, and as the flotilla passed the Qureshi Steel Mill and approached a small shipyard on the west bank of the Pussur River, they observed an old Ethiopian merchant ship, MV *Lightning*, previously damaged by Mukti Bahini commandos. As the vessels neared the Khulna Jail, local residents cheered the force, shouting "Jai Bangla". Samant's objective was to reach the Pakistan Navy establishment, PNS *Titumir*, and secure it.

Friendly Fire Incident

At this critical juncture, three Indian Air Force Gnat fighters appeared overhead. Despite the display of the pre-arranged identification, a large yellow flag, the aircraft mistook the flotilla for enemy vessels and launched an attack in broad daylight. The Indian boats returned fire, not to inflict damage but in an attempt to deter further attacks. Nevertheless, *Padma* and *Palash* were hit and set ablaze. INS *Panvel* managed to evade damage through sharp maneuvering, while *Chitrangada*, left behind at Chalna–Mongla due to its slow speed, escaped involvement.

Samant and his men rescued survivors from the burning vessels, suffering several casualties, with four to five Mukti Bahini sailors killed, one BSF jawan mortally wounded, and several injured, including Samant himself, who sustained a grazing bullet wound. Shortly thereafter, a second wave of Gnats appeared but recognized the friendly forces and diverted to strike shore targets instead. Pakistani troops, taking advantage of the confusion, opened fire on the survivors in the water, prompting Samant to return fire from INS *Panvel*, using nearly all available ammunition to silence the enemy. After recovering the wounded, he hoisted the Bangladesh flag over Khulna Jail before withdrawing to Hasnabad for medical attention.

Lieutenant Commander J.P.A. Noronha, Commanding INS *Panvel*, corroborated this account and elaborated on his actions during the air attack. Believing that the Pakistani forces had also mistaken them for Pakistani vessels, he exploited the confusion. To protect his crew, he maneuvered the ship up the riverbank, maintaining full engine speed to create smoke and give the illusion that the vessel had been hit. This deception prevented further air strikes during subsequent sorties. However, after grounding the ship twice, once on each riverbank, Noronha and his crew came under fire from local *Razakars* (pro-Pakistan paramilitary force created to counter Mukti Bahini) who had realized the ship's true identity. He reassembled his men, reboarded the vessel, and returned fire to suppress the attackers.

Noronha then undertook rescue operations for survivors from *Padma* and *Palash*, managing to save 14 men. He also engaged Pakistani forces along the shore, targeting ships previously damaged and repurposed as floating fortresses. His gunfire successfully neutralized these enemy positions.

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Lieutenant General Jacob later summarized the incident as an unfortunate case of over-enthusiasm and tragic misidentification. Commander Samant, he noted, "in his over-eagerness, decided to attack Khulna". Despite clear yellow markings, the Air Force failed to identify the vessels correctly, resulting in what NATO terminology refers to as "friendly fire". Fortunately, the Mukti Bahini controlled the surrounding area, minimizing casualties. Recognizing Samant's courage and leadership, the Eastern Command recommended him for the Maha Vir Chakra.

Ultimately, both Commander M.N.R. Samant and Lieutenant Commander J.P.A. Noronha were awarded the Maha Vir Chakra for their gallantry and devotion to duty during this operation, an acknowledgement of their bravery in the face of both enemy and tragic friendly fire.

Air Strikes

4 December 1971

Having sailed from the Andaman Islands on 2 December, the Eastern Fleet reached within striking distance of Cox's Bazar by the morning of 4 December. As planned, the Indian Air Force conducted strikes on Cox's Bazar and Chittagong, after which the aircraft carrier INS *Vikrant* was cleared to launch naval air attacks on these ports.

In the morning, aircraft attacked Cox's Bazar airfield, executing rocket and strafing runs that set the Air Traffic Control tower, power house, and wireless station on fire. Fuel tanks were also ignited. Later in the day, Chittagong was struck, resulting in damage to the hangar and control tower, destruction of fuel dumps, and the immobilization of two Pakistani gunboats, one of which was set ablaze. Six Pakistani merchant ships anchored offshore were also attacked, with two sustaining heavy damage, despite medium and heavy anti-aircraft (AA) fire.

Blockade and Contraband Control

A naval blockade of East Pakistan was declared but temporarily lifted that evening. Contraband control measures were instituted, allowing neutral ships 48 hours to clear the combat zone. Eight vessels were inspected and cleared to continue their voyages.

5 December 1971

Adverse wind conditions prevented the launch of aircraft throughout the day. Contraband control operations continued, and by nightfall wind conditions had improved sufficiently for flight operations to resume.

6 December 1971

At night, two Alizé aircraft carried out bombing and rocket attacks on Mongla and Chalna, damaging two ships in the Pussur River and harbour

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installations at Chalna. At dawn, follow-up strikes targeted Mongla and Chalna once more, encountering medium AA fire. Four Pakistani gunboats were hit, two destroyed and two damaged, along with one tug destroyed and another damaged. Additional attacks were conducted on Khulna, damaging a merchant ship, tugs, small craft, and port facilities.

In the Pussur River, aircraft strafed and damaged a Pakistani cargo vessel and destroyed the merchant ship *Ondarda* at the river's entrance. Afternoon operations at Chittagong damaged a merchant ship and a gunboat, while harbour installations and the control tower were struck amidst heavy AA fire. Night raids by Alizé aircraft bombed the runways at both Chittagong and Cox's Bazar airfields.

Two ships were intercepted and directed to Sandheads near Calcutta.

7 December 1971

At dawn, Alizé aircraft bombed Chittagong airfield, destroying the hangar and vehicles, setting fire to fuel dumps, and encountering moderate AA resistance. Cox's Bazar airfield was also attacked, with vehicles and the wireless station destroyed. Afternoon reconnaissance flights were conducted over Mongla, Chalna, and Barisal.

By evening, the Flag Officer Commanding Eastern Fleet (FOCEF) reported to the Flag Officer Commanding-in-Chief Eastern Naval Command (FOC-in-C East) that air superiority had been achieved across the operational area. No enemy aircraft were sighted either on the ground or in the air. Due to insufficient wind, Seahawk aircraft could not be launched with bombs, and Alizé aircraft were employed for night sorties.

Six ships were apprehended and escorted to Sandheads. Urgently required supplies from Visakhapatnam were received via a Landing Ship Tank (LST).

Incident with United Nations Aircraft

On 6 December, Naval Headquarters had notified that a UN aircraft would transit the area to evacuate foreign nationals from Dacca. The aircraft did not appear that day, but on 7 December, a C-130 Hercules approached within 5,000 yards of INS *Vikrant*. Mistaking it for a hostile aircraft, the carrier's close-range guns fired a short burst. The plane turned away and departed safely, and was later confirmed as a UN flight.

8 December 1971

Intercepted communications indicated that Pakistani forces were attempting to arrange escape routes by sea, air, and land. Numerous river craft were being camouflaged to transport fleeing troops. Concentrations of Pakistani forces were reported at Barisal, and intelligence suggested a large assembly of vessels between Barisal and Narayanganj in preparation for a breakout. *Vikrant* was tasked to prevent these escape attempts. Due to

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low wind conditions, Seahawks remained grounded while Alizés continued night strikes.

9 December 1971

Night bombing by Alizé aircraft over the Barisal area revealed no enemy craft. At dawn, attacks on Barisal, Bakarganj, and Patuakhali destroyed three cargo barges and an army camp. Further strikes in the Hatia and Dakhin Shahbazpur regions damaged two tankers and a gunboat in the Meghna River. At Chittagong, Seahawks strafed the ordnance factory and wireless station under heavy AA fire. Wind conditions remained inadequate for further Seahawk operations.

Due to a shortage of escort vessels, apprehended ships were assembled in a temporary anchorage before being convoyed to Sandheads. That night, Commander M.N.R. Samant's Force Alpha, en route to attack Chalna–Mongla, intercepted Pakistani merchant ships *Anwar Baksh* and *Baqir* attempting to flee the Pussur River. *Anwar Baksh*, posing as a Japanese vessel, carried Pakistani troops disguised as civilians. Both ships, along with another vessel, were captured.

10 December 1971

The Alizé aircraft bombed the runway at Cox's Bazar. Unfavourable wind conditions continued to prevent Seahawk operations. One ship was apprehended. The tanker *Deshdeep*[31] (commissioned as INS *Deshdeep*) was anchored near the Matla River to refuel fleet units ahead of an amphibious landing scheduled for 12 December.

American Intervention

According to Admiral Krishnan, at approximately 1730 hrs, signals were intercepted indicating that the US Navy was dispatching ships into the Bay of Bengal to facilitate a possible evacuation of the Pakistani Army. Communication between Admiral Krishnan and Admiral Nanda confirmed awareness of this development, though details were scarce.

11 December 1971

Admiral Krishnan's account records the interception of a critical signal from Commodore Chittagong to the Flag Officer Commanding East Pakistan Navy, referring to "Convoy RK 623". The message indicated preparations for a major breakout operation from Chittagong under the "Denial Plan", involving disguised merchant ships, strengthened anti-aircraft defences, and the mining of harbour approaches.

Simultaneously, intelligence confirmed that the US Seventh Fleet, including the nuclear-powered aircraft carrier USS *Enterprise*, was advancing toward the Bay of Bengal. Though still distant, its potential arrival within

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72 to 96 hours posed a strategic concern. Admiral Krishnan reassessed the situation, determining that while Indian forces held complete control over Bangladesh's maritime approaches, any withdrawal of *Vikrant* for refuelling could create an opportunity for Pakistani escape.

The Eastern Naval Command concluded that the Pakistani Navy's remaining hope lay in a breakout from Chittagong, possibly under US air cover. To prevent this, *Vikrant* was ordered to destroy all remaining shipping and render the Chittagong airfield permanently inoperative.

Attack on Convoy RK 623

At dawn, Alizé aircraft were dispatched to locate and destroy the mysterious RK 623. One aircraft identified what appeared to be a small island, later confirmed to be a camouflaged convoy comprising a gunboat, a tug, and two barges. A rocket attack by the Alizé struck the formation, destroying the barges and grounding the gunboat, later identified as PNS *Jessore* of the Rajshahi class, thus ending the Pakistani breakout attempt. Due to calm seas, Seahawk operations remained grounded throughout the day, forcing reliance on Alizé aircraft for reconnaissance and limited attacks. Despite these constraints, the blockade remained effective.

12 December 1971

Wind conditions finally improved, enabling *Vikrant* to launch a series of heavy air strikes. From 0600 hrs onward, 29 Seahawk sorties armed with 500-pound bombs and rockets were conducted against Chittagong and surrounding targets. The runway was repeatedly struck and rendered unserviceable. Merchant ships attempting to flee were heavily bombed and disabled. Throughout the day, additional sorties destroyed harbour installations and silenced gun positions. Despite heavy anti-aircraft (AA) fire, all aircraft returned safely.

The day's operations were summarized by FOCEF in a signal to FOC-in-C East:

> After twenty-four hours of continuous sorties involving Alizé reconnaissance and bombing, and twenty-eight Seahawk strikes, Cox's Bazar and Chittagong airfields have been rendered inoperative. All merchant shipping in Chittagong harbour and its approaches has been incapacitated. There is a complete absence of shipping along the entire coast from Chalna eastward to Cox's Bazar.

In addition, INS *Beas* and INS *Brahmaputra* conducted surface bombardment of Cox's Bazar airfield, with direct hits recorded on the control tower.

13 December 1971

Morning raids targeted Cox's Bazar, where Alizé aircraft bombed the runway. At Chittagong, successive Seahawk strikes damaged two merchant

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ships, a tanker, and AA gun positions. Afternoon attacks destroyed a warehouse, sank a merchant ship, and bombed the ordnance factory amid heavy AA resistance. The fleet subsequently refuelled in preparation for an amphibious operation.

14 December 1971

Seahawk aircraft attacked Chittagong Cantonment, inflicting damage on army barracks, while Alizé aircraft bombed the designated beachhead. Reconnaissance revealed no enemy craft near the Pussur estuary or Cox's Bazar. *Vikrant* detached to Paradeep for refuelling. One ship was apprehended during contraband patrols. The planned amphibious landing was postponed to 15 December due to delays in troop transfer operations.

15–16 December 1971

On 15 December, an amphibious landing was attempted at Reju Creek. Only one platoon could be landed as one LST sustained damage. The force regrouped overnight and shifted operations to Cox's Bazar. The following day, 16 December 1971, Pakistani forces in East Pakistan formally surrendered. The landing of Indian troops and equipment at Cox's Bazar continued until 19 December, marking the successful conclusion of naval operations in the Eastern theatre.

Damage Inflicted by *Vikrant*'s Air Strikes

The following wrecks of large merchant ships sunk, run aground or split into two were identified:

Karnaphuli	6876 GRT
Surma	5890 GRT
Al Abbas	9142 GRT
Anis Baksh	6273 GRT
Ocean Enterprise	5909 GRT
Materan	1198 GRT
Unidentified Ship	1800 GRT
Maihar	5938 GRT
Rangamati	5888 GRT
Two Unidentified Ships	
Capsized – Approx.	8000 GRT
Total	**56,914 tons**

In addition to the above 57,000 tons of merchant ships, PNS *Jessore*, *Comilla,* and *Sylhet* were destroyed.[32]

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Submarine Operations

INS *Khanderi* sailed on 28 November 1971 to patrol an area across the shipping route from Ceylon to Chittagong. Its mission was:

(a) To destroy Pakistani naval ships
(b) To destroy Pakistani merchant ships
(c) To provide timely intelligence on Pakistani maritime forces

Like its sister submarines off the West Coast of India, *Khanderi* was also tied down to the requirements of positive identification and informed that Pakistani merchantmen were masquerading as neutrals. Like the others, it also had an uneventful patrol and returned to harbour on 14 December 1971.

Operation Beaver

On 9 December, the Chiefs of Staff approved an amphibious operation with the objective of cutting off the retreat of Pakistani forces attempting to withdraw southward into Burma. Naval Headquarters (NHQ) subsequently directed the Eastern Naval Command to execute Operation Beaver, with the mission: "To land and support a battalion group at dawn on 12 December to capture Cox's Bazar."

According to Lieutenant General J.F.R. Jacob,

> On 09 December, Gen. Manekshaw telephoned me, ordering that a force be dispatched by sea to Cox's Bazar to prevent Pakistani troops from escaping into Burma. I told him that there was no indication of such a movement, but he was insistent. I further pointed out that we had no troops trained in amphibious operations, lacked life belts, scrambling nets, and suitable landing craft, and that the Gurkhas, whom he had designated for the task, had never been to sea. General Manekshaw cut me short, stating that these were the orders of the three Chiefs of Staff.[33]

Following this directive, Naval Headquarters immediately dispatched two officers to Calcutta. Commander (later Commodore) R.P. Bhalla was appointed as the Naval Force Commander, accompanied by Commander V.F. Rebello, who had recently completed the Amphibious Warfare Course in the United States.

Commander Rebello later recalled:

> At about 1500 hours on 9 December, the Director of Naval Operations informed me, "Pack up and proceed to Calcutta. You are to conduct an amphibious landing. A merchant ship has been arranged for you. Two LSTs will meet you at sea for the transfer of troops. INS *Vikrant* will provide air cover, while one of the frigates will deliver gunfire support and communication facilities for air coordination."[34]

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On 10 December, Major General Jacob chaired a coordination meeting attended by Commanders Bhalla and Rebello. Two major decisions were made:

(a) The landing, initially scheduled for 12 December, was postponed as the designated troops were still being withdrawn from the front lines and had not yet assembled in Calcutta.
(b) The intended landing site was shifted from Cox's Bazar to a beach further south near Ukhia. Intelligence assessments indicated that Pakistani troops retreating toward Burma would likely secure Cox's Bazar, leading to anticipated resistance there. The alternative landing site near Reju Creek, closer to Ukhia town and the main road to Burma, was expected to be less defended.

The operation plan called for the use of a merchant vessel to transport the force, which would sail on 10 December and be in position by 12 December. Two LSTs were to conduct an at-sea transfer of troops and effect a dry landing. Air and fire support were to be provided by the aircraft carrier INS *Vikrant*.

The task force, codenamed "Romeo Force", was hastily assembled and comprised:

(a) Headquarters, 8 Mountain Artillery Brigade
(b) 1/3 Gurkha Rifles
(c) Two companies of 11 Bihar Regiment
(d) An artillery detachment

A planned army contingent of 150 personnel, however, failed to arrive in time. The force eventually sailed from Calcutta on 12 December, two days behind schedule. Due to the Army's delay in troop embarkation, NHQ postponed Operation Beaver to 14 December. Meanwhile, on 10 December, the United States announced the deployment of a naval task group, led by the nuclear-powered aircraft carrier USS *Enterprise*, toward the Bay of Bengal. In response, NHQ ordered the immediate embarkation of troops to ensure that the merchant ship MV *Vishwa Vijay* could depart Calcutta as soon as possible and complete the landing by 14 December. The vessel eventually sailed from Sandheads, off Calcutta, in the early hours of 13 December.

According to the *Regimental History of the 1st Battalion, 3rd Gurkha Rifles*:[35]

> On 10 December, the battalion was ordered back to Fort William to form part of Task Force "Romeo", under Brigadier S.S. Rai, tasked with advancing along the East Pakistan coast to block enemy withdrawal routes. Orders were received at 1830 hours to proceed immediately to Kidderpore Docks for embarkation aboard the merchant ship *Vishwa Vijay*.

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Romeo Force comprised:

(a) 1/3 Gurkha Rifles
(b) Two companies of 11 Bihar Regiment
(c) 881 Light Battery
(d) An Ambulance Platoon
(e) An ASC Detachment

Due to tidal constraints on the Hooghly River, loading could not be completed before high tide, and the ship sailed at 0445 hrs, leaving behind much of the battalion's supplies. Major H.S. Jaswal, however, successfully arranged for the stores to be rushed to the dock gates and loaded before the ship entered the Hooghly. With a cargo capacity of 15,000 tons, *Vishwa Vijay* had accommodation for only 50–60 crew, rendering living, cooking, and sanitation arrangements for 1,500 troops extremely difficult. The battalion was tasked to establish a beachhead near Nidania Airfield on Ukhia Beach at first light on 14 December and subsequently set up blocking positions at Remu and Idgaon to prevent the enemy's escape into Burma.

Initial fire support was to be provided by INS *Vikrant*, INS *Beas*, and INS *Brahmaputra*. Post-landing fire support would be rendered by 881 Light Battery and the battalion's 4.2-inch mortars. On 13 December, the task force crossed the Bay of Bengal and rendezvoused with INS *Vikrant* and the LSTs INS *Gharial* and INS *Guldar* during the night of 13–14 December. A submarine alert delayed the landing until 15 December.

During the night, the battalion was transferred to the LSTs as follows:

- A and B Companies – INS *Gharial*
- C and D Companies – INS *Guldar*, along with Battalion Headquarters

The battalion's B Echelon remained aboard *Vishwa Vijay*. Naval divers reconnoitering the beach raised the "All Clear" signal, confirming that the beaches were neither mined nor defended by enemy forces. Lieutenant Commander (later Commander) G. Martis was the diving officer in charge of the beach recce. He recalls: "We landed on the beach just after 2100 on 14 December. Our instructions were to recce the gradient and give all the other information necessary for a successful landing. At the time we were carrying out the recce, it was slack water at low tide. A similar condition was to prevail the next morning at dawn. So we had a clear idea regarding the gradients and the sandbars. Between the beach and the deeper water, there was a bar. We sent a message by hand of the boat to FOCEF that the landing ships should come at dawn, at the time of slack water at low tide in the morning. We stayed ashore to check whether there was any Pakistani build up and found there wasn't any."[36]

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Based on the report received from Lieutenant Commander Martis, FOCEF signalled to the landing force that beach conditions were suitable, that the landing would take place at 0530 on 15 December and that divers would mark the spots where the LSTs should beach.

Conclusion

The 1971 India–Pakistan War stands as a defining chapter in India's maritime history, highlighting the Indian Navy's decisive role and remarkable operational success. Through meticulous planning, bold execution, and seamless coordination with the Army and the Air Force, the Navy demonstrated its transformation from a largely defensive force into an instrument of strategic maritime power. Its actions not only complemented land and air operations but decisively shaped the overall outcome of the conflict.

Operations Trident and Python remain enduring symbols of naval audacity and innovation. The precision missile strikes on Karachi crippled Pakistan's principal naval base, destroyed vital fuel storage facilities, and imposed a psychological shock that effectively neutralized the enemy's naval initiative. By confining the Pakistan Navy to harbour, the Indian Navy secured uncontested control of the Arabian Sea, ensuring the safety of India's western seaboard and maritime trade routes. Equally significant was the Navy's role in the Bay of Bengal, where a comprehensive naval blockade isolated East Pakistan, preventing reinforcements and supplies from reaching Pakistani forces and accelerating their operational collapse.

Beyond combat operations, the Indian Navy played a vital role in amphibious preparedness, maritime patrols, intelligence gathering, and logistical support. Its sustained presence at sea enabled uninterrupted movement of troops and material, while also reinforcing India's diplomatic and strategic leverage during the conflict.

In conclusion, the Indian Navy's performance in the 1971 War was not merely tactically successful but strategically decisive. It established sea control, enforced isolation of the adversary, and delivered decisive blows at critical moments. The Navy's achievements in 1971 reshaped India's maritime outlook, enhanced its regional standing, and firmly established sea power as a central pillar of national security.

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Chapter 4

Operation Pawan

In Support of the Indian Peacekeeping Force in Sri Lanka, 1987–1990

Operation Pawan started with the induction of the Indian Peacekeeping Force (IPKF) on 30 July 1987. The de-induction started in August 1989 and by October 1989, the bulk of the IPKF had withdrawn. Operation Pawan terminated on 24 March 1990, when the final contingent of the IPKF sailed out of Trincomalee on board ships of the Eastern Fleet. When the last elements withdrew, there still had been no solution to the political problem that had necessitated the induction, nor indeed has a solution emerged till the date. In round figures, over 1,200 deaths and 3,500 wounded was the price that the officers and men of India's Peacekeeping Force paid to help a neighbour in distress.

During Operation Pawan, the wear and tear on naval ships was substantial. The usage of ships exceeded stipulated norms by 50 per cent.[1] The refits of all ships had to be deferred by months, leading to their bunching beyond the capacity of the Naval Dockyards. Despite the heavy toll that it took in terms of wear and tear, it was invaluable for its experience of low intensity conflict and inducting troops over uncharted beaches. Indian armed forces personnel stood up well to the multifarious tasks of providing operational and logistic support for the IPKF, maintaining round the clock ship and air patrols in the Palk Strait and along Sri Lanka's eastern seaboard and transhipping refugees, many of whom had to be given medical attention at sea. Immediately after the last contingent of the IPKF had been de-inducted from Sri Lanka, ships and aircraft of Indian Navy and Coast Guard were deployed for Operation Tasha to patrol the Palk Strait to minimize the movement of militants and their material between Sri Lanka and India. Operation Tasha started in April 1990 and continues to this day.

Sri Lanka's Strategic Significance

Ceylon (Sri Lanka) is a comparatively modern name for the island, which at its northern point is separated from the south Indian state of Tamil Nadu by just 18 miles of sea. The ancient Indians knew it as Lanka, the ancient Greeks knew it as Taprobane, the Arabs as Serendib, which the Portuguese changed, in the 16th century, to Ceilao, which in due course became Ceylon.

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In 1970, the name Ceylon was changed to Sri Lanka. Sri Lanka's location astride the main shipping routes of the Indian Ocean and its proximity to the Indian mainland has strategic significance for the security of India's southern seaboard. Sri Lanka is located astride the main shipping route of the Indian Ocean. Colombo, on its west coast, lies on the main eastbound international shipping lines through the Red Sea. Trincomalee, on its east coast, with its fine deep natural harbour, was a major British naval and logistic base during World War II.[2] Sri Lanka is strategically significant because of its geographic proximity to the Indian mainland and to the sea lines of communication carrying Persian Gulf oil towards the Strait of Malacca and thence eastward. It is separated from the Indian peninsula by a string of islets known as Adam's Bridge. The Palk Strait, in which the Adam's Bridge is located, is an area of shallow seas, where only small craft can operate.

The Historical Background to the Ethnic Problem

According to Sri Lankan sources, people from the Ganges Valley led by Prince Vijaya, from southern Bengal or Odisha, came to Sri Lanka around 500 BCE and overwhelmed the local population. His descendants married south Indian princesses and thus began the story of the Sinhala people. Over the centuries, they built roads and cities, felled forests, created irrigation works, and adapted to central and southern Lanka the culture of their Indian homeland, modified to suit local conditions. The Tamil presence in northern Ceylon dates back to over 2,000 years. Over time Sri Lanka became more and more vulnerable to the pressures of south Indian political expansion. Tamil incursions forced the Sinhalese to withdraw southwards into Central Ceylon.[3]

The Sinhalese were converted to Buddhism in the 3rd century BCE through the missionary efforts of the monk Prince Mahinda, son of the Buddhist Emperor Ashoka of India. Over the next two millennia, the majority of Sri Lanka's population became staunch followers of Hinayana Buddhism. Buddhism gave the Sinhalese a sense of identity and enriched their culture and literature. By the 12th century CE, the Tamils predominated in north and east Sri Lanka. The northern areas of Sri Lanka were, reportedly, part of various south Indian kingdoms. While Sri Lanka absorbed much of the Hindu culture and all of the Hindu people that Tamil rule left behind, it remained a Buddhist state under Buddhist rule.

Centuries of warfare between the Sinhalese and the Tamils weakened the kingdom and brought about the downfall of the Lankan civilization. For a brief period in the 15th century, a Chinese army invaded Sri Lanka and took the Sinhalese king prisoner to Peking. By the end of 1500 CE, however, the Chinese influence had ended. Till the arrival of the Portuguese and Dutch in the 16th and 17th centuries CE, a number of Sinhalese kingdoms co-existed with the Tamil kingdom in the north. The Portuguese arrived in 1505 CE and founded commercial settlements. A century and a half later the Dutch, who

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were establishing their colonies in the East Indies (now called Indonesia), drove out the Portuguese.

Arab traders brought Islam to Ceylon. Muslims settled all over the country, though the majority were concentrated in the east. Jaffna was a small independent kingdom from late 13th century/ early 14th century until its conquest by the Portuguese in 1619. Ceylon remained under fragmented political rule until the British defeated the Sinhalese King of Kandy in late 19th century CE. Ceylon (now Sri Lanka) came under British occupation in 1796, with initial control secured from the Dutch during the Napoleonic Wars. The British established full control over the entire island by 1815 following the cession of the Kingdom of Kandy.

In 1837, finding the Central Highlands of Ceylon ideal for tea plantations, the British brought in large numbers of Tamil labourers from India to work in the tea gardens. These labourers were called Indian Tamils to differentiate them from the Ceylon Tamils of the north. In round numbers, the Ceylon Tamils constituted about 13% of the population and the Indian Tamils about 6%.[4] Under British rule, the Tamils availed of the Christian missionary education. This provided avenues for more jobs, a higher standard of living and the development of political consciousness. A large middle class emerged with high aspirations. The origins of the present antagonism between Sinhalese and Tamils lie in the prominence achieved by Tamils during the British colonial period. The British found that the Ceylon Tamils had a higher literacy rate and a greater capacity for economic performance. The result was that the Tamils, despite being a minority, became influential in the management of Sri Lankan political and economic affairs. The earlier historical, ethnic and religious tension was compounded by the Sinhalese feeling of being discriminated against and unfairly treated by the British with the support of the Tamils.

Ceylon became independent on 4 February 1948. After independence, the majority Sinhalese wanted the imbalance to be corrected. The ruling party re-defined citizenship in a manner that they made the one million Indian Tamil plantation workers stateless. In effect, the Tamils were disenfranchised, which embittered the Tamils. The resentment of the Tamil minority was exacerbated by the introduction of various majority-oriented legislative measures like declaring Sinhalese as the official language; requiring Tamils and other minority groups to secure higher merits than their Sinhalese counterparts for admission in universities; conferment of special constitutional protection for Buddhism; failure to grant local autonomy to Tamil majority district councils after promises to grant such autonomy had been made; creation of Sinhalese colonies in predominantly Tamil areas by resettling Sinhala families with a view, as perceived by Tamils, to altering the demographic pattern.

From the time of its independence, Sri Lanka's security dilemma was "fear of Big Brother India". The Sinhalese, despite constituting 80% of

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the population, viewed the Tamils not as a minority but as part of the demographic "presence" of the millions of Indian Tamils of Tamil Nadu. They perceived Tamil Nadu as the natural support base of the Sri Lankan Tamils and were constantly apprehensive of India dismembering Sri Lanka under the pressure of Tamil Nadu. This underlay the reluctance of the Sinhalese- Buddhists to respond to Sri Lankan Tamil demands for devolution of power and for being acknowledged as a distinct ethnic group within the Sri Lankan polity. The Sinhala complaint was that the Tamils never considered themselves as Sri Lankans and were, in fact, creating a situation where India would be forced to invade Sri Lanka militarily. The Tamils, while insisting on their indigenous pedigree, claimed that their growing dependence upon Tamil Nadu was a consequence of the Sinhala oppression and not its cause. The Muslims were ambivalent; some felt persecuted and alienated; others felt the community would benefit if it remained aligned with the majority.

The Sinhala–Tamil antagonism increased during the 1960s. Agreements were signed by moderate Tamil leaders with successive Sri Lankan governments to obtain fair play for the Tamils; these were not implemented. The Tamils felt betrayed and alienated; frustration increased because of political discrimination and lack of opportunities for education and economic well-being. The Janata Vimukti Peramuna (JVP), a radical political movement, was made up of those Sinhalese Buddhists who were both anti-Tamil and anti-Indian. Many of its members were political and social reformers drawn from the educated unemployed youth of southern Sri Lanka. In 1971, the JVP tried to topple the government to "save their country from eastern imperialism and Indian expansionist designs"; it cut off all communications with the rest of the world. In April 1971, Sri Lanka requested India's help to quell this uprising. The Indian Navy was tasked with preventing merchant ships (suspected to be North Korean) from ferrying arms to the insurgents.[5]

Naval Assistance in 1971

Ships of the Western Fleet patrolled Ceylon's west coast, remaining out of sight. A frigate entered Colombo harbour to act as a communication link. Ships from Visakhapatnam patrolled Ceylon's east coast, also remaining out of sight. After a few weeks, the crisis blew over and ships returned to their base ports. This was the Navy's first ever deployment in support of a foreign policy decision to respond to a neighbour's call for help. Its silent success marked the beginning of the awareness in the Indian government of how useful the Navy could be in such sensitive situations.[6]

In Sri Lanka, views were divided between gratitude for India's assistance and apprehension that India's role in Sri Lankan affairs would increase. The proposal by Sri Lanka in 1971 in the United Nations for the development of "the Indian Ocean as a zone of peace" was formulated with India in

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mind. In subsequent years, it came to be perceived as being central to Sri Lanka's security. In 1972, Sri Lanka changed its constitution. It stressed the special position given to Buddhism, asserted Sinhala Buddhist culture and weakened protection for the minorities. These policies confirmed the Tamil feeling of being treated as second-class citizens and that their future lay in the creation of a separate state, to be carved out of northern and eastern Sri Lanka, where they could have Tamil as a language and Hinduism as a religion.

Liberation Tigers of Tamil Eelam (LTTE) and Tamil United Liberation Front (TULF)

From 1972 onwards, the Tamils started resorting to violence. The failure of repeated efforts to meet Tamil aspirations was aggravated by economic problems and rising unemployment. It helped the rise of assertive and aggressive Tamil militancy spearheaded by the Liberation Tigers of Tamil Eelam (LTTE), led by V. Prabhakaran. The emergence of a militant Tamil separatist movement sharpened Sinhalese apprehensions of Indian intervention in support of Tamil militancy. Things came to a head when the police broke into the 1974 World Tamil Conference being held at Jaffna. There was arson and looting of Tamil heritage and property. The Tamils saw it as an unforgivable act of cultural vandalism.

Political options were tried out. However, the Tamils were unable to secure redress. With the failure of political initiatives, the Tamilian political parties united under the Tamil United Liberation Front (TULF) in 1976. It demanded the formation of a separate state of Tamil Eelam in the areas that were considered the Tamil homelands in the north and the east. This demand paved the way for militants to attack government targets and assassinate moderate Tamil leaders who were associated with the ruling party. Funds were collected by tax, a euphemism for ransom or protection money, and by looting banks. It was also rumoured that the LTTE were engaged in drug trafficking. The TULF fought the 1977 general election with its demand for secession. It was voted in as a major opposition party in the Assembly. The cry for the creation of Tamil Eelam stimulated the proliferation of militant groups. Alarmed over these mushrooming militants and their growing popularity amongst the Tamil masses, the Sri Lankan government rushed through legislation in 1978, banning the LTTE and the main militant organizations that were carrying out assassinations, ambushes and forcible collection of money.[7]

India's Dilemma

On the one hand, the people of Tamil Nadu had a strong sense of Tamil political and cultural identity. As early as the mid-1960s, when attempts were made to impose Hindi as the compulsory national and official language

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of India, Tamil Nadu had been the first state in the Indian Republic to threaten secession and demand a separate state of Tamil Eelam based on Tamil ethnicity and Tamil language. During the 1970s, there were insistent demands by the political leaders of Tamil Nadu that India should intervene in Sri Lanka, militarily if necessary, to ensure the safety of the Sri Lankan Tamils and to compel the Government of Sri Lanka to modify its policies on the treatment of its Tamil minority. India's primary interest in the Tamil issue in Sri Lanka was to avoid the revival of secessionist tendencies in Tamil Nadu. Gestures had to be made to appease Tamil sentiments. On the other hand, it was undesirable to interfere in the internal affairs of Sri Lanka and their legitimate reactions to Tamil militancy.[8] India could not support the extremist Sri Lankan Tamil demand for a separate homeland because this would lead to incipient separatist demands within India itself. Secondly, the cultivation by Sri Lanka of security and intelligence connections with Pakistan, Israel and the US began to be perceived by India as strategically disadvantageous.

India's fateful decision to be supportive of the cause of Sri Lankan Tamils was based on these political compulsions and strategic perceptions. There were absolutely no illusions that anything other than a political solution could meet both Sri Lankan and Indian concerns. From 1981 onwards, camps sprung up in southern India where training, weaponry and logistic support started being imparted to the Tamil militant groups. India's expectation was that the leverage gained by training the militant groups would help to moderate their extremist demands and thereby facilitate a political solution acceptable to both sides.[9] There developed considerable two-way movement of men and material between northern Sri Lanka and southern Tamil Nadu. This tilt in Indian policy of extending support to Tamil militant activities in Sri Lanka was greatly resented by the Sri Lankan government and India started to be projected as a supporter of Tamil militancy.

Developments Between 1983 and 1987

In mid-1983, Sri Lanka commenced intensive security operations against the Tamil militants. In July 1983, the LTTE ambushed an army patrol, killing 13 Sinhala policemen. Sri Lankan retribution was swift; it took the form of widespread anti-Tamil riots throughout the length and breadth of Sri Lanka, particularly in Colombo. Over three thousand Tamils were slaughtered, thousands of Tamil homes were destroyed and nearly 150,000 Tamils fled to refugee camps. The Sri Lankan government declared a state of emergency. This large-scale massacre led to several developments. Over 100,000 Tamils sought refuge in Tamil Nadu, Tamil militant youth groups established bases in Tamil Nadu and selected militant cadres were armed and trained.[10] The government in Tamil Nadu demanded immediate Indian involvement to stop the genocide of Tamil brothers. It precipitated India's involvement in Sri

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Lanka's ethnic strife. India urged Sri Lanka to moderate its attitude towards Tamil aspirations. Sri Lanka was well aware of the influence of Tamil Nadu politics on Indian policy and was not averse to Indian mediation. From 1983 onwards, India tried to bring the two sides together.

The Sinhalese-majority government concluded that it could not contain Tamil militancy with its own resources. Nor could it look towards India for help because it would be politically impossible for India to disregard the sympathy of Tamil Nadu for fellow Tamils in Sri Lanka. The Sri Lanka government had therefore started looking for external support and signed informal, confidential agreements with the governments of the United States and Britain to bring their warships into Colombo, Trincomalee and the Gulf of Mannar. The frequency of visits by the warships of these navies increased between 1983 and 1987. They also invited British mercenaries and Israeli intelligence agencies into its intelligence services, and sought assistance from Pakistan to train its Home Guards and its Navy.

In October 1983, the media reported that the USA had offered to assist in obtaining Israeli arms supplies and intelligence support for Sri Lanka. It was also feared by India that in the backdrop of the Cold War, the US could use Sri Lanka's Voice of America broadcasting station for intelligence gathering. Sri Lanka also preferred USA for the contract to repair and restore the Trincomalee Oil Tank Farms. These were large oil storage facilities constructed by the Allies during the Second World War in the port of Trincomalee to support the naval operations of their South and Southeast Asia Command. The oil tanks had fallen into disuse and then into disrepair. India had bid for this project but despite offering the most reasonable price, the Sri Lankan government, taking political and other factors into consideration, preferred to give the contract to a consortium of companies led by the United States.[11] India took the view that this provided the potential for an American strategic presence based in the sheltered deep-water harbour of Trincomalee, which for decades had been an important naval base of the British Navy.

Viewing all these developments with concern, India conveyed its disquiet to Sri Lanka. In 1984, the Indian Navy started patrolling the Palk Bay to prevent violation of the International Boundary Line (IBL) by fishermen of either country and to prevent harassment of Indian fishermen by the Sri Lankan side. The demarcation of maritime boundary of the Palk Strait in 1974 and the Gulf of Mannar in 1976 had helped to reduce tension but did not entirely remove it, partly because of the vexed problem of Katchativu, a small island near Rameshwaram and Talaimannar. This island fell on the Sri Lankan side of the IBL after India ceded Katchativu to Sri Lanka. Katchativu has only a small temple/ church where the Rameshwaram fishermen and their families used to assemble once a year to take part in a festival. They also used to rest on the island in between fishing trips. The ceding agreement

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permitted Indian fishermen to "dry their nets" on Katchativu. Indian fishermen, by habit, were attracted by the "king prawns" available only near Talaimannar as the prawns hesitated to breed near Rameshwaram. The Sri Lankans disliked these "intrusions by Indian fishermen" because they suspected infiltration by the LTTE masquerading as fishermen. Prior to the escalation of tension, the Sri Lankan Navy used to turn a blind eye to Indian fishermen visiting Katchativu. As tension escalated and suspicions increased of LTTE infiltration, the Sri Lankan Navy tightened their patrols and Indian fishermen felt harassed near Katchativu.

In 1985, India arranged a conference in Bhutan, attended by all the militant groups and Sri Lankan representatives, to discuss a document, jointly prepared by the Indian and Sri Lankan governments and the Tamil leaders, for meeting their political and constitutional aspirations. When its recommendations were about to be adopted, the Sri Lankan President backed out due to domestic political opposition. From March to May 1985, there was intense diplomatic activity by India on Sri Lankan issues to retrieve the situation created by the Sri Lankan President backing out from the recommendations of the All Party Conference. In May 1985, Prime Minister Rajiv Gandhi told India's ambassador designate to Sri Lanka that while till 1985, India's Sri Lankan policy was influenced by Tamil Nadu politics and ethno-religious considerations, it would henceforth be "An Indian policy responsive to India's security and strategic interests and responsive to the principle of not disrupting the territorial integrity of a small neighbour". Within this overall framework, India's endeavour would be to ensure the maximum fulfilment of legitimate Tamil aspirations. In June 1985, Sri Lanka suggested joint Indo-Sri Lankan naval patrolling of the Palk Straits to prevent infiltration into Sri Lanka of Tamil militants from Tamil Nadu.[12]

Meanwhile, the LTTE continued to grow in stature and strength, determined to become the predominant militant organization. In May 1986, the LTTE went on a rampage and totally destroyed a rival militant group and Jaffna came under LTTE domination. The civil administration was totally paralyzed and the Sri Lankan Armed Forces (SLAF) confined to camps along the coast, the LTTE virtually ran a state within a state. Following their successes, they felt emboldened to switch from the classic guerrilla tactics of "hit and run" to those of small set piece battles.

Events Preceding the Accord of July 1987

Stung by their inability to operate effectively in the heart of the Jaffna peninsula, the Sri Lanka Armed Forces decided to attempt a "final solution". Between January and May 1987, in preparation for a major offensive against the LTTE with the aim of retrieving control over Jaffna and denying entry of men and material assistance from outside, the Sri Lanka Armed Forces placed the Jaffna peninsula under siege. It inducted additional troops,

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imposed an economic embargo and in May 1987, launched its offensive attack. Fierce fighting ensued, in which most of the LTTE casualties were caused by artillery fire and aerial attacks by aircraft and helicopters. What began to hurt the LTTE, and even more the local population, was the economic blockade that snapped electricity supply, running water and denied entry of supplies and medicines. This led to the mass exodus to India.

Diplomatic initiatives failed to ease the blockade for supply of essential medicines and food. The Indian government tried to send supplies and medicines by sea for distribution to the population of Jaffna. Ships of the Sri Lankan Navy stopped a convoy of fishing trawlers, flying white flags with a Red Cross, led by Coast Guard Ship *Vikram*. To avoid an incident, the convoy returned home without unloading its relief supplies. On 4 June 1987, India sent a stronger message, a transport aircraft of the Indian Air Force airdropped supplies over Jaffna. The Sri Lanka government called the air dropping a violation of international law. International concern for the people of Jaffna, and the low-key response to these objections and to Sri Lankan requests for assistance, induced Sri Lanka to halt the SLAF offensive.[13]

The Indo–Sri Lanka Accord

The Sri Lankan government sought discussions with the Indian government. The outcome was the Indo–Sri Lanka Accord that was signed on 29 July 1987. For Sri Lanka, the Accord sought to end the ethnic struggle that had claimed countless lives, damaged property and ruined its economy. Apart from the 150,000 refugees, mainly Indian Tamils, who fled their homes to seek shelter in refugee camps, there were over 100,000 Sri Lanka Tamils who had sought shelter in Tamil Nadu.[14] For India, whose armed forces were committed on its western and northern borders, the Accord sought to safeguard the security of its southern seaboard, to subsume secessionist tendencies in Tamil Nadu and Punjab and to avoid the acquisition of footholds in Sri Lanka by foreign powers.

There was another aspect, the negotiations between the LTTE representatives and the Indian interlocutors prior to the Accord was that the LTTE sought for their "Sea Tigers" the unfettered right to police the sea-lanes in the vicinity of India's coastline. They proposed the delineation of "distinct naval boundaries"—each area being under the control of the LTTE and the Sri Lankan Navy, respectively. India had categorically rejected the suggestion, not only because it would undermine Sri Lanka's authority but also because it would be tantamount to permitting a terrorist outfit to be treated as a legitimate force patrolling the seas adjacent to India's coastline.

Following are the relevant excerpts from the Indo–Sri Lanka Accord:[15]

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> The Emergency will be lifted in the Eastern and Northern provinces by 15 August 1987. A cessation of hostilities will come into effect all over the island within 48 hours of the signing of this agreement. All arms presently held by militant groups will be surrendered in accordance with an agreed procedure to authorities to be designated by the Government of Sri Lanka. Consequent to the cessation of hostilities and the surrender of arms by militant groups, the Army and other security personnel will be confined to barracks in camps as on 25 May 1987. The process of surrendering of arms and the confining of security personnel moving back to barracks shall be completed within 72 hours of the cessation of hostilities coming into effect. These proposals are also conditional to the Government of India taking the following action if any militant groups operating in Sri Lanka do not accept this framework of proposals for a settlement, namely, India will take all necessary steps to ensure that Indian territory is not used for activities prejudicial to the unity, integrity and security of Sri Lanka.

And:

> The Indian Navy/Coast Guard will cooperate with the Sri Lankan Navy in preventing Tamil militant activities from affecting Sri Lanka. In the event that the Government of Sri Lanka requests the Government of India to afford military assistance to implement these proposals, the Government of India will cooperate by giving to the Government of Sri Lanka such military assistance as and when requested. The Government of India will expedite repatriation from Sri Lanka of Indian citizens to India who are resident there, concurrently with the repatriation of Sri Lankan refugees from Tamil Nadu. The Governments of India and Sri Lanka will cooperate in ensuring the physical security and safety of all communities inhabiting the Northern and Eastern Provinces.

It was also added in the Annexure that "the Prime Minister of India and the President of Sri Lanka also agree that in terms of the Agreement, for an Indian Peace Keeping contingent may be invited by the President of Sri Lanka to guarantee and enforce the cessation of hostilities, if so required".

Relevant Excerpts from Letters Exchanged on Matters of Bilateral Interest when the Accord was Signed[16]

Post signing of the Accord, in his letter to the President of Sri Lanka, the Prime Minister of India stated:

> In this spirit, you had, during the course of our discussions, agreed to meet some of India's concerns as follows:
>
> (i) Your Excellency and myself will reach an early understanding about the relevance and employment of foreign military and intelligence personnel with a view to ensure that such presence will not prejudice Indo-Sri Lankan relations.

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(ii) Trincomalee or any other ports in Sri Lanka will not be made available for military use by any country in a manner prejudicial to India's interests.
(iii) The work of restoring and operating the Trincomalee oil tank farm will be undertaken as a joint venture between India and Sri Lanka.
(iv) Sri Lanka's agreement with foreign broadcasting organisations will be reviewed to ensure that any facilities set up by them in Sri Lanka are used solely as public broadcasting facilities and not for any military or intelligence purposes.

In the same spirit, India will abide by following:

(i) Deport all Sri Lankan citizens who are found to be engaging in terrorist activities or advocating separatism or secessionism.
(ii) Provide training facilities and military supplies for Sri Lankan security forces.

In his reply to the Prime Minister of India, the President of Sri Lanka stated: "This is to confirm that the above correctly sets out the understanding reached between us." Apart from inviting the IPKF, the Accord envisaged the following sequence of events:[17]

(i) Cease fire within 24 hours and surrender of weapons by militants within the next 72 hours.
(ii) Separate the SLAF and LTTE warring groups. The SLAF to withdraw to the positions they occupied prior to the offensive they launched in May.
(iii) Immediate formation of an Interim Administrative Council to administer the Northern and Eastern provinces.
(iv) The election, within 3 months, of an Administrative Council, which would take over from the Interim Council.
(v) The holding of a referendum, by end 1988, to decide whether the Eastern provinces would like to merge with the Northern provinces.
(vi) Devolution by the Sri Lankan Government of more powers to the Administrative Council.

Indian Prime Minister Rajiv Gandhi and Sri Lankan President Jayewardene signed the Accord on 29 July 1987 at Colombo. From 1985 onwards, there had been increased interaction between the US administration and the Indian government. American policy had started to become more understanding of Indian concerns. The US was quietly supportive of the Indo–Sri Lanka Accord of 1987.

The Sequel to the Accord

The signing of the accord was followed by violent upheavals in Sri Lanka by the JVP. Sri Lanka immediately sought India's military assistance to stabilize

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the situation and safeguard Sri Lanka's unity and territorial integrity. In the early hours of 30 July 1987, the Navy commenced the induction of the IPKF into Sri Lanka. Its arrival was welcomed both by the SLAF and the Tamil population, but not by the Sinhala population. During the next two months, the LTTE, which had initially been associated with the discussions that preceded the signing of the Accord, became increasingly reluctant to surrender all its arms. It felt that the Accord would not be honoured by the SLAF. On 3 October 1987, the Sri Lankan Navy intercepted a boat carrying 17 LTTE personnel in Sri Lankan territorial waters. Among the 17 were the LTTE's regional military commanders of Jaffna and Trincomalee. The SLAF wanted to take the prisoners to Colombo for interrogation to ascertain where the LTTE personnel were returning from and what they had gone there to do.

The LTTE argued that the Sri Lanka government wanted to take the prisoners to Colombo where they intended to show them on television and compel them to make statements damaging to the LTTE cause; therefore, the IPKF should take over the prisoners and not allow them to be taken to Colombo. The SLAF counter argument was that these were SLAF prisoners caught outside the jurisdiction of the IPKF. Indian intervention at the highest levels did not succeed in resolving the impasse. On 5 October, when the SLAF started to escort the prisoners to waiting aircraft, all 17 swallowed cyanide capsules. The LTTE reaction was swift and savage. Over 200 Sinhalese were massacred and over 10,000 rendered homeless. The eight Sinhala prisoners held by the LTTE were executed on 6 October 1987. Bitter at the inability of the IPKF to protect its cadres, the LTTE decided to fight the IPKF.[18]

On 10 October 1987, the LTTE ambushed an IPKF patrol, on 12 October the IPKF launched operations by helicopters to capture Jaffna and by 22 October, Jaffna had been captured.[19] In the ensuing months, the IPKF found itself bogged down in a guerrilla war in terrain in which the LTTE had the advantage. Overcoming suspicions and despite difficulties, the IPKF succeeded in establishing peaceful conditions in the Jaffna peninsula and the Eastern Province. The common perception amongst the Sinhalese was that the IPKF was a threat to the sovereignty of Sri Lanka. In the Sinhala areas, the JVP triggered an insurrection that sought to "save the country from an unholy trinity of American imperialism, Indian imperialism and Tamil expansionism".[20] The JVP movement nearly succeeded in destroying state institutions but was suppressed by Sri Lankan security forces.

The Buddhist clergy also resented the Accord. In their view, the Accord had betrayed the Sinhala people by conceding too much to the Tamils and allowed the Indians to enter the island as a peacekeeping force. Elections were held in November 1988 and a moderate Tamil leader became Chief Minister of the Provincial Government. As required by the Accord, power was to be devolved to the province, however, nothing happened. In January

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1989, Sri Lanka elected a new President whose views were decidedly anti-Indian. Between February and May 1989, the JVP again went on the rampage, leading a coalition of Buddhist monks and students, and launched a nationwide agitation against the IPKF and the government. Seizing the opportunity, the LTTE sought talks with the Sri Lankan government. The SLAF joined hands with the LTTE and transferred weapons and ammunition, which the LTTE desperately needed to fight the IPKF. The majority Sinhala community, the minority Sri Lanka Tamils and the Sri Lanka government all developed an aversion for the IPKF.

Indian Navy during Operation Pawan

Operation Pawan commenced as soon as the Accord was signed on 29 July 1987. The Indian Navy was tasked with the induction of Indian Army units into Sri Lanka and providing tactical support by sanitizing the offshore sea area. On 30 July 1987, the day following the signing of the Accord, a special Navy task force brought the first two army battalions into Kankesanthurai, KKS Harbour.

The Flag Officer Commanding-in-Chief, Eastern Naval Command (FOC-in-C East) exercised Command and Control of all Indian Naval and Coast Guard forces tasked for Operation Pawan. Accordingly, Maritime Operations Room (MOR), Vizag, controlled Maritime Operation for Operation Pawan. A Naval Liaison Team (NLT) was deputed for interaction and coordination with the Headquarters of the Overall Forces Commander (OFC) General Officer Commanding-in-Chief, Southern Command GOC-in-C (South). Naval Officer-in-Charge (NOIC), Madras, was in direct charge of Palk Bay operations. Units of the Eastern Fleet tasked for operation on the East Coast of Sri Lanka were directly controlled from MOR (Vizag).[21]

Lieutenant Commander (later Vice Admiral) Shekhar Sinha (a Sea Harrier pilot) was in command of Coast Guard IPV *Rani Jindan* on patrol in the Palk Bay and he recalls, "The Eastern Fleet anchored off KKS in the early hours and was greeted by Rani Jindan. The Fleet Commander called me up on radio and said 'You need to disembark troops and stores to Jaffna in the next five to six hours. As far as navigational information is concerned, there are no charts, winds are 30 knots on-shore, the sea is 3 knots onshore, the pontoon is a broken-down structure and a ship of 1.6 metres draught ran aground two days ago ahead of where we are going to berth—best of luck!' In adverse sea conditions, *Rani Jindan* made 13 entries into and exits out of the uncharted and unlit KKS harbour. She picked up troops and stores of No. 1 Battalion Maratha Light Infantry from various ships and disembarked them ashore. The opposition of the Sri Lankan Navy was quite evident. My Coast Guard crew was extremely charged, this being the first time that the Coast Guard was called upon to perform an operational task. Subsequently, post October 1987, we captured the first armed boat of

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the LTTE and escorted it to Indian shores. It was challenging chasing the LTTE and retrieving our injured troops from KKS by night in the face of heavy gunfire."[22]

A sea-borne logistic support chain was established with Madras. Merchant ships were chartered for troop and cargo transhipment. Amphibious Landing Ships ferried personnel and stores into the uncharted KKS Harbour and across uncharted beaches. The Navy's task was clear: Joint Indian–Sri Lankan naval patrols of Sri Lankan waters to prevent movement of arms and militants across the water in and out of Sri Lanka; joint Army–Navy operations to combat militant activity; logistic support for the build-up and maintenance of the IPKF in Sri Lanka; and general operations to support the Accord, like "transfer of refugees".

The Coast Guard's task was to support the Navy. Three shallow-draught inshore patrol vessels (IPVs) were placed under the Navy's control for inshore patrolling in the Palk Bay. The Coast Guard's F-27 aircraft, operating from Madras, ensured air surveillance extending 100 miles to seaward of the east coast of Sri Lanka. By 15 August 1987, the Joint Indian–Sri Lankan naval patrol had been instituted in the Palk Bay. It aimed at severing the LTTE conduit between Sri Lanka's northern Jaffna peninsula and the southern coast of Tamil Nadu by controlling the routes leading to Dhanushkodi, Rameshwaram, Vedaranyam, and Nagapatnam, all of which were known settlements of Sri Lankan Tamils. The unused airfield at Ramnad was activated for air surveillance of the Palk Bay, using Naval Islander aircraft and Chetak helicopters for daylight surveillance. Indian Naval Liaison Teams (INLTs) were positioned at four locations in Sri Lanka—Trincomalee, Pallaly, Kankesanturai (KKS), and Karainagar.[23]

The LTTE's Reluctance to Abide by the Accord

The induction of troops and their supporting logistics by sea from Madras proceeded smoothly during August. By end August, problems started surfacing. Sceptical whether the Accord's commitment for devolution of power would be honoured by Sri Lanka, the LTTE became palpably reluctant to surrender its arms. On 7 October 1987, the IPKF received orders to "Disarm the LTTE". A cordon militaire was established across a 310-mile belt. It extended northwards from Talaimannar through the Palk Strait and along the east coast of Sri Lanka until its southern limit at Little Basses Island. Ships and aircraft on patrol were directed to use force, if required. To prevent cross trafficking, a Line of Control (LOC) was established eastward of the international boundary in the Palk Strait. To curb militant activity on the eastern coast of Sri Lanka, fishing activity at night was banned.

According to the reminiscences of Commodore Padmasankar as the then Naval Officer-in-Charge, Madras, "The Line of Control (LOC), which

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was drawn to the east of Katchativu, was concurred by the Sri Lankan Navy at the Joint Patrol Meeting. This enabled Indian fishermen to use Katchativu as envisaged in the ceding clauses; it also reduced the area to be patrolled by the Sri Lankan Navy. In fact, the LOC enabled our fishermen to feel more secure in Indian waters and, to an extent, reduced the agitation of the fishermen of Rameshwaram. Both Navies respected this arrangement until the IPKF withdrew finally from Sri Lanka in 1990."[24]

The cordon militaire effectively sanitized the offshore areas through intensive air and surface patrolling. On a daily average, the Navy and Coast Guard deployed four major warships and eight smaller patrol craft, whilst the Sri Lankan Navy provided five to six patrol craft. Naval air surveillance over the sea was mounted daily from various bases, Madras by F-27s, Madurai by armed Alizés Ramnad by Islanders and armed Chetaks, and Batticaloa by armed helicopters, which also functioned as a Quick Reaction Force (QRF).[25] In January 1988, the Navy instituted a special force of 15 "armed trawlers", which operated from Rameshwaram. This helped to seal the LTTE's Dhanushkodi–Talaimannar conduit.

Special Operations

The Indian Marine Special Forces (IMSF) made its debut in August 1987 during Operation Pawan and established itself as an effective arm of the Indian Navy. This newly raised "Special Force" of Marine Commandos had a multi-skill training background of clearance diving, unarmed combat and proficiency in the use of various types of firearms under diverse conditions. The training for clandestine operations coupled with their versatility for induction by ship, paradrop or slithering down from helicopter proved to be a great asset. A 40-strong group of IMSF participated in 55 combat operations in its very first year. During October 1987, LTTE activities in the lagoons of Jaffna were plaguing the IPKF. The IMSF swung into action along with Army Para Commandos and intensive joint operations were conducted between 21 and 24 October 1987 in the Jaffna Lagoon. Apart from destroying an important LTTE camp, several militants were apprehended, large quantities of arms caches were recovered and several LTTE boats and warehouse were destroyed. In the subsequent month, the IMSF were invariably deployed in flushing out operations in coastal areas and island. They were always in the van of every seaward landing and were gainfully deployed for Armed Recce and backstage raids.[26]

Lieutenant Arvind Singh (later Commodore) and Lieutenant Prakash Chandavarkar (later Captain) were among the pioneers of the Indian Marine Special Forces, later called Marine Commandos (MARCOS), which saw action throughout the deployment of the IPKF. Arvind Singh had trained with the US Navy SEALs and Chandavarkar with the Royal Marine Commandos Force in the UK, before they set up the naval element

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of India's Special Forces. The new force was then trained in India by the Special Protection Group at Sarsawa in Uttar Pradesh. In 1986, they were moved to their base INS *Abhimanyu*. It was not long before a handful of them were pressed into action. The Indian Navy realized that the waters around Jaffna needed protection, and it was an ideal opportunity to give the fledgling force some battle experience. Chandavarkar remembers operating alongside 9 and 10 PARA (SF), wearing the same uniform and absorbing their fighting skills. This was a tremendous learning experience for the MARCOS. With the beginning of 1988, the MARCOS had moved to the port of Kanakesanturai, which was the hub of Indian naval activity. Supplies and personnel were offloaded here daily. Following reports that the shallow approach waters had been mined by the LTTE, the MARCOS ventured into LTTE-dominated areas. They lay in wait in their armed Gemini inflatable boats and intercepted LTTE fishing boats and trawlers that ferried cadres across the lagoons. The unit sank many such vessels in 1988. It was for several such hazardous operations that Lieutenant Arvind Singh and Lieutenant Chandavarkar were decorated with Maha Vir Chakra and Vir Chakra, respectively.[27] Lieutenant P.S. Chandavarkar's citation read:

> On 17 November 1987 at about 0400 hours in pitch darkness, Lieutenant P.S. Chandavarkar led a boat patrol to intercept the militants in the Jaffna Lagoon in Sri Lanka. While traversing four miles in highly restricted and hostile waters, the boat patrol detected a high-speed boat dashing out of the lagoon. Lieutenant Chandavarkar and his team pursued the boat and opened fire to prevent its escape. Prior to sinking of the boat, the four militants in the boat were seen dumping objects into the Jaffna Channel. After apprehending the militants, Lieutenant Chandavarkar carried out immediate diving operations and recovered a box of improvised detonators. The diving operations were conducted under extremely trying conditions and in very hostile waters. He persevered for two days and was successful in locating a box of high explosives. He then proceeded to tow the box away to a safe area and neutralised it, thereby clearing the Channel for safe navigation.

Commodore Arvind Singh also recalls:

> On 19 October 1987, my team had to traverse through roads heavily mined with booby traps laid by the militants and in the face of militant fire from buildings and rooftops. The exemplary courage and valour of my team helped secure the area and the link up of 41 Brigade with 1 Maratha Light Infantry on 20 October 1987. On the night of 21/22 October, despite limited demolition equipment, our team destroyed the Guru Nagar Jetty and the militant speedboats in Jaffna Lagoon. Under cover of darkness, we swam underwater for a distance of two kilometres and destroyed eleven speedboats that were kept ready for hard-core militants to escape. During this operation, we came under heavy fire from the militants.[28]

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During Operation Pawan, the Indian Navy had prepared some other plans which could not be implemented. These included the following:[29]

Operation Catnap (11–18 April 1989)
In early April 1989, intelligence was received that some high-speed LTTE boats were likely to transport militants and arms between Vedaraniyam and Sri Lankan north coast. Operation Catnap was planned by HQ ENC to thwart this attempt. INS *Cannanore*, accompanied by Fast Attack Aircraft, laid a cordon to interdict any such attempt. The operation was called off on 18 April as no such activity was detected.

Operation Pam (18–21 April 1989)
Around mid-April 1989, it was learned that some LTTE leaders, including Prabhakaran, were going to Malaysia by sea to attend a meeting with Sri Lankan officials. The Navy launched Operation Pam to intercept them. A Special Naval Task Force comprising INS *Dunagiri*, *Shakti*, *Andaman*, *Kamorta* and *Cannanore* were moved into the Bay of Bengal. Simultaneously, air surveillance was stepped up and surface patrolling on the Sri Lankan east coast was intensified. The operation was called off when it was known that the venue of the meeting had been shifted to Colombo.

Operation Tulip (18–21 April 1989)
In mid-April it was reported that LTTE leader Mahatya was likely to move from the North Jaffna coast to south Tamil Nadu coast during mid-April 1989. Eastern Naval Command was directed to apprehend Mahatya, who was reported to be seriously injured. The task force for this operation included INS *Karwar*, *Cannanore*, *Kozhikode*, and Coast Guard ship *Konkan*, one newly acquired Fast Attack Craft of the Navy and IPV *Kittur Chennamma* of the Coast Guard. Islander aircraft from Ramnad provided air surveillance. A cordon off the south Tamil Nadu coast was established but Mahatya could not be trapped as he did not make the proposed journey to Tamil Nadu.

Operation Jupiter (Part 1)
In November 1988, the Presidential elections in Sri Lanka posed a new contingency—the safety of President Jayawardene in case his party lost the election. As a precautionary measure, Operation Jupiter was planned to evacuate the President and his immediate family to safety. The Navy positioned at Tuticorin a Seaking-capable frigate, INS *Godavari* (and later INS *Taragiri*), with a MARCOS team embarked. As it happened, the President's party was re-elected.[30]

The Sri Lankan Stand

When Jayewardene's term expired in January 1989, Premadasa became the President of Sri Lanka. He had been a staunch critic of the Indo–Sri Lanka

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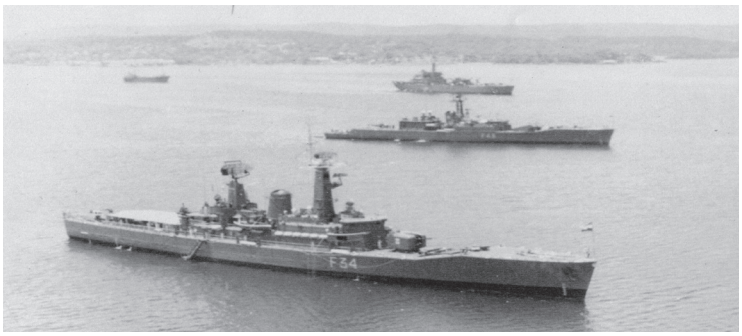
Accord. He came to power on a political promise that he would "Send back the IPKF". Between March and July 1989, he initiated a dialogue with the LTTE, which is presumed to have resulted in a ceasefire between the LTTE and the SLAF. He then tried to buy peace with the JVP but to no avail, their subversive activities increased. He then served the Indian government with an ultimatum to withdraw the IPKF by 29 July 1989, this being the second anniversary of the Indo–Sri Lanka Accord.

General V.N. Sharma was the Chief of Army Staff from 1989 to 1991. He recalls:

> As a result of a deal with the LTTE that he would call for the withdrawal of the IPKF, Mr Premadasa succeeded, in June 1989, in politically displacing Mr Jayawardene as the President of Sri Lanka. Immediately on assuming office, he asked that the IPKF withdraw. I was firm that under no circumstances would the Indian Army leave in circumstances that might, historically, sully its fair name. As and when it did leave, it would be with 'bands playing and flags flying high' as appropriate for a friendly army departing after rendering assistance.
>
> In Sri Lanka, the JVP and the LTTE fomented anti-India feelings. Political tension mounted. It became necessary to plan for the evacuation of our High Commission officials. I met Mr Premadasa in Sri Lanka and convinced him of the perilous situation he might be placed in if miscreants decided to displace him and how only the Indian Armed Forces could protect him from mishap. Mr Premadasa was duly "persuaded".
>
> As tensions continued to rise, plans had to be made for the contingency that the Sri Lankan Armed Forces might oppose the evacuation from the High Commission. A battalion of troops was embarked in the aircraft carrier *Viraat*, which, along with an armada of naval ships, remained out of sight. When tensions eased, the armada withdrew. In due course, the Army left Trincomalee with bands playing.[31]

Fig 4.1: Indian Navy Ships at Trincomalee



Source: Naval History Division, Indian Navy

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Special Contingency Plans

As the deadline approached, tension mounted, and JVP-incited violence intensified. Premadasa announced his intention to bring out the Sri Lankan Army (from their barracks) on 29 July 1989, to patrol the Northern and Eastern Provinces. This led to planning for the contingency of misguided, unprovoked action against the IPKF by wayward units of SLAF. Operation Roundup was planned to counter any backlash from the SLAF in the Northern and Eastern Provinces. Operation Trojan was planned to evacuate Indian nationals from Colombo, in the face of opposition. The third operation, a modified version of the earlier Operation Jupiter of December 1988, was also planned in case the need arose to evacuate Indian nationals with the support of the SLAF.

Operation Jupiter (Part II)

The aircraft carrier, *Viraat*, was at anchor in Bombay. On 18 July 1989, it was directed to embark all weapons and stores and arrive at Cochin on 20 July. Captain (later Admiral and Chief of Naval Staff) Madhvendra Singh was the Commanding Officer of *Viraat* during Operation Jupiter. The following excerpts are from his recollections recorded in the book *The Magnificent* Viraat: [32]

> Throughout that afternoon and early evening, ammunition barges, ration boats, aircraft launches, and fuelling barges continued to supply *Viraat* all that she had asked for and needed. It was a truly remarkable effort and the monsoon weather did not make it any easier. *Viraat* sailed at three o'clock that night in lashing rain. The ship picked up the first two Sea Harriers off Goa on the 19th morning and two more Sea Harriers off Mangalore on the 20th morning. She entered Cochin on the 21st morning to embark the support equipment of the Seaking Squadrons. Helicopters were assembled from all over the country. One Seaking 42C and two Chetaks were embarked in Bombay; two Seakings Mk 42 and two Chetaks from Cochin and one Seaking Mk 42C each from Coimbatore, Visakhapatnam and Taragiri. A fifth Seaking Mk 42C embarked later, as also 3 officers and 54 sailors of the Indian Marine Special Force (IMSF). With all 15 aircraft on board, *Viraat* sailed from Cochin to begin the work up of her air wing and IMSF detachment. While the *Viraat* was proceeding south, the 7th Battalion of the Garhwal Rifles which was at Pithoragarh in the Kumaon Hills was ordered to get ready for the mission. On 24th July, they moved by road from Pithoragarh to Bareilly and on the morning of the 26th they were airlifted by IL-76 aircraft to Trivandrum, where they arrived in the dead of night. They were immediately put into state transport corporation buses and moved during the night to INS Garuda in Cochin where they arrived early morning of 27th July. On the 27th morning, *Viraat* was asked to embark the battalion with her helicopters… Regardless of the weather, the men of *Viraat* worked tirelessly for the next six hours to

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> complete the combat embarkation of the battalion by the afternoon. With rotors running, 4 to 7 helicopters at a time were on deck being unloaded, refuelled when required and quickly launched for the next load. A total of 76 helo sorties of Seakings and Chetaks were carried out that day to embark 366 personnel, 36 tonnes of stores, 2 jeeps and a motorcycle with Viraat remaining 8 to 10 miles from the coast.
>
> Overnight, the *Viraat* had been transformed into a commando carrier. From a strength of about 1,000 in Bombay, her personnel strength rose to 1,800. Each man had a bunk, the Garhwalis were in their allotted messes and we still had 200 bunks kept vacant for evacuees and 60 bunks for any casualties in an improvised afloat hospital. The next morning, training began of working up the soldiers for an airborne assault operation… With dry runs completed, they practiced embarkation and disembarkation with rotors whirring overhead and finally they rehearsed the actual assault phase at INS *Garuda* with echelons of one company strength repeatedly practicing airborne assault and evacuation…
>
> The *Viraat* and her task group continued to operate at / off Cochin for another two weeks, ready to execute the mission if ordered. On 12th August, we were ordered to disembark air squadrons, as the mission in Sri Lanka would no longer be required… For both the Garhwalis and the *Viraat*, it had been a very happy and educative association. Both were richer for the experience and both will, for a long time, look back with pride and nostalgia on a mission well executed… In view of this operational association, the Garhwal Regiment was affiliated to INS *Viraat* on 2 February 1990 and this association remains to this day.

The Final Withdrawal of IPKF

Political interaction between the two governments had defused the crisis and the contingency plans were deactivated by mid-August 1989. De-induction started in August 1989 and by October 1989, the bulk of the IPKF were withdrawn. The IPKF mission terminated on 24 March 1990, when the final contingent of the IPKF sailed out of Trincomalee on board ships of the Eastern Fleet. INS *Kumbhir*, which has the unique distinction of beaching first and last at Batticaloa, was destined to be the part of the final day induction of the IPKF from Sri Lanka at Trincomalee. The ship was deployed off Palk Bay from 13 to 29 March 1990 for the de-induction from Kankesanthurai. On completion of the mission, the ship was ordered to return to Madras. No sooner had the ship reached off Nagapatanam, than it was directed to proceed for Trincomalee for the final day induction. On 21 March, the ship entered Trincomalee where later the IPKF was given a befitting farewell including a tri-Service guard by the Sri Lankan armed forces, at which the salute was taken by the GOC-in-C, Southern Command, the FOC-in-C Eastern Naval Command and AOC-

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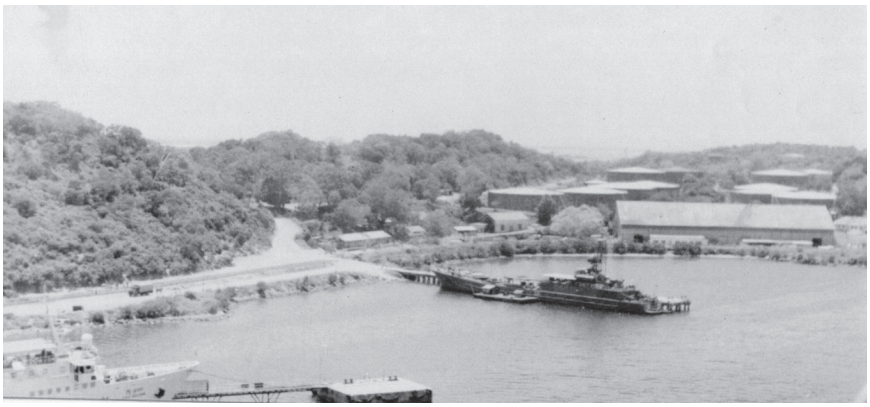
in-C Southern Air Command. INS *Kumbhir* was part of the final convoy that sailed from Trincomalee harbour on 24 March 1990; other ships in company being *Anjadip, Trishul, Dunagiri, Magar, Harshvardhana, Vishwa Vikram, Jalmudra*, and *Tipu Sultan*. The convoy was later joined by *Arnala* and *Andaman* off Trincomalee. The ships entered Madras on 25 March 1990 to a rousing welcome by both service personnel and civilians. The personnel were airlifted from Madras in four IL-76 aircraft. To mark the successful completion of Operation Pawan, a rally was held at New Delhi on 28 March 1990 where the then Prime Minister V.P. Singh met the officers and men of the armed forces who took part in the IPKF operation.[33]

Fig 4.2: Indian Navy Ships at Trincomalee Harbour



Source: Naval History Division, Indian Navy

Operation Pawan in Retrospect

Operation Pawan proved to be a long drawn-out operation with an enormous logistic involvement for the Navy. The Indian Navy's area of responsibility was mainly patrolling, joint operation, logistic support, providing naval command and control and the personnel involved in that.

An important aspect of naval involvement in Sri Lanka was patrolling. Naval headquarters claimed that it stopped induction of arms through the Sri Lankan east coast and that numerous seizures were made in the Palk Bay. The Navy participated effectively in joint operation with the Army where Indian Marine Special Force proved very useful in joint operations. The Landing Ship Tank proved very useful and the Navy therefore considered the procurement of more such vehicles. Another important task was the logistic support to IPKF, which was itself a major task of the Navy as a sea lift of this magnitude had never been attempted by the Indian Navy earlier. The Navy also provided necessary personnel for Operation Pawan. However, this responsibility was mainly shouldered by the Eastern Naval Command.

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Chartered merchant ships operations have been an important adjunct to the Navy's effort and it is noteworthy that the motivated performance of master including the retired officers such as Captain M.M.L. Saxena and Captain C.M. Vyas contributed a great deal in surmounting the many administrative hurdles. The scale of the logistics exercise compares favourably with World War II. Although a low intensity military involvement, Operation Pawan has been characterized by the multiplicity of the combat operations, many of which were joint operations with the Army. Seaward support by Naval Gun Fire Support (NGFS) ships and combat landing across beaches became well rehearsed Standing Operating Procedures (SOPs). Air surveillance mounted from several bases including isolated unused airstrips has effectively supported the cordon military and this versatility of helicopter pilots and the bravado displayed by the pilots of the aging Alize squadron have been the hallmark.

Lieutenant General Depinder Singh was the General Officer Commanding in Chief of the Army's Southern Command and the Overall Force Commander of the IPKF. In his book, he has recorded why things happened the way they did. The following excerpts refer to naval aspects from the book:

> This was the first time that an operation of this nature and magnitude was launched by our Armed Forces involving, as it did, the crossing of a sea obstacle. The only precedents were the annual Tri Service amphibious exercises carried out each year, and we were to discover that there is an enormous difference between an exercise and the actual thing. For one, the exercise normally concludes 12-24 hours after the troops are landed and the problems of logistics like procurement over a longer time frame, storage and delivery never came to the fore. Neither did we bother to analyse the operational problems that would arise once the enemy has got over the shock of the attacker's arrival and commences the inevitable readjustment and move of reserves to separate the attacker's teeth from his tail. Additionally, in an exercise, loading of stores, equipment and vehicles is from locations where adequate preparation has been made. In war, such actions take place all over the country and you suddenly find all loading held up because a particular type of ramp is not available.
>
> In our system of managing defence, all three services have an equal say, I was very conscious of this and even though the functioning of the IPKF was primarily Army oriented, I tried to ensure that the other two services were kept constantly in the operational picture and received equal importance. Despite this, service ego cannot be denied for long and, so, within a few days of the arrival of IPKF in Sri Lanka, resources allotted from the other two services, the Navy and Air Force, started to be withdrawn; so also was the Naval and Air Force staff representation in HQ IPKF where the numbers were decreased and ranks reduced.

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> When orders for creation of HQ Overall Force Commander (OFC), IPKF were first issued, certain naval and air force resources were allotted and I had the Chief of Staff, Eastern Naval Command and an Indian Air Force officer of the rank of Air Commodore as component commanders with their own staffs to deploy these resources. After the first flush of enthusiasm was over, the component commanders were the first to go; then went the resources and, finally, only skeleton staffs were left. So much for inter-services integration. We are still a far cry from achieving really effective inter-services integration and serious thought needs to be given to this aspect as, at the moment, there is too much of parochialism and possessiveness.
>
> We need proper sea craft to transport army units, so that the latter can reach the objective area in reasonably good shape. What was provided was generally primitive, with troops crammed on the top deck subjected to sun, wind and wave, sharing 4-5 toilets between 400-500 men; no wonder troops used to disembark at the destination looking pretty green. One suggestion is for the Shipping Corporation to acquire proper passenger ships so that, during emergencies, these can be utilised to ferry army units. Likewise, since we have created for ourselves an amphibious capability, we must acquire a floating dock to ensure maintenance of sea-landed forces at the earliest, in case suitable jetties are not available.
>
> In the matter of joint operations there is need to refine the provision of naval gun fire support. It was provided on one occasion during December 1987 north of Trincomalee and fire was off by over 2 kilometres. Commonality of maps needs to be introduced as the Navy operates off charts and the Army maps.
>
> In Sri Lanka, port facilities were barely adequate to meet Sri Lankan needs; with the IPKF requirement added on they proved totally inadequate… In consequence, after 10 October 1987, we had situations where formations arrived by air in Palaly and their transport and heavy luggage was landed from the sea in Trincomalee. It took weeks before the road communications could be opened to permit the two to marry up.[34]

For the Navy, Pawan was a valuable experience of prolonged low intensity conflict and of the organizational shortcomings to be remedied for future inter-service insurgency operations. Some of these shortcomings were:[35]

(a) Of the naval ships, only the LSTs and LCUs were somewhat suitable as troop carriers.
(b) The merchant ships (cargo ships) were totally unsuitable for carrying soldiers overnight to and from Sri Lanka.
(c) The influx of troops after October 1987 was so large and so frequent that even elementary security checks could not be enforced by the Army at the boarding point.

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(d) The inaccuracy of naval gunfire support by ships having large calibre guns against guerrilla targets in flat coastal terrain.

Aftermath of Operation Pawan

Prior to the withdrawal of the IPKF from Sri Lanka on 23 March 1990, there was considerable anxiety on part of the Tamil Nadu government on the prospect of likely LTTE activity in the immediate future upon termination of Operation Pawan. Due to the proximity of the land masses and adjacent common fishing grounds, the Palk Bay and the Gulf of Mannar have been a haven for illegal trafficking of humans and material from both sides. The LTTE exploited this route freely for its logistical requirements. A formal request was made by the Government of Tamil Nadu to the Ministry of Home Affairs in February 1990 for central assistance through the continuation of Naval presence in the detachment at Rameshwaram and the establishment of a Naval detachment at Point Calimere. On 30 May 1990, the Central Government ordered the Indian Navy and the Indian Coast Guard to institute joint patrols to interdict all undesirable activities (including influx of refugees) in the Palk Bay area, in addition to law enforcement tasks already being undertaken. In execution of government's directive, Operation Tasha was instituted on 21 June 1990.[36] It was seen by the Navy as a short-term requirement for three to six months and the expenditure was met from within Naval resources.

Accordingly, two Naval Detachments (NAVDETs), each deploying five trawlers hired from trade, were set up at Rameshwaram and Nagapattinam. The Naval Air Station, which had been earlier functioning at Ramanathapuram (Ramnad) in support of the IPKF operations, was reactivated and operation of both fixed wing as well as rotary wing (helicopters) aircraft recommenced. The Indian Navy and the Indian Coast Guard ships, operating out of Visakhapatnam and Chennai, were deployed to provide continuous sea-borne patrol. Regular coordination meetings were held with the state authorities and state and central enforcement, intelligence organizations. Though the IPKF had returned home, the threats from the Palk Bay continued to be alive and fraught with continuous developments. The Navy was charged with the dual responsibility of preventing clandestine operations as well as protecting fishermen. Naval ships, aircraft and submarines were deployed throughout the year to maintain peace in the region.[37]

The Indian Navy has actively supported the implementation of the Indo–Sri Lanka Accord through a variety of other measures. More than 3,000 Tamil detainees from Galle in Sri Lanka have been transported to the northern and eastern provinces on board naval ships. In the repatriations of refugees to Sri Lanka, the Navy has played a pivotal role. Approximately 25,000 Tamil refugees have been transported back to Sri Lanka on naval

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ships or under naval escort. They were hard years but invaluable from the point of view of the experience gained both in tactical and logistic operations. The unsung heroes of Operation Pawan were the young officers in their small boats operating in choppy seas and all kinds of weather. The turnaround times were fantastic and the time spent on the tasks very high. Their sterling contribution will always be remembered with pride.[38] In the years after 1990, India has abstained from further direct involvement and encouraged every peace-making effort for reconciliation between the Sri Lankan government and the LTTE. The lessons of Operation Pawan are instructive and grow in eminence, especially for future missions of humanitarian nature but with political dimensions, which the Navy will be called upon to undertake or assist in the future.

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Chapter 5

Operation Cactus, 1988

The Maldives occupies a sensitive position in the Indian Ocean Region. Located approximately 700 km southwest of India's southern coast, the archipelago straddles key shipping lanes connecting the Arabian Sea with the Bay of Bengal. The proximity to India's vital sea lines of communication[1] makes Maldivian stability a matter of direct strategic concern for New Delhi. Any hostile control of these islands could potentially threaten India's maritime approaches.

The Maldivian Crisis Unfolds

President Maumoon Abdul Gayoom[2] had been the President of Maldives since 1978, establishing himself as a moderate leader committed to maintaining close ties with India. The archipelago's strategic location, combined with its limited defence capabilities, made it particularly vulnerable to external threats. The small island nation possessed virtually no military capacity to defend against organized external aggression, relying instead on diplomatic ties and regional security arrangements for protection.

The political situation in the Maldives itself appeared stable on the surface, with President Gayoom maintaining broad popular support and effective governance. However, the nation's isolation and limited communication capabilities meant that any sudden crisis could quickly overwhelm local resources and require immediate external assistance. The absence of significant military or police forces capable of responding to organized armed intervention made the Maldives particularly vulnerable.

Night of 3 November 1988

On the night of 3 November 1988, the capital city of Maldives, Male, was fear-striken by the sudden arrival of a heavily armed mercenary force. About 100-200 armed Tamil-speaking mercenaries landed in Male harbour using boats launched from a mother ship[3] positioned offshore. The operation displayed thorough planning and coordination, with the attackers moving swiftly to capture key strategic locations throughout the small island capital.

The mercenaries demonstrated detailed knowledge of Male's layout and critical infrastructure, suggesting extensive advance reconnaissance and planning. President Gayoom quickly realized the severity of the situation. With his personal security, he managed to evade capture and went into hiding as the mercenaries systematically occupied the capital. From his concealed

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location, the President was able to maintain limited communication with the outside world. The coup appeared to be succeeding rapidly, with the mercenaries establishing control over most of Male within the first few hours of their assault.

President Gayoom's Call for Help

Recognizing that his government's survival depended on immediate external intervention, President Gayoom made the crucial decision to request Indian assistance in the early hours of 3 November 1988.

The urgency of the situation was emphasized by President Gayoom's assessment that his government would likely fall within hours without external assistance. The President's call for help thus represented not just a request for assistance but a race against time to prevent the complete collapse of legitimate government in the Maldives and its replacement by a hostile regime.

Political Leadership and Crisis Response

Prime Minister Rajiv Gandhi's administration faced a critical test of India's emerging role as a regional power when President Gayoom's urgent request for assistance reached New Delhi. The decision-making process required rapid coordination between multiple agencies while considering both immediate tactical requirements and longer-term strategic implications.

The political leadership recognized that the Maldivian crisis presented both an opportunity and a challenge for India's regional ambitions. Success in rapidly restoring legitimate government would demonstrate India's capability and commitment as a regional security provider, potentially strengthening relationships with other small neighbors facing similar vulnerabilities.

Analyzing India–Maldives relations during that time, P. Sahadevan argued that the relationship between the two countries was guided by the "principle of beneficial bilateralism, a mutual appreciation of concerns and interests, as well as equal respect and sympathy for each other's sensitivities".[4]

Thus, on 3 November 1988, when the Maldivian government asked for assistance, India felt that it was its duty to respond positively to the request of its closest friend in the region. The then Prime Minister Rajiv Gandhi, explaining the reason for India's assistance to the Maldives in the Parliament, said:

> Maldives is a peaceful country, with no Armed Forces except a small force to maintain law and order. President Gayoom is the democratically elected and popular President of this friendly neighbour of ours. He was re-elected for a third term in office as recently as 23 September 1988, securing over 95 per cent of the votes polled. Maldives is also one of our closest and

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> friendliest neighbours. It appealed to us in desperation in its grave hour of need. After carefully considering this appeal, we felt that we must respond positively and go to the aid of a friendly neighbour facing a threat to its sovereignty and its democratic order.[5]

The Prime Minister further stated:

> Our response to developments in the Maldives is a clear manifestation of our commitment to the promotion of peace and stability in our region. It is in keeping with our belief that countries in the region can resolve their problems in a spirit of friendship and cooperation, free of outside influences.[6]

Military Assessment and Planning

Consequent to the Indian government acceding to the Maldivian request, a joint operation codenamed "Cactus" was launched with the following mission: (a) to ensure safety of President Gayoom and his Cabinet; (b) to restore normalcy for the elected government to regain control.[7]

The Indian military leadership conducted a rapid assessment of the operational requirements. The geographic proximity of the islands to the Indian mainland provided significant advantages, with the Maldives lying within easy reach of Indian air and naval forces based on the west coast. The availability of an airfield at Hulhulé Island near Male offered the possibility of rapid air deployment.

The Indian Navy recognized that maritime control would be essential for both the initial intervention and ongoing operations. The need to prevent mercenary reinforcement or escape, combined with the requirement to establish secure supply lines, made naval deployment a critical priority. The Naval forces tasked for Operation Cactus are as follows:

INS *Godavari*, returning from goodwill visit from Australia
INS *Tir*, on passage to Cochin (Ex Mogadishu)
INS *Betwa*, sailed from Cochin
INS *Trishul*, diverted from Sri Lankan East Coast patrol
INS *Gomati*, sailed from Bombay
INS *Ranjit*, sailed from Bombay
INS *Deepak*, sailed from Bombay
INS *Rajput*, sailed from Visakhapatnam
INS *Nilgiri*, sailed from Visakhapatnam
INS *Cheetah*, sailed from Visakhapatnam
INS *Kumbhir*, sailed from Visakhapatnam
IL38 and Tu-142MR aircraft operating from Goa were deployed for surveillance tasks for the operation.
Three Seaking[8] and six Chetak helicopters were embarked as integral air elements on-board the ships.

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Operational Concept Development

The urgency of the situation in the Maldives demanded rapid formulation of an operational concept that could achieve India's strategic objectives within extremely tight time constraints. The primary objective was clearly defined: ensure the safety of President Gayoom and restore normalcy to the Maldivian government. This straightforward mission statement concealed the complex planning requirements that would need to be coordinated across multiple service branches while maintaining operational security and achieving tactical surprise.

The concept of operations developed by the joint Army–Air Force–Navy planning team centred on a multi-phase approach combining speed, precision, and overwhelming force projection. The initial phase would involve an air landing of troops at Hulhulé airport, taking advantage of the existing airfield infrastructure to establish an immediate military presence. The second phase would focus on securing Male itself and neutralizing the mercenary threat, while the third phase would involve establishing broader security throughout the archipelago and ensuring no residual threats remained.

The geographical advantages of the Maldives played a crucial role in shaping the operational concept. The islands' proximity to the Indian mainland, approximately 700 km from the southern coast, placed them well within the operational reach of Indian air and naval forces based on the west coast. The availability of the airfield at Hulhulé Island provided a critical capability for rapid deployment of ground forces, eliminating the need for more complex amphibious assault operations. The relatively small size of Male and the concentration of government facilities meant that a limited force could achieve decisive results if deployed quickly and effectively.

Initial Naval Response

The Indian Navy's response to the Maldivian crisis demonstrated to the world both the strategic advantages of forward deployment and the service's ability to rapidly redirect assets toward any threats. At the time of President Gayoom's call for assistance, the nearest naval vessels to the Maldives were INS *Tir*, the cadet training ship, and INS *Godavari*, a guided missile frigate. Both ships were immediately diverted toward Male at maximum speed, providing India with an immediate naval presence in the area while larger forces were being mobilized.

INS *Betwa* sailed from Cochin, adding additional firepower and capability to the naval force converging on the Maldives. The frigate's sophisticated sensors and weapon systems would prove crucial in the subsequent phases of the operation, particularly in tracking and intercepting the hijacked merchant vessel MV *Progress Light*. The rapid deployment of these initial forces demonstrated the Navy's ability to respond to crisis situations.

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By 1300 hrs on 3 November, Operation Cactus was formally launched, with Maritime Reconnaissance aircraft[9] establishing surveillance over the Maldives by 1415 hrs the same day. Within hours of the initial alert, Indian naval forces had established a presence around the Maldives that would prove decisive.

Fleet Mobilization[10]

The scale of Operation Cactus required mobilization of substantial naval forces beyond the initial ships already at sea. A powerful fleet was directed to prepare for deployment to the Maldives, including the guided missile destroyers INS *Rajput* and INS *Ranjit*, the frigates INS *Gomati*, INS *Trishul*, and INS *Nilgiri*, the landing ship tank INS *Kumbhir*, the fast attack craft INS *Cheetah*, and the fleet tanker INS *Deepak*. This force represented a significant portion of the Indian Navy's combat capabilities, demonstrating the high priority assigned to the operation.

The composition of the deployed fleet reflected careful consideration of the diverse requirements likely to be encountered during the operation. The destroyers provided sophisticated air defence and surface warfare capabilities, while the frigates offered versatility in surface combat and naval gunfire support roles. The inclusion of INS *Kumbhir* provided amphibious warfare capability should landing operations become necessary, while INS *Deepak* ensured that the fleet could maintain operations far from home bases for extended periods.

Ships sailed from their base ports at best speed, converging on the Maldives from multiple directions. The logistical complexity of coordinating such a large-scale deployment while maintaining operational security was considerable, requiring precise timing and communication.

The Flight of the Mercenaries

As the mercenaries became aware of the troops landing at the Hulhulé airport, they seized hostages and fled from Male in a merchant ship MV *Progress Light*. Among the hostages was the Maldivian Minister of Transport. Naval Headquarters received intelligence of the MV *Progress Light* having left Male harbour at midnight on 3–4 November.

The United States Embassy in India informed that two Perry class frigates of the US Navy (USS *Vandegrift* and *Rodney M Davis*) and one guided missile cruiser (USS *Reeves*) were present in the area and moving towards Male for co-operation with the Indian Navy.

The US Embassy was informed that the gesture was appreciated. However, the Indian Navy was in full command of the situation and did not need any assistance.[11]

Throughout the night, MR aircraft kept track on radar of all ships in the patrol area. At 0925 hrs on the morning of 4 November, the MR aircraft

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was able to catch the signal and confirm the detection of the MV *Progress Light* and INS *Betwa* (which was coming from Cochin) homed in on it. INS *Betwa* intercepted MV *Progress Light* on the night of 4–5 November and followed it.

In the meantime, a negotiating team had been flown from Male to Colombo. INS *Godavari*'s Seaking helicopter embarked this team in Colombo and flew it on board INS *Godavari*. By midday on 5 November, INS *Godavari* made contact with the MV *Progress Light* and commenced negotiations for the release of the hostages.

The Negotiations Phase[12]

The leader of the mercenaries insisted that the MV *Progress Light* would proceed only to Colombo and demanded intervention by an international team. After 15 hours of tension-packed dialogue between the negotiators and the mercenaries, during which the ship continued to head for Colombo, it became clear the rebels were not prepared to negotiate and change the destination of the MV *Progress Light*.

The negotiations made no progress as the mercenary leader (Abdullah Luthufee) insisted on proceeding to Sri Lanka and refused to stop ship. INS *Godavari* meanwhile intercepted and traced the rebel radio transmission to Singapore.

The negotiating team leader recommended that the rebel ship be stopped by use of force. Simultaneously, INS *Godavari* issued a plan for IMSF operation by the naval commandos.

Meanwhile, the Sri Lankan government had intimated that the rebel ship would not be allowed to enter Sri Lankan waters and that if it did, it would be attacked. The Maldivian government had also made clear its desire that the MV *Progress Light* should not be allowed to proceed to Colombo.

INS *Godavari* was directed to initiate graded pressure tactics and stop MV *Progress Light* from closing in on the Sri Lankan coast. The decision to initiate pressure tactics against MV *Progress Light* represented a carefully calibrated escalation designed to compel surrender while minimizing risks to the hostages aboard.

The initial phase of pressure tactics began soon after midnight on 5–6 November, when MV *Progress Light* was given the ultimatum to return to Male or head for an Indian port. The mercenaries' refusal to comply with this demand triggered the next level of escalation, as Indian naval forces were authorized to use warning shots to demonstrate their resolve.

The use of warning shots represented a significant escalation in the confrontation, as it demonstrated Indian willingness to use force while still providing the mercenaries with opportunities to surrender peacefully.

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Progressive Escalation of Naval Gunfire

When warning shots failed to persuade the mercenaries to change course, Indian naval forces implemented the next phase of their graduated response strategy. Close-range gunfire was aimed at the forward goal post mast of MV *Progress Light*, achieving the dual objectives of demonstrating serious intent while avoiding direct threat to human life. The fortunate result of the mast shooting was the dislodging of a swinging derrick, which fell on top of the mercenaries' fast escape craft. This unintended consequence significantly reduced the mercenaries' options for abandoning ship while maintaining their hostages, effectively trapping them aboard MV *Progress Light* with limited means of independent action. The psychological impact of this development may have been as important as its tactical significance, demonstrating to the mercenaries that their situation was becoming increasingly untenable.

Vice Admiral S.V. Gopalachari (then Captain and Commanding Officer of INS *Godavari*) recalls:

> Soon after midnight on 5–6 November, MV *Progress Light* was given the choice of returning to Male or heading for an Indian port—she refused. A firm warning was issued. This evoked no response. A warning shot was fired across the bows. It failed to persuade the hijackers. Close range gunfire was aimed at the forward goal post mast. It dislodged the swinging derrick which (fortuitously) fell on top of their fast speed escape craft.
>
> After dawn on the 6th, pressure was increased. INS *Godavari*'s Seaking dropped two depth charges ahead of the bows. MV *Progress Light* continued on her course. Close range gunfire was aimed at the aft mast and funnel. At 0825h, a frantic report from the Master of the MV *Progress Light* indicated that the rebels had surrendered. The ship however continued to move ahead. INS Betwa opened fire - one of her shells hit MV *Progress Light* amidships and she stopped. [13]

The hit started a fire on board MV *Progress Light*, frightened the mercenaries and caused the ship to stop. The mercenaries surrendered at 0854 hrs on 6 November.

The boarding party from INS *Godavari* searched the vessel and found the dead body of the Second Engineer. The vessel was loaded with cars and scotch whisky. INS *Betwa* also arrived for assistance of INS *Godavari* and the merchant vessel was left under the command of INS *Betwa* to tow the vessel. INS *Godavari* sailed for Male to drop off the hostages and hand over the mercenaries. A small vessel was noticed waving a white flag, folding hands in namaskar, begging to be rescued. The person was identified as Raju from Jaffna, the second in command to Luthufee, who had killed the Second Engineer of the merchant vessel.[14]

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Fig 5.1: INS *Godavari* Closes in as Rebels Surrender



Source: Naval History Division, Indian Navy

Fig. 5.2: Abdullah Luthufee in the Custody of Indian Navy



Source: Naval History Division, Indian Navy

Evacuation of Injured Hostages

Eight injured hostages (including the Maldivian Minister of Shipping and Transport) were immediately evacuated by helicopter to the Military Hospital, Trivandrum for urgent hospitalization. Hostages with minor injuries were treated on board INS *Godavari*.

Capsizing of MV *Progress Light*

Efforts by salvage parties from INS *Betwa* to extinguish the fire and control the flooding on board MV *Progress Light* were unsuccessful in the adverse

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weather conditions that prevailed. Its crew was transferred to INS *Betwa*. MV *Progress Light* capsized on 7 November at 0530 hrs, 56 miles southwest of Colombo.

Return to Male

The return voyage to Male with the rescued hostages and captured mercenaries represented the culmination of Operation Cactus and an opportunity to demonstrate India's commitment to regional stability and international law. INS *Godavari* and INS *Betwa* proceeded toward the Maldivian capital carrying not only the physical evidence of the operation's success but also the symbolic importance of India's role as a regional security provider. The voyage itself served as a period of transition to eminence.

The formal ceremony was conducted on 8 November 1988, where the Commanding Officer of INS *Godavari* handed over the rescued hostages to Maldivian government officials.

President Gayoom's personal participation in the ceremony underscored both his gratitude for Indian assistance and his government's legitimacy as the rightful authority in the Maldives. It sent important messages to multiple audiences. For the Maldivian people, it demonstrated that their legitimate government had been restored and that the threat to their democracy had been defeated. For regional observers, it showed the benefits of maintaining close relationships with India and the effectiveness of Indian security guarantees.

Notes

1. Sea Lines of Communication (SLOCs) are maritime routes used for trade, logistics, and naval mobility, forming the arteries of maritime power.
2. Maumoon Abdul Gayoom served as the President of Maldives from 1978 to 2008, making him one of South Asia's longest-serving leaders.
3. A mother ship is a larger vessel used to carry, launch, and support smaller boats or aircraft during military or covert operations.
4. P. Sahadevan, "India–Maldives Relations", *Dialogue*, Vol. 5, No. 3, January–March 2004, p. 99–100.
5. "Prime Minister's Statement on the Developments in the Maldives", *Foreign Affairs Record*, Vol. XXXIV, No. 1, 1988, https://mealib.nic.in/?pdf2576?000, accessed on 15 May 2025.
6. Ibid.
7. "Operation Cactus Report—Conduct of Operation", Naval History Division.
8. Seaking helicopters perform multi-role operations, including anti-submarine warfare, troop transport, and search and rescue.
9. Maritime Reconnaissance (MR) aircraft are fixed-wing aircraft designed for long-duration missions over water to perform surveillance, anti-submarine warfare (ASW), anti-ship warfare (AShW), and search and rescue (SAR) operations.
10. Vice Admiral G.M. Hiranandani, *Transition to Eminence: Indian Navy 1976–1990*, Lancer Publishers, New Delhi, 2005, pp. 199–200.

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11. Kux Dennis, *Estranged Democracies: India and the United States 1941-1991*, Sage, New Delhi, 1993, p. 415.
12. Hiranandani. *Transition to Eminence*, p. 200.
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14. Verma Ashutosh, "Operation Cactus", Quarterdeck- 2017, *Navy Foundation Magazine*, 2017, 110–12.

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Chapter 6

Operation Talwar

The Kargil Conflict, 1999

The war in Kargil will go down in the history of India as a saga of unmatched bravery, grit, and determination displayed on the battlefield by the Indian Armed Forces. The main credit for achieving success in Kargil goes to the units that fought on the front but behind the celebrated valour of the ground forces lies an equally significant but often overlooked story: the Indian Navy's decisive role in establishing dominance at sea. Kargil was thus a war where the combined Indian Armed Forces compelled the aggressor to accept failure and step back.[1]

This three-month conflict, waged primarily along the Line of Control (LoC) in the Kargil district of Ladakh, marked the fourth war between India and Pakistan since Independence and the first direct military confrontation between two nuclear-armed states since their nuclearization in May 1998.[2] The mindset that underlay Pakistan's repeated, obsessive, military misadventures prior to Kargil was marked by "hatred" and "mistrust". It resulted in three fierce and intense conflicts in 1947, 1965 and 1971. But despite its earlier experiences with its traditional adversary, nothing that preceded the Kargil conflict had prepared the Indian Army for what lay ahead.

Genesis and Planning—Operation Badr

The conceptual origins of what would become known as Operation Badr can be traced to the mid-1980s, with the plan being formally conceptualized during General Zia-ul-Haq's tenure and refined during subsequent military leaderships. However, it was under General Pervez Musharraf's leadership, first as Director General of Military Operations (1993–1995) and later as Chief of Army Staff (1998–1999), that the plan gained momentum and eventual implementation. As documented in General Musharraf's memoir *In the Line of Fire*, the operation was planned as a response to India's defence of the Siachen Glacier and aimed at establishing a new Line of Control.

The Pakistan adventure in Kargil, first conceived in 1987, was shelved for lack of consensus among its leadership. Thereafter, with the reduction of Indian troops from the Kargil sector in 1991, there was a gradual degradation in its defence potential. The plot of a Pakistani offensive in Kargil was revived in October 1998, after General Musharraf took over as

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Chief of Army Staff. Everything seemed to favour the offensive (Operation Badr), which was launched in about November 1998.[3] The strategic thought behind Operation Badr was multifaceted. At the tactical level, the plan sought to exploit the seasonal withdrawal of Indian forces from posts during winter months, a practice that had been observed by both nations for decades. Pakistan anticipated that by establishing strong defensive positions on commanding heights overlooking the Srinagar–Leh highway (National Highway 1A), it could achieve several objectives at once: cutting off India's primary supply line to Ladakh, forcing India to negotiate from a position of weakness, and potentially compelling international intervention in the Kashmir dispute.

The plan's sophistication lay not just in its tactical execution but also in its deception strategy. Pakistani forces, primarily comprising Northern Light Infantry (NLI) battalions,[4] were disguised as Kashmiri freedom fighters to provide plausible deniability and avoid immediate escalation to conventional warfare.

Intrusions across the LoC are not uncommon. Pakistan had in the past intruded into the Indian side of the LoC and the Indian Army had responded adequately. There had, however, been no intrusions since 1990. An attempt to capture a post or two on the LoC was, however, anticipated as revealed in the press briefing of the acting GOC 15 Corps on 11 January 1999. Even this was not the kind of intrusion that actually took place in the Mashkoh, Dras, Kaksar and Batalik areas. The terrain here is so inhospitable that the intruders could not have survived above 4,000 metres for long without comprehensive and sustained re-supply operations. They even ran short of water at these heights towards the end of the operations. Though heavily armed, the intruders did not have rations for more than two or three days in many forward "sanghars".[5] Re-supply could have taken place only if there was no air threat and the supply lines could not be targeted by Indian artillery. In other words, it would appear that the Pakistani intruders operated on the assumption that the intrusions would be under counter attack for only a few days and thereafter some sort of cease-fire would enable them to stay on the heights and be re-supplied. Such an assumption would be totally unsustainable in purely military terms. It would only be logical on the expectation, based upon political considerations, that Pakistan would be able to engineer international intervention to impose an early ceasefire that would allow its troops to stay in possession of the territory captured by them. Such an assumption could not have been made without close consultation with the Pakistani political leadership at the highest level. General Musharraf disclosed that the operations were discussed in November 1998 with the political leadership and there are indications of discussion on two subsequent occasions in early 1999. The tapes of conversations between General Musharraf and Lieutenant General Aziz,

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Chief of General Staff, also revealed their expectation of early international intervention, the likelihood of a ceasefire and knowledge and support of the Foreign Office.[6]

Tracking the Moving Pieces

After the signing of the Lahore Declaration,[7] the political leadership of both the nations expected that cross border infiltration and militants' activities in Jammu and Kashmir would gradually taper off. In his review and assessment of the strategic situation to the Army Commanders in April 1999, General V.P. Malik stated that:

> …This diplomatic initiative has definitely opened the door for improving relation. But unless Pakistan translates it into ground realities, and stops sponsoring the proxy war, these CBMs cannot be expected to fructify. Pakistan's military has been in the foreseeable future is likely to remain negatively Indo-centric… Pakistan's military strategy against India is based on Low-intensity conflict or nuclear conflict: an all or nothing approach. We cannot accept this. We must be prepared to make use of the space between low-intensity conflict and nuclear war for conventional retaliation if Pakistan ups the ante in Jammu and Kashmir. This space would be limited in Time, Geography and scope and the threshold would need to be very carefully assessed… With conventional military capability in our favour, and nuclear capability lowering the threshold, Pakistan is likely to continue to resort to ISI-inspired insurgencies, where its instrumentality and expertise are in place and our vulnerabilities well know. It believes that a festering insurgency is a means of neutralizing our conventional edge and is keeping us engaged. Fueling of insurgency and terrorism in India, a low-cost option, is likely to persist and should be seen as an adjunct to Pakistan's conventional war doctrine. The proxy war waged in Kashmir and other parts of the country needs to be handled with firmness, backed with effective deterrence.[8]

This highlights the fact that there was a looming sense of unease even after the Lahore Declaration and a sense of being prepared for conventional warfare existed. This view was in contrast to the Pakistani military leadership, who, according to Stephen P. Cohen, believed that "A nuclear capability would paralyse not only the Indian nuclear decision, but also Indian conventional forces, and a bold Pakistani strike to liberate Kashmir might go unchallenged if Indian leadership was indecisive… Pakistani bomb might enable Pakistan to reopen the Kashmir issue by threat of force: if nuclear weapons deter each other they may also inhibit direct military conflict between states that possess them; a Pakistani leadership that was bold enough could attack and seize Kashmir at a time when Indian was in disarray."[9]

This realization along with the thirst for revenge for Siachen and the Kashmir obsession became one of the motivating factors for the Pakistan

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Army intrusion in Kargil. The Kashmir obsession for Pakistan had never ceased and, as in 1998–1999, the concern regarding the "Kashmiri cause" losing its international limelight and the declining militancy in Kashmir pushed the Pakistani establishments to use military operation, under the veil of a Mujahideen operation, in an attempt to both revive militancy and to force India to the negotiating table from a position of weakness.

The Line of Control near Kargil is marked by intermittent posts that are separated by very steep, heavily snowed, avalanche-prone mountainous "gaps" of 10 to 45 km. In winter, the terrain in these gaps is impassable. By an unwritten concord between the local Indian and Pakistani military commanders, every year, between November when winter started and May when winter ended, Indian and Pakistani troops used to leave these gaps "un-held".

Pakistan's plan was to stealthily infiltrate troops, masquerading as Kashmiri freedom fighters, through these unheld gaps and by the spring of 1999 be well entrenched in Indian territory. The plan counted on a normal winter and on achieving tactical surprise that would enable the infiltrators to consolidate along the heights above Kargil before the Indian side could react.

Pakistan hoped that its surprise intrusion in Kargil, followed by India's strong reaction, followed in turn by Pakistan's threat of using nuclear weapons would precipitate international intervention to force India to accept an early ceasefire and negotiate a new Line of Control in Kashmir. Should foreign intervention take too long to materialize, Pakistani troops would stay where they were till October when the next winter set in. Thus, they would continue to dominate the Kargil and adjacent sub-sectors bordering the national highway from Srinagar to Leh along which all supplies were transported to the entire Ladakh region.

Meanwhile, the ongoing high-level political interaction about a negotiated peace had culminated in the invitation by Pakistan's Prime Minister to India's Prime Minister to visit Lahore in February 1999. It became known later that at the very time that the Prime Ministers were discussing peace in Lahore (later called the Lahore Process), intruders had already started crossing surreptitiously into India.

To achieve surprise, Pakistan camouflaged its moves. To the infiltrating troops, the intrusion was explained as a reply to India's capture of Siachen in 1984, the aim now being to establish a new Line of Control.

The Intrusion

In end January-early February 1999, reconnaissance parties comprising officers of the Pakistan Army's well-acclimatized Northern Light Infantry and Special Service Group (SSG) commandos started crossing at unguarded points along a 200 km segment of the 740 km long Line of Control. By end

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February, they established a first line of administrative bases across the Line of Control within a limited distance. There was heavy snowfall in March. The bulk of the troops had entered Indian territory by late April and moved up a further two to three kilometres. To avoid detection by Indian Army Aviation helicopter patrols and to achieve surprise, they took great care to move only in the un-held gaps between the Indian posts. The Pakistani intrusion was first noticed by Kashmiri shepherds on 3 May 1999 and reported to the nearest Indian Army unit in that sector.[10]

Indian forces moved to check the Pakistani ingress but the Pakistani forces captured Lieutenant Saurabh Kalia and five soldiers of his patrol in May 1999. Later, after weeks in captivity, their mutilated bodies were returned, bearing evidence of extreme torture including burns, amputated ears, punctured eyes, and broken limbs in violation of all humanitarian norms and international military conventions.

It took some days to determine the sheer dimension and extent of the intrusion. By 11 May, reports by Indian Army Aviation helicopters and foot patrols led to the assessment that armed "infiltrators" had penetrated through the hitherto "mutually agreed unguarded gaps" between the Indian defended areas to depths of 5 to 9 km and occupied some of the commanding heights above the strategic National Highway 1A that connected Srinagar to Leh. It was still not clear whether the "infiltrators" were Mujahideen "freedom fighters" or "Pakistani troops".

As a precautionary measure, the Army, the Navy, and the Air Force were placed on high alert. But even as late as 15 May, the intrusions were still being described as "large scale intrusions by Pakistani infiltrators".

By 17 May, evidence increased that the intruders had occupied not just the heights overlooking the National Highway at Kargil—they had also occupied the heights in the gaps between the Indian defended areas in all sub-sectors of the Kargil sector. The Air Force launched photo recce sorties. Discussions commenced on whether air power should be deployed and of Pakistan's likely response. After 20 May, the "infiltration" assessment was upgraded to "armed intrusions by 250 to 300 intruders".

Pakistan's narrative of deniability was shattered when Indian forces recovered military documents from the bodies of killed intruders, irrefutably proving their affiliation with the Pakistan Army's Northern Light Infantry and regular formations. The body of Captain Imtiaz Malik of 165 Mortar Regiment was found at Point 4875[11] in the Mushkoh sub-sector. The body of Captain Karnal Sher of 12 Northern Light Infantry was found on Tiger Hill in the Dras sub-sector. The identities of these two officers were established by correspondence found on their persons.[12] These alleged militants carried official Pakistan Armed Forces identification, equipment markings, and personal documents that exposed the state-sponsored nature of the operation.

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On 25 May 1999, the Army launched Operation "Vijay", the Navy Operation "Talwar" and the Air Force Operation "Safed Sagar", after the Cabinet Committee on Security approved operations in Kargil with the use of air power. The Armed Forces were, however, to adopt a posture of deterrence vis-à-vis Pakistan and air strikes against the intruders had to be restricted to the Indian side of the Line of Control. The Army started moving its defensive and offensive formations in the Western and Southern Commands closer to the Pakistan border to deter Pakistan from escalating the conflict and prevent it from focusing solely on Kargil.

From 25 May onwards, the Air Force struck the bunkers on the mountain tops, where the Pakistani intruders had dug in. On 28 and 29 May, the Air Force lost a MiG 21 fighter and an MI 17 helicopter to Pakistani shoulder-fired, anti-aircraft Stinger missiles[13], and a MiG 27, which crashed due to technical problems. Thereafter precision-guided bombs from Mirage aircraft attacked the bunkers from ranges beyond the reach of shoulder-fired, anti-aircraft missiles.

In the first three weeks of June, despite losses, the valour and grit of Indian troops was on full display as they climbed vertical cliffs in the face of withering fire by well dug-in intruders, and succeeded in forcing the intruders to withdraw from their bunkers on the mountain tops.

The Pakistanis began voicing threats implying the use of nuclear weapons. India interpreted the threat as a Pakistani gambit to invoke international mediation. Then, in the third week of June, reports appeared that Pakistan had ordered the deployment of missiles capable of carrying nuclear warheads.[14]

The Pakistan Prime Minister flew to America. Under pressure from the American President, he declared the unconditional withdrawal of Pakistani troops from Kargil.

Though the war ended formally on 16 July 1999, it took another 10 days to evict those intruders that had failed to withdraw.

The Indian Navy's Operations[15]

As soon as the infiltration was assessed as an "armed intrusion" on 20 May, Naval Headquarters issued its first signal to the three Naval Commands to "enhance security measures". Western Naval Command swung into action and swiftly deployed the following units:

- A Leander class frigate on a barrier patrol[16] off Dwarka
- Two missile boats at Okha—one on patrol off Okha and the other berthed alongside in Okha at one hours' notice
- Dornier aircraft on surveillance patrols over the sea west of Saurashtra, outside Pakistan's Air Defence Interception Zone (ADIZ)

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On 23 May, Naval Headquarters issued a directive to:

- Prevent sneak attacks along the Gujarat coast
- Ensure security of offshore assets
- Counter enemy pre-emptive measures
- Monitor the movements of Pakistani naval forces in the North Arabian Sea.
- Expedite ongoing "Short Refits" of major combatants to maximize operational availability

Following the directive, Western Naval Command sailed ships from Mumbai on 22 May to protect offshore oil installations from clandestine underwater attacks. Concurrently, aerial surveillance was increased off the coasts of Maharashtra and Gujarat to forestall surprise Pakistani intrusions from seaward.

By 25 May, the entire Western Fleet had sailed from Mumbai to the North Arabian Sea as a precautionary deployment to increase surveillance and adopt a deterrent posture. The next day, anticipating an escalation in tensions, Naval Headquarters initiated action to:

- Make major combatants operational by end June 1999
- Make naval missiles operational
- Maintain tight control over forward deployed forces to avoid trigger-happy misadventure

By 27 May, the Navy had deployed a guided missile destroyer off Saurashtra and positioned additional Dornier aircraft at Daman to augment surveillance. Ships and aircraft of the Coast Guard were placed under naval command to augment coastal surveillance and defence of offshore assets.

On 29 May 1999, the Navy informed the Cabinet Committee on Security that units of the Eastern Fleet would be joining the Western Fleet by early June. Ships from the Eastern Fleet arrived in combat ready condition, at Kochi, in the first week of June. The press media printed photographs of missile-armed ships berthed alongside in Kochi en route to join the Western Fleet. These were picked up and reproduced in the newspapers of the Persian Gulf.

On the diplomatic front, the Foreign Minister of Pakistan came to Delhi to discuss the lowering of tension. The talks failed. Naval Headquarters directed the fleets to "enhance the level of preparedness". Pakistan Naval Headquarters, sensing trouble, put its ships on high alert and directed them to keep well clear of the Indian Navy.[17]

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Fig. 6.1: Fleet Ship in the Arabian Sea during Operation Talwar



Source: Naval History Division, Indian Navy

By the second week of June, the conflict had reached a fever pitch. The Joint Western and Eastern Fleets commenced exercises to check the Navy's readiness for an all-out conflict. The Pakistan Navy dispersed its ships away from Karachi to its ports on the Makran Coast,[18] Ormara, Pasni, Gwadar, and Jiwani. Pakistan Naval ships started escorting tankers bringing oil from the Persian Gulf.

Two weeks later, after Pakistan announced the deployment of missiles capable of carrying nuclear warheads, threatening India with nuclear strikes, Indian missile armed ships responded by moving closer to the Pakistan coast. National and international media were informed that the Navy was on full alert. The message to be conveyed to Pakistan was not to escalate in Kargil or extend it to the sea. The Pakistan Navy, however, went on full alert and launched additional surveillance sorties along its coast, all the while remaining clear of Indian naval ships and aircraft. Karachi Port was placed on full alert.

On 30 June, India's Amphibious Brigade started moving westwards from Port Blair to Goa. The presence of Indian Naval ships played on the Pakistan Navy's apprehension of oil supplies from the Gulf being disrupted. Sensitive about the vulnerability of these oil supplies and aware that a naval engagement might expose its fuel storages in Karachi harbour and also its sea lanes to naval attack, the Pakistan Navy prudently escorted its oil tankers along the Makran Coast. The Indian Naval ships, however, did nothing to escalate tensions. In the ensuing operations, Indian naval ships arrested a North Korean ship that was carrying missile components to Pakistan. By 2 July, with Pakistani troops being evicted from their bunkers in Kargil, Pakistan started seeking a way to end the intrusion.

On 4 July, under pressure from the American President, the Pakistan Prime Minister declared the unconditional withdrawal of Pakistani troops

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from Kargil. The Indian Navy was soon asked to terminate its operations. On 14 July 1999, Prime Minister Atal Bihari Vajpayee declared Operation Talwar a success.

Operation Analysis

One of the defining aspects of Operation Talwar was the credible threat of a naval blockade, which became a key instrument of coercive diplomacy. The deployment of Indian naval vessels near Pakistan's principal port of Karachi sent a strong signal. Given Pakistan's dependence on maritime trade for essential supplies, especially oil imports from the Gulf, the looming threat of interdiction created both logistical and strategic complications for Islamabad. The Indian Navy's sustained presence in the Arabian Sea disrupted routine shipping lanes. In addition to material effects, operation Talwar had a pronounced psychological impact. The aggressive deployment of Indian naval forces showcased a readiness for escalation if provoked and underscored the Indian Navy's operational reach.

Fig. 6.2: INS *Delhi* in the Arabian Sea during Operation Talwar



Source: Naval History Division, Indian Navy

Another key contribution of the Indian Navy during the Kargil conflict was in shaping the strategic environment to India's advantage. In the calculus of warfare, deterrence is often achieved not just through action but through the credible possibility of action. Operation Talwar epitomized this principle. By making it clear that India was prepared to engage across multiple fronts, including the sea, the Indian Navy played a stabilizing role in the conflict.

In the aftermath of the war, the Government of India constituted a committee to review the events leading up to the Pakistani aggression in the Kargil District of Ladakh in Jammu and Kashmir and recommend measures to safeguard national security against such armed intrusions. The Kargil Review Committee[19] presented a comprehensive report of the shortcomings that led to the conflict. The Committee in its report has very perceptively outlined Pakistan's motives for the war.

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Strategically speaking, Pakistan needed to internationalize Kashmir as a nuclear flashpoint requiring urgent third-party intervention. It sought to alter the Line of Control and disturb its sanctity by capturing un-held areas in Kargil and also achieve a better bargaining position for a possible trade-off against the positions held by India in Siachen.

From a military point of view, Pakistan aimed at interdicting the Srinagar–Leh road by disrupting vital supplies to Leh, specifically in the Kargil sector where the National Highway skirts part of the Line of Control. Such a move, it anticipated, would boost the morale of militants in Kashmir and make the Indian Army withdraw troops from the Valley to Kargil. The political objective was for the Army to demonstrate its commitment to the political segment of Pakistan that favored jihad.

The Kargil episode was a critical chapter in India–Pakistan relations. It severely dented the repair of relationship between India and Pakistan, which had taken its first tentative step with the famous 1999 visit to Lahore of Prime Minister Vajpayee. The entire peace process got derailed and almost three decades later, the damage has still not been fully repaired. It served as a rude awakening for the nation's intelligence organization that was jolted out of its slumber. It was a timely reminder that the wily, troublesome neighbour could never be taken for granted. The Navy distinguished itself with honour during the operations. It was swift in its reaction; prompt in formulating plans and displayed great clarity on the nature and conduct of operations.[20] Operation Talwar demonstrated that naval power, even without direct combat engagement, can decisively influence land-based conflicts through strategic positioning and economic coercion. The operation successfully achieved deterrence without escalation, protecting India's maritime interests while constraining Pakistan's strategic options.

Notes

1. General V.P. Malik, *Kargil: From Surprise to Victory*, HarperCollins, New Delhi, 2006, p. 9.
2. India conducted nuclear tests on 11 and 13 May 1998 (Operation Shakti); Pakistan responded with tests on 28 and 30 May 1998 (Chagai-I and Chagai-II).
3. Kuldip Singh, *Indian Military Thought: Kurukshetra to Kargil and Future Perspectives*, Lancer, New Delhi, 2011, p. 463.
4. The Northern Light Infantry was a paramilitary force of Pakistan Army, recruited from Gilgit-Baltistan. It was formally inducted into the Pakistan Army as a regular regiment after the Kargil conflict.
5. Sanghar refers to a temporary fortified position built by stacking rocks, commonly used in mountainous terrain where digging trenches is impractical.
6. Kargil Review Committee Report, p. 5.
7. The Lahore Declaration was signed on 21 February 1999 by Indian Prime Minister Atal Bihari Vajpayee and Pakistani Prime Minister Nawaz Sharif, committing both nations to peaceful resolution of disputes including Kashmir.
8. Malik, *Kargil*, pp. 35–36.

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9. Stephen P. Cohen, *The Pakistan Army*, Himalayan Books, New Delhi, 1984, in arrangement with the University of California Press, Berkeley, California, pp. 153–54.
10. Excerpts from the Kargil Review Committee Report, p. 8.
11. Point 4875, later named "Batra Top" in honour of Captain Vikram Batra (PVC), was one of the most fiercely contested Kargil peaks.
12. Embassy of India, Washington DC, USA, "Press Release Regarding Bodies of Two Pakistan Army Officers", 15 July 1999, https://www.indianembassyusa.gov.in/ArchivesDetails?id=283#:~:text=The%20above%20information%20was%20conveyed,taken%20to%20Islamabad%20for%20verification, accessed on 21 October 2025.
13. The FIM-92 Stinger is a man-portable air-defence system (MANPADS) supplied by the US to Pakistan during the Soviet–Afghan War (1979–1989). Its use against Indian aircraft in Kargil revealed Pakistan Army's direct involvement.
14. Vice Admiral G.M. Hiranandani, *Transition to Guardianship: Indian Navy 1991–2000*, Lancer, New Delhi, 2009, pp. 65–66.
15. Ibid, p. 66.
16. A barrier patrol is a military tactic where warships are positioned to create a defensive line, monitoring and controlling maritime traffic in a specific area.
17. Praveer Purohit, "Kargil Vijay Diwas: How Indian Navy's Operation Talwar squeezed Pakistan out of the Arabian Sea", *The Indian Express*, 27 July 2023, https://indianexpress.com/article/opinion/kargil-vijay-diwas-indian-navy-operation-talwarpakistan-arabian-sea-8861420/, accessed on 22 October 2025.
18. "Operation Talwar: How the Indian Navy Silently Contributed to Kargil Win", *DNA*, 26 July 2022, https://www.dnaindia.com/india/report-how-the-indian-navy-silently-contributed-to-kargilwin-2971579, accessed on 17 October 2025.
19. Headed by K. Subrahmanyam, the Kargil Review Committee was constituted to analyze intelligence and operational shortcomings.
20. Hiranandani, *Transition to Guardianship*, pp. 67–71.

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Chapter 7

Operation Parakram, 2001

Operation Parakram was launched in the aftermath of the deadly 13 December 2001 attack on the Indian Parliament by terrorist organizations Lashkar-e-Taiba and Jaish-e-Mohammad, with support from Pakistan. The five terrorists killed nine people and were shot on sight by security personnel. The operation was launched as a response to this lethal attack, which had targeted the temple of democracy and compelled India to shift its policy towards Pakistan from strategic restraint to coercive diplomacy. It involved a full-scale and unprecedented mobilization of the armed forces for the first time since the 1971 India–Pakistan War, after receiving approval from the Cabinet Committee on Security (CCS). Initiated on 25 December 2001, the troops were deployed across all three domains by January 2002, which lasted for almost ten months.[1]

The operation was announced beforehand, and the motivation behind the operation was expressed to strategically deter Pakistan in light of the state-sponsored terrorism that it was resorting to on Indian soil. Dr A.P.J. Abdul Kalam, the then President of India, aptly stated during the President's Address to the Parliament on 17 February 2003:

> National security is a matter of highest priority for my government. After the December 13 attack on our Parliament by Pakistan-based terrorists, we were constrained to deploy our troops along the international border. This decision achieved its purpose by showing both our firmness and our self-restraint in dealing with our hostile neighbor. [2]

The operation was scaled down after diplomatic mediation between the two sides. The success of the operation was gauged from the fact that India had compelled Pakistan to close certain terrorist camps and ban particular terrorist organizations. Global attention was drawn to the nefarious cross-border infiltration of terrorists from Pakistan, who are aided and funded by Pakistan. The operation stabilized the political environment in Jammu and Kashmir, and the Assembly elections were also conducted peacefully in 2002, symbolizing the tangible success of the operation.[3]

The Role of the Indian Navy in Operation Parakram

The Indian Navy played the critical role of deterring Pakistan by mobilizing on a large scale and deploying its western fleet across the Northern Arabian Sea and the Eastern Fleet in the Bay of Bengal by the first week of January 2002.

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The aircraft carrier INS *Viraat* was also part of the deployment along with its complete set of aircraft, namely Sea Harrier fighter jets, Seaking helicopters and Chetak helicopters. This demonstrated the Indian Navy's capability to dominate in the case of a maritime conflict and sent a strong strategic signal to its bellicose neighbour. The operation also showcased the Indian Navy's ability to contribute to deterrence through the tactical deployment of its assets in the face of a contemptible attack on India's sovereignty.

Fig. 7.1: INS *Viraat*



Source: Naval History Division, Indian Navy

The Indian Navy established effective sea control for the duration of the operation, and the Western Fleet deployed frigates, destroyers, and submarines (of the *Ghosh* Class), causing much anxiety for Pakistani seaborne trade.[4] The operation also highlighted the Indian Navy's capability to stay operationally ready for a long time, indicating the Navy's perseverance and capacity in achieving the foreign policy objectives. Its calibrated presence through the effective deployment created sustained pressure on Pakistan, forcing it to come to the table, as the possibility of a maritime blockade loomed large over Pakistan. Operation Parakram highlighted the Navy's strategic role and projected India's image internationally as a credible actor in combating terrorism with resolve and perseverance.

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Notes

1. Vice Admiral Anup Singh, *Blue Waters Ahoy! The Indian Navy 2001–2010,* HarperCollins, New Delhi, p. 83.
2. Lieutenant General V.K. Sood and Pravin Sawhney, *Operation Parakram: The War Unfinished*, Sage, New Delhi, 2003, p. 7.
3. Sood and Sawhney, *Operation Parakram*, pp. 97–117.
4. Singh, *Blue Waters Ahoy*, p. 83 and 147.

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Chapter 8

Anti-Piracy Operations by the Indian Navy, 2008-2025

Article 101 of the 1982 United Nations Convention on the Law of the Sea (UNCLOS) defines piracy as any illegal act of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft that is directed on the high seas against another ship or aircraft, or against persons or property on board such ship or aircraft or against a ship, aircraft, persons or property in a place outside the jurisdiction of any state.[1]

The Long Haul of Piracy: From the Golden Age to Modern Seas

Piracy has a long history. The golden age of piracy spanned from the 1650s to the late 1720s, during which the world's oceans turned into havens for renegades, fugitives, and disenchanted sailors driven by the lure of adventure, plunder, and the spoils of the sea. Pirates, back in the day, were the quintessential "bad boys" of the seas, stealing from mercantile vessels. The legends of Blackbeard and the Jolly Roger, however, glossed over a gruesome truth: a career of violent skullduggery derived from a low-life existence. As the Britannica's website describes it, "In the ancient Mediterranean, piracy was often closely related to maritime commerce, and the Phoenicians appear to have engaged in both, as did the Greeks, the Romans, and the Carthaginians. In the Middle Ages, Vikings from the north and Moors from the south also engaged in piracy. At the conclusion of European wars during the Renaissance and after, naval vessels were routinely laid up and their crews disbanded; the unemployed crew from these ships were often drawn into the service of pirates."[2] Attacking merchant ships with cannons and swords, the acts were often romanticized in folklore and literature. In contrast, modern piracy is far more complex, shaped by global trade routes, economic disparities, political instability, and technological advancement. The shift from wooden ships to steel-hulled cargo vessels mirrors a broader evolution—from isolated acts of lawlessness to organized, transnational maritime crime, necessitating international cooperation and naval interventions to safeguard global sea lanes.

Piracy in the Gulf of Aden

The modern-day scourge of piracy in the Gulf of Aden (GoA), helmed primarily by some actors from Somalia, finds its roots at the turn of the

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century. The initial Somali pirates were merely small groups of armed fishermen who "took on" merchant vessels as retaliation to what they perceived as dumping of illegal waste by international ships in their waters. According to them, dumping of waste adversely affected the catch in their waters. Fuelled by large payoffs, however, these hijackings turned into a lucrative business.

The state of Somali pirates can be attributed to a number of socio-economic factors. There was extreme poverty, aggravated by illegal, unregulated and unreported (IUU) fishing in Somali waters and also the lack of a credible law enforcement mechanism both on land as well as off-shore. Compounding these circumstances was the easy availability of arms in Somalia, thanks to the rise of Al Shabaab, the infamous terrorist organization.

Somalia in 2005–06

Somalia in 2005-06 was the archetypical failed state. Civil war had raged since 1991 and an attempted UN Peacekeeping Mission had failed. The northern province of Somaliland had unilaterally announced independence in 1991 and the central region of Puntland proclaimed itself autonomous in 1998. The Islamist group Al Shabaab battled clan-based militias for control of the south around the capital Mogadishu, and declared allegiance to Al Qaeda. Protracted internal conflict had led to widespread famine, human displacement, economic decline and poverty. An extremely young population with 60 per cent of the people under the age of 25 created a large uneducated youth bulge, vulnerable to extremism and crime.[3]

Growth of Piracy

The absence of a credible coast guard and maritime law enforcement off the coasts of Somalia had seen Illegal, Unreported and Unregulated (IUU) fishing climb to all-time highs. Local vigilantes started to chase away and ransom foreign fishing vessels with support of coastal communities. The illegal trawlers responded by arming themselves and the Somalis began to look for other more vulnerable vessels, leading to hijacking of merchant vessels plying off the Somali coast.[4]

2008, the Breakout Year

The year 2008 saw a spike in piracy attacks with 217 reported attacks as against 51 in the preceding year.[5] On 25 September, Somali pirates hijacked the MV *Faina* in the GoA, which was a Ukrainian freighter loaded with tanks, grenade launchers, AA guns and assorted explosives.[6] The brazenness of the attack and the nature of the ship's cargo raised the spectre of sophisticated weaponry ending up in the hands of Somalia's Al Shabaab Islamic group.

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Thereafter, in November 2008, the pirates captured their biggest prize yet—the MV *Sirius Star*, a Saudi flagged super tanker 300m long and carrying 200 million barrels of crude oil.[7] In a series of Security Council Resolutions in end 2008, the UN authorized action against piracy in Somalia, including operations within territorial waters of Somalia and on land.

MT *Stolt Valor* Triggers India's Involvement

About 90 per cent of India's trade by volume and 70 per cent by value is transported by sea, with a large proportion transiting the Gulf of Aden.[8] India also has the second largest seafaring community with close to 100,000 Indians constituting 7 per cent of the world's seafarers. On 15 September 2008, MT *Stolt Valor*, a Hong Kong-flagged tanker, was hijacked by Somali pirates. Of the 22 members onboard, 18 were Indians, including the skipper of the ship, Captain Prabhat Goyal. After two months of intense negotiations, the crew was finally released upon payment of ransom. The incident brought the issue of piracy into sharp focus in the Indian establishment. With incidents of piracy in the Gulf of Aden then on an alarming rise, the Indian Navy involved itself in anti-piracy patrols commencing 19 October 2008. The first Indian warship to be deployed was INS *Gomati*. Since that deployment, the Navy has been on station without a gap and has been escorting not only Indian flagged vessels but also international shipping.

Admiral Sureesh Mehta, then CNS, recalls:

> The trigger for sending our ships for deployment in the Gulf of Aden was the MT Stolt Valor incident. The coalition forces and some other navies were already patrolling the area and some coordination was at work. So, a dialogue was started with the other navies for a convoy system. This would ensure that the naval forces on patrol were not being wasted nor was any effort duplicated. That worked well even when India was not part of the coalition forces as there was mutual understanding and synergy of effort within the IRTC.[9]

Internationally Recommended Transit Corridor (IRTC)

On 1 February 2009, the IRTC was amended to reflect revised analysis of GoA pirate activity. The IRTC is a 490 nm corridor with separate westbound and eastbound legs, each 5 nm wide and separated by a 2 nm buffer zone. The IRTC facilitates safe navigation and the conduct of dissuasive and deterrent operations. Indian Naval Ships have been escorting merchant vessels along the IRTC.

United Nations Security Council Resolutions

On 2 June 2008, the United Nations Security Council (UNSC) adopted UN Security Council Resolution (UNSCR) 1816 (2008). Acting under the

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United Nations Charter, authorized by the UNSC, for a period of six months states and regional organizations cooperating with the Somali Transitional Federal Government (TFG) allowed international forces to enter Somalia's territorial waters and use all necessary means to repress acts of piracy and armed robbery at sea off the Somali coast, consistent with relevant provisions of international law. The resolution was renewed vide UNSCR 1846 (2008) in December 2008 and UNSCR 1897 (2009) in November 2009, each time for a further period of 12 months.

International Efforts

Prior to and following India's entry into the GoA anti-piracy effort in October 2008, many other countries had deployed their warships in the area for the same purpose. These included China, Japan, and the Republic of Korea. In addition, some multinational task forces—such as the Combined Task Force 151 (CTF 151), the EU Naval Force (EUNAVFOR) also known as CTF 465, and the NATO Counter Piracy Task Force, CTF 508—have also been on patrol. But as the number of participating navies grew between 2008 and 2009, a need was felt to put in place cooperative mechanisms, in order to prevent duplication of patrol effort.

- **Contact Group on Piracy Off the Coast of Somalia (CGPCS)**: The CGPCS was created in January 2009 pursuant to UNSCR 1851. It is not part of the UN system, but is a multi-stakeholder community open to any country or organization that contributes to anti-piracy efforts or is directly affected by it, including NGOs and the private sector. The mission of the CGPCS is to bring together all stakeholders affected by Somali piracy and to foster close international cooperation to address the scourge of piracy off the coast of Somalia. India is a founding member of CGPCS and has since been attending all half-yearly meetings which have provided the Indian Navy the opportunity to present India's point of view on piracy-related issues. There were, as of 2010, three Working Groups in the CGPCS.
  (a) Capacity Building: Ensuring effective naval operational coordination and supporting the building of the judicial, penal and maritime capacity of regional states.
  (b) Maritime Counter-piracy and Mitigation Operations: Naval, shipping industry and seafarers in one Working Group.
  (c) Disrupting Pirate Networks Ashore: Tracing the financial networks of pirates and working towards the prosecution of piracy leaders (kingpins).
- **Counter-piracy Shared Awareness and Deconfliction (SHADE)**: This initiative was undertaken by the Combined Maritime Forces (CMF), to bring together naval forces operating in support of anti-piracy

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operations in the GoA. Their primary objective was to build a shared awareness in the piracy area, as also to discourage overlaps/duplication of effort in deployment of surface and air assets by the international forces. The Indian Navy is also a member of the "Mercury Net". The Mercury network was a communication system used by international naval forces to combat piracy in maritime security operations that facilitated secure communication and information sharing between different national forces.

- **Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP):** The ReCAAP Agreement was launched in November 2006. Its 10 founding members included seven Southeast Asian nations, India, Japan, and Korea. It is a government-to-government agreement, which was established as a mechanism to enhance cooperation amongst member countries, against piracy and armed robbery. The ReCAAP Information Sharing Centre (ISC) was established at Singapore on 29 November 2006. The Centre primarily serves as a platform for information exchange between ReCAAP focal points and facilitation of capacity-building efforts. The Maritime Rescue Coordinating Centre, Mumbai (MRCC [Mumbai]) is one of the focal points for ReCAAP. India has also ratified the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against ships in Asia (ReCAAP) in June 2006. [10]
- **Information Fusion Centre (IFC), Singapore**: IFC is a multinational maritime security centre, with special focus on South-east Asia, and is based at the Changi Naval Base, Singapore. The Indian Navy has been associated with the IFC since its inception. The Republic of Singapore Navy (RSN) inaugurated the Centre on 27 April 2009. The objective behind the creation of the IFC was to achieve early warning on maritime security threats through information-sharing with maritime stakeholders, and consequently be able to cue regional responses against those threats. The stakeholders include navies, coast guards, marine police forces, etc.

  The Centre monitors maritime security challenges under five categories, namely: Theft, Robbery and Piracy at Sea and Maritime Terrorism; Maritime Incidents; Contraband & Weapons Trafficking; IUU Fishing; and Irregular Human Migration (IHM). The IFC also generates a common maritime situation picture collated from various information sources, both through its partners, as well as through technologies such as the satellite-based Automatic Identification System (AIS) and the Long-range Identification and Tracking system (LRIT). Currently, the Indian Navy and the IFC are linked through an International Liaison Officer (ILO) posted at IFC since 25 November 2009.

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- **Best Management Practices (BMP)—Piracy High Risk Area (HRA):** BMPs are guidance documents that are developed for the shipping industry. They prescribe several precautionary and self-protective measures in order to avoid a pirate attack. The document, "Advice to Masters" is generally considered a prelude to BMP. In August 2009, BMP 2 was published. The biggest change, however, was observed when BMP 3 was published as in it, HRA was defined as:

> The HRA for piracy attacks defines itself by where the piracy attacks have taken place. For the purpose of BMP, this is an area bounded by Suez to the North, 10°S and 78°E. While to date attacks have not been reported to the extreme east of this area, they have taken place almost 70°E. There remains the possibility that piracy attacks will take place even further to the east of the HRA. Attacks have occurred to the extreme south of the HRA.

In essence, BMP 3 extended the piracy HRA to the west coast of India. This resulted in increased shipping traffic along the west coast of India, higher costs to the shipping industry on account of higher speeds, high premium and employment of guards. Further, it also had the effect of increased presence of unregulated private guards in the Indian maritime zones, as also the presence of floating armouries in the vicinity of the Indian coast. The Maritime Security Strategy of 2015 mentions that "cooperative efforts of international navies, adoption of 'Best Management Practices' (BMP) by transiting merchant vessels, and stabilising actions ashore in Somalia, have all resulted in a steady reduction of Somali piracy threat since 2012".[11]

Piracy and Coastal Security

By the end of the first decade of the twenty-first century, there was a sharp decline in piracy in the GoA and Somali extensions. However, incidents of piracy started extending to new areas in the East Arabian Sea. In order to counter this trend, Operation Island Watch was initiated. Today, the Indian Navy maintains one ship on anti-piracy patrol at all times in the GoA. The sustained anti-piracy operations by the Navy and Coast Guard significantly contributed to reduction in piracy and improved safety and security of mercantile shipping in piracy-infested areas. Since India did not have a separate domestic legislation on piracy at sea, there was a need for it. In January 2010, a decision was taken that the Ministry of External Affairs would steer the proposed legislation. Subsequently, in May 2010, a draft legislation was circulated for inter-ministerial consultations.

Mention of Piracy in GoM meeting

Piracy was noticed by India as early as in the 2000s. The Group of Ministers meetings was constituted in April 2000, following the recommendation of

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Kargil Review Committee to review the national security system and to formulate specific proposals for implementation. In the study followed by a task force on India's neighbourhood, the GoM found out… "Illegal fishery, arms and narcotics trafficking and piracy attacks take place quite regularly on the seas adjacent to India".[12]

Evolving Indian Maritime Doctrinal Perspectives on Piracy

In the Maritime Doctrine of 2004, piracy is recognized as an asymmetric threat. The document mentions how the Indian Navy needs to gear up to combat piracy in the Indian Ocean Region (IOR) and its impact on seaborne trade through low intensity maritime operations.[13] The doctrine also mentions the fact that piracy is a common concern at sea. To combat these common concerns, "the navies of the world will increasingly cooperate and work together, even though they are not part of any military alliance".[14] The doctrine also highlights the incident of how the pirate ship *Alondra Rainbow* was captured as a case in point where the international community acknowledged India's positive contribution.[15] While mentioning the incident the document highlights the constabulary role Indian Navy has to play in the menace.

In the Maritime Doctrine of 2009, highlighting the crimes of the IOR, the document mentions piracy as part of India's maritime environment and considers it as an area of interest to tackle. The doctrine highlights, "In 2008, particularly, the acts of piracy on mercantile shipping in the Gulf of Aden witnessed a steep rise, attracting anti-piracy patrols by several navies in the region."[16]

Later in the document "Ensuring Secure Seas: Indian maritime security strategy 2015" piracy is a considered as a key determinant that shapes Maritime Security: "Other non-traditional threats have also been rising in recent years. Piracy and armed robbery at sea have flared up in new regions over the past decade, and remain a significant threat to international shipping and seafarers. The constant challenge of unregulated activities, and inherent limitations in Maritime Domain Awareness (MDA) on the seas, hold a possibility of their linking with or enabling other threats."[17]

The strategy document also outlines India's anti-piracy operations, highlighting the roles of the Indian Navy and the Indian Coast Guard. It emphasizes that robust and kinetic measures are undertaken through sustained anti-piracy operations to counter piracy effectively. More than 40 pirate attacks on merchant shipping in the Arabian Sea and the Gulf of Aden were thwarted, with the arrest of 120 pirates, and pushing the furthest line of piracy back to off the Horn of Africa by 2013. The document further states that "India's maritime forces will continue to counter piracy, as required, in consonance with domestic and international law, to ensure security for shipping and fishing in the region. These actions will also be carried out in coordination with international efforts and anti-piracy cooperative mechanisms."[18]

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Further the doctrine also mentions about proliferation of private armed security that creates a fear of them acting against state interests. Large numbers of Privately Contracted Armed Security Personnel (PCASP) are employed by Private Maritime Security Companies (PMSC), often operating from floating armouries in the Arabian Sea. While the deployment of private armed security onboard ships has contributed to deterring piracy, their activities can also lead to insecurity while posing additional threats, particularly in the absence of comprehensive international regulations or due to non-adherence to established governing standards. The doctrine draws attention to the possibility of terrorists embarking merchant ships under the guise of PCASP and, thereby, reaching within striking distance of a coastal city or offshore assets.[19]

The security strategy also ponders upon the possible resurgence of piracy even though best management practices and international cooperation have supported in the decline. It states, …." root causes ashore are addressed, the danger of resurgence will remain, with potential for instability in the littoral. Armed robbery in the Gulf of Guinea and off the West coast of Africa has also increased in recent years, while there has been periodic resurgence of piracy and armed robbery in the Malacca Strait. These challenges are being addressed by cooperative mechanisms amongst the regional maritime forces and law enforcement agencies."[20]

Phase I of Anti-Piracy Patrolling, 2008–11

In the Thick of Action 2008–10: Early Skirmishes

***Tabar* Sets the Stage:** At 0805 hrs on 11 November 2008, whilst in the GoA, INS *Tabar* monitored a distress call from MV *Jag Arnav*, an Indian-flagged vessel with all-Indian crew, under attack by pirates. The ship's helicopter reported overhead *Jag Arnav* at 0825 hrs and was in the nick of time to chase away the pirate skiffs that were closing in for the kill on the Indian merchant vessel. This first skirmish with the pirates in defence of an Indian vessel caught the imagination of the Indian media back home and fixed the spotlight on the Indian Navy's new anti-piracy mission. The iconic photo of MV *Jag Arnav* being escorted by *Tabar* became the defining image of anti-piracy for years to come.

At 1615 hrs on 18 November, INS *Tabar* detected a suspicious vessel whose description matched that of a pirate mother vessel reported by the Piracy Reporting Centre at Kuala Lumpur.[21] Pirates were spotted roaming on the upper decks with guns and rocket-propelled grenade launchers. The suspect vessel repeatedly threatened to attack *Tabar* and at 1847 hrs, flashes of gunfire were observed to emanate from the pirate vessel. *Tabar* immediately retaliated with overwhelming force at 1853 hrs and set the mother ship ablaze. Interdiction of the mother ship by *Tabar* created waves

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back home and the media hailed this demonstration of aggressive intent by the Indian Navy.

***Mysore* Hosts Unwanted Guests:** INS *Mysore*, which had relieved *Tabar* on task, was soon in the midst of action. On 13 December 2008, whilst escorting ships in the GoA, MV *Gibe*, an Ethiopian flagged vessel, reported pirate skiffs closing in on it.[22] On sighting the helicopter, the boats broke off attacks and attempted to escape. However, *Mysore* had closed within visual range by this time and commandos from the ship soon stormed the skiffs using the ship's boats and recovered a substantial cache of arms and ammunition onboard. All 24 pirates, including 12 Yemenis and 12 Somalis, were taken into custody.

Mysore soon discovered that incarcerating the pirates onboard had created a new set of problems. Warships being severely limited in accommodation by design, the captives could only be accommodated at the expense of the ship's company. Absence of a legal specialist constrained the vetting of legal documentation and follow up actions. Security issues associated with detaining the pirates onboard were also a cause for concern. Lastly, the Indian government soon discovered that whilst many applauded India's strong actions against piracy, no State was willing to take the pirates into custody. The ship was forced to abandon its escort schedule pending disposal of the apprehended personnel, and it was only after intense diplomatic efforts at all levels that the Yemeni government accepted custody of the pirates.[23] This incident highlighted to the Indian Navy the problem of legal finish for apprehended pirates.

World Navies Organize for Action

By the beginning of 2009, the world's navies had also organized themselves for action. The US, the EU and NATO created three new naval task forces dedicated to combating piracy off the Horn of Africa. China, Japan, South Korea and Russia followed the lead of India and announced deployment of their warships within the GoA as independent deployers, offering close escort to merchant vessels. In order to coordinate and deconflict actions of the 14 navies operating warships in the GoA, as well as liaise with the merchant shipping community, quarterly Shared Awareness & Deconfliction or SHADE meetings were commenced in early 2009 at Bahrain, with India being an early participant. An online secure chat group codenamed Mercury soon gained prominence as the social media platform for anti-piracy. Similarly, all multinational aircraft on anti-piracy patrol netted in on a common air coordination net, appropriately termed Baywatch in true aviator glamour speak. This interoperability, which would pay rich dividends in the years ahead, was a direct result of years of exercising together at sea both bilaterally and multilaterally.

***Beas* and *Talwar* Blaze a Trail:** Even as the world was adapting to deal with the new piracy threat, the Indian Navy continued to blaze a trail in the

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IRTC. In the first two months of 2009, INS *Beas* conducted a particularly aggressive patrol in the GoA, in the course of which it apprehended several dhows and seized substantial quantities of arms and ammunition.[24] In another notable incident in May 2009, an escort group led by INS *Talwar* was transiting the GoA when MV *Maud*, which was the lead ship of the formation, reported pirate skiffs closing at high speed. Visibility was poor at about 2 nm, and *Talwar* scrambled its helicopter in record time. *Maud* reported that pirates had placed a ladder on its port bow. *IN* Chetak arrived on the scene in the nick of time and directed strafing fire at the ladder. The ladder was dislodged and both pirates fell off into the sea.[25] This close shave was the nearest that the pirates came to capturing a MV under *IN* escort, an unbroken record that continues to this day.

Indian Navy Refines its SOPs: Based on the lessons of the first few patrol cycles, the *IN* established a well-set deployment pattern. Whereas most of the multinational forces were deployed in fixed patrol areas across the length of the IRTC, the *IN* consciously stuck to close escort of merchant ships across the GoA. Promulgation of the Indian Navy's Escort timelines, which had been broadcast on MMB in the beginning, was soon migrated to the DG Shipping website for information of the shipping community.[26] The ports of Djibouti and Salalah became well established as the OTR ports. VBSS procedures both by day and night were streamlined and the *IN*'s Rules of Engagement also formalized and made more explicit.

***IN* Extends its Reach:** By the end of 2010, the combination of naval patrolling and best management practices had begun to show results and piracy in the IOR had flattened off. However, Pirate Action Groups were seen to modify their tactics and foray deep into the Indian Ocean in search of targets, utilizing mother ships. As the pirates' operational radius increased, the *IN* deployed assets for EEZ surveillance of Maldives, Seychelles and Mauritius. The *IN* also increased aerial surveillance of the waters east of 65°E, with every reported pirate sighting being investigated. Ships and aircraft of the *IN* also commenced surveillance off the coast of the Lakshadweep Islands under a new mandate termed Op Island Watch.

2011: Turning of the Tide

Hit First: Sinking of Prantalay 14

On 28 January 2011, a Coast Guard Dornier on patrol west of Lakshadweep received a Mayday call from MV *CGM Verdi*, a Bahama-flagged container ship, which reported two skiffs closing in for attack. When the Dornier called overhead, the skiffs broke off attacks and dashed towards the mother vessel *Prantalay 14*, a Thai fishing trawler that had been hijacked some months previously off the Somali coast.[27] INS *Cankarso*, a newly commissioned Water Jet Fast Attack Craft (WJFAC) built at Garden Reach Shipbuilders & Engineers (GRSE), on patrol west of Lakshadweep as part of Operation

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Island Watch, was called in to respond. By the next evening, *Cankarso* tracked down the Thai mother ship and fired warning shots across its bows. However, instead of stopping, the trawler returned small arms fire, so *Cankarso* returned limited fire in self-defence. Soon thereafter, a direct hit on one of the oil drums onboard set the *Prantalay* ablaze and personnel were observed jumping overboard; 15 pirates were recovered from the water and taken into custody whilst the original crew of 20 fishermen were also saved.

Hit Hard: Seizure of Prantalay 11

On 5–6 February 2011, the Indian Navy and Indian Coast Guard (ICG) achieved another success in the vicinity of the shipping lanes close to the Lakshadweep Islands. A Greek-flagged merchant ship, MV *Chios*, reported a concerted attack by several high-speed skiffs 100 nm west of Kavaratti Island, which it successfully evaded through manoeuvring and speed changes. INS *Tir* and CGS *Samar*, both of which were already on anti-piracy deployment in the area, were diverted to seek and intercept the skiffs. The skiffs were sighted the next morning but sped away whilst opening fire at the Indian ships. The Indian ships tracked the skiffs back to the mother vessel, *Prantalay 11*, another Thai trawler hijacked earlier off Somalia. When asked to stop, *Prantalay 11* responded with gunfire. The resultant firefight was brief and decisive with the pirates soon hoisting the white flag of surrender. A total of 28 pirates were captured in this well coordinated action.

Knockout Punch: Interdiction of Vega 5

On 11 March 2011, a naval Dornier responded to a Mayday call from MV *Vancouver Bridge*, and located *Vega 5*, a pirate mother vessel operating in the area. While Indian Navy maritime patrol aircraft continuously tracked *Vega 5*, Indian Navy ships *Khukri* and WJFAC *Kalpeni* on Island Watch mission were diverted to intercept. On the night of 12 March, about 700 nm off Kochi, *Kalpeni* detected *Vega 5* and there was an exchange of gunfire in which *Vega 5* was set on fire. The pirates jumped into the water and were subsequently picked up by Navy ships. In all, 61 pirates and 13 crew members were transferred onboard INS *Tabar* for passage to Yellowgate Police Station in Mumbai, whilst 80–90 rifles and RPGs were recovered in the most high profile anti-piracy operation off the Indian coast.[28]

Sweeping Up: Morteza *Meets Its End*

On 26 March 2011, an Indian Navy TU 142 aircraft on patrol west of Lakshadweep received a distress call from MV *Maersk Kensington* about a pirate attack in progress. The skiffs were successfully evaded by the MV and the TU 142 reported sighting of pirate mother vessel *Morteza*, an Iranian dhow commandeered by the pirates five months previously. INS *Suvarna*, then on patrol for Island Watch, was diverted to the scene and events

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panned out along familiar lines, with the mother vessel engaging *Suvarna* with small arms fire and thereafter being subjected to calibrated return fire that resulted in multiple explosions onboard. The crew of the vessel jumped overboard and were subsequently recovered, with 16 pirates captured and 16 crew members, including 12 Iranians and 4 Pakistanis, rescued in this operation.[29]

Fig 8.1: Indian Navy Commandos after a Successful Operation



Source: Naval History Division, Indian Navy

MV Suez *Imbroglio*

Just as the Indian Navy was basking in well-deserved glory, later in the year came a more sobering incident. MV *Suez,* an Egyptian freighter, was hijacked by Somali pirates in August 2010, with 22 crew members including six Indians, four Pakistanis and 11 Egyptians. The pirates released the ship in June 2011 and whilst en route to Salalah in Oman, the ship reportedly came under attack by another group of pirates.[30] At this time INS *Godavari* was on patrol in the GoA, and the crew appealed to it for help, but since the ship could not leave its escort group, other navies in the region were informed. This created a huge media brouhaha in India as families of the Indian crew alleged that the Indian Navy had abandoned its citizens.

To add further fuel to the mix, a Pakistani warship *Babur* was the first to reach the Suez and provide it escort. By this time, *Godavari* was ordered by Naval Headquarters to assist MV *Suez*, but once the Indian and Pakistani warships met each other sparks flew. PNS *Babur* manoeuvred dangerously close to *Godavari,* warning it to leave the area, and in the process both ships brushed each other. Both countries lodged strong diplomatic protests over the incident.

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Armed Guards Enter the Fray

It was also in 2011, in an important development affecting the anti-piracy fight, that the International Chamber of Shipping in London, representing almost 80% of the world's merchant fleet, reversed its policy and permitted shipping companies to deploy armed guards onboard merchant ships. This was to have both positive and negative impacts in the years ahead.

Indian Government Gears Up

The capture of 120 pirates off the Indian coast and the MV *Suez* imbroglio served to focus national attention on the scourge of piracy. A draft anti-piracy bill was tabled in Parliament. Comprehensive SOPs and contingency plans for piracy situations were sanctioned by the CCS, and regularly exercised. Guidelines on deployment of Armed Guards onboard Indian-flagged merchant vessels were issued. An inter-ministerial group of officers headed by the cabinet secretary was created to address hostage incidents arising from hijacking of merchant vessels with Indian crew onboard. Indian sailing vessels were banned from plying in waters south or west of the line joining Male and Salalah. Intelligence mechanisms were streamlined through creation of JOCs. White shipping information exchange agreements with IOR countries were actively pursued. Diplomatic outreach to negotiate the release of Indians in pirate custody was intensified. At the administrative level, the government approved the Navy's long-standing demand to permit expatriation and repatriation of up to 10 personnel per month to and from the ship deployed in the Gulf of Aden.

Enhancing India's priorities Admiral Sureesh Mehta, former chief of Naval staff, articulates, "We see the Indian Navy as a significant stabilizing force in the Indian Ocean Region (IOR), which safeguards traffic bound not only for our own ports, but also the flow of hydrocarbons and strategically important cargo to and from the rest of the world across the strategic waterways close to our shores... And so, the safety of SLOCS will always remain a priority for India in the foreseeable future."[31]

Phase II, 2012–2015

Tussle Over Risk Area

Steep Decline in Piracy Attacks

Piracy trends in the period 2012-15 showed a steep decline in piracy. Pirate attacks were restricted to within 500 nm of Somalia and the numbers of attacks reduced from 237 in 2011 to just 75 in 2012. By 2015, annual piracy attack figures off Somalia were in single digits. MT *Smyrni*, which was seized by pirates in May 2012, was to be the last large merchant ship to be seized by the pirates for the next five years. A combination of best management practices by merchant vessels, improvement in security conditions ashore in

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Somalia, armed guards onboard ships and strong naval disruption began to show decisive results.

Piracy—A Menace for India

During the early phase, as piracy surged in the Gulf of Aden and Horn of Africa, the High-Risk Area (HRA) shifted further to the western coast of India. "In 2008, the HRA coordinates in the IOR were extended to longitude 65-degree East, which is quite far from India's west coast."[32] However, in 2011, due to the increasing incidences of piracy, the body known as the Round Table comprising various stakeholders affected by piracy met at London to extend the HRA geographical coordinates in IOR to 78°E, which came much closer to the western coast of India. This revision was reiterated in the "Best Management Practices Version 4", published in August 2011. This decision turned out to be a peril for India.

The first of its worry was paying an Additional War Risk Premium (AWRP). Movement of merchant ships in piracy-prone HRAs was subjected to AWRP by insurance providers on vessels carrying Indian export-import (EXIM) cargo. The insurance premiums reached a whopping amount of approximately Rs 3,600 crore per year at the peak of the piracy period between 2008 and 2012.[33] But as piracy incidence fell mid-2012 onwards, the premiums fell to around Rs 1,500 crore per year.[34] The extra AWRP was transmitted to the end user, putting a huge financial burden on Indian EXIM trade and the Indian consumer.

The excessively large HRA extending within India's EEZ had adverse implications for the country. The newly stipulated HRA came about 35 nm from Indian coast, bringing international maritime traffic to the immediate vicinity of the Indian coastline and leading to congestion and jeopardizing maritime safety. This caused more maritime accidents and affected the fishermen of the region. A menace was the increased presence of unregulated foreign-owned and operated floating armouries near India's coastline. Not only did it affect India's maritime security interest but the artificially large HRA also saw excessive false alarms, causing dilution of military effort and unnecessary burden on the Indian Navy.

With the extension of HRA came armed security guards onboard merchant vessels as a deterrent to piracy attacks. The infamous case of MV *Enrica Lexie* (2012), where Italian mariners opened fire on and killed innocent fishermen mistaking them for pirates, focused worldwide attention on the problems of lack of legal underpinnings to deal with such matters. The incident sparked a prolonged debate on legal jurisdiction. Lacking a formal law to guide the newly emerged situations of piracy and its associated perils, India couldn't do much to deal with the troubles that piracy introduced.

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India Lobbies for Reduction in HRA

Commencing 2012, the Indian Navy lobbied at the Contact Group on Piracy Off the Coast of Somalia (CGPCS) plenary and International Maritime Organisation (IMO) Maritime Security Committee meetings for reduction of HRA. However, the lobby of 15–16 Western European-controlled shipping consortia claimed lack of credible maritime threat assessment as the reason for maintaining status quo. Accordingly, at the insistence of India, the CGPCS directed SHADE in Bahrain to undertake such a threat assessment.

Based on the recommendation of the CGPCS, SHADE set up a new Counter-Piracy Threat Assessment Working Group in 2013. However, only vaguely worded and general threat assessments ensued. Although the Indian Navy engaged in good faith at first, it was soon apparent that the three co-chairs of SHADE (CMF, EUNAVFOR & NATO) were intent on stonewalling and unwilling to adjudicate against the global shipping industry.

In 2014, the Indian Navy reversed its tack and commenced presenting independent threat assessment of waters east of 65°E. The Navy began contesting SHADE and Industry assessments and, by roping in the MEA, was able to gain the support of littoral countries through aggressive backroom diplomacy at the UN and the EU. By 2015, Egypt, Oman, and Pakistan also called for revision of the HRA, culminating in a special meeting of the CGPCS at New York in July 2015. Finally, after concerted efforts over three years, the shipping industry reduced the HRA in December 2015 back to pre-2010 levels.

Phase III, 2016–18

Transition to Mission-based Deployment

Decline in piracy levels was accompanied by cutbacks in military presence off Somalia. NATO terminated Operation Ocean Shield in December 2016 and EUNAVFOR reported that its deployment would be reconsidered later. African Union Mission in Somalia (AMISOM) presence inside Somalia was also under strain due to budget cuts, which was replaced by African Union Transition Mission in Somalia (ATMIS) in 2022.

Piracy attacks, which had almost ceased in 2016, began to show a slight upward trend in 2017.[35] In March 2017, Somali pirates hijacked a Comoros flagged oil tanker, marking the first such seizure of a large commercial vessel since 2012. They later released the vessel without conditions when it emerged that there was a Somali charterer. On 1 April 2017, the Indian dhow *Al Kausar* with 11 crew members was hijacked off the island of Socotra. The vessel was taken to the port of Hobyo and INS *Sharda*, on Patrol Off Gulf (POG) deployment at the time, was diverted to the east coast of Somalia to monitor the situation. Negotiations between the owner and the hijackers resulted in the dhow being released 11 days later.

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Coordinated Rescue of MV *OS 35*

On 9 April 2017, pirates stormed the *OS 35*, a Tuvalu registered vessel sailing in the Gulf of Aden. The crew locked themselves in the strong room and issued a distress call that was picked up by an Indian task force transiting to the Mediterranean on an overseas deployment. Indian Navy ships *Mumbai* and *Tarkash* immediately closed in on the vessel and launched helicopters to scan the upper decks. Meanwhile, the PLA Navy frigate *Yulin* also reached the scene and inserted a team of heliborne commandos to clear the vessel, but it emerged that the pirates had already made good their escape on sighting the Indian Navy helicopters. Whilst the Indian Navy was quick to term this operation a show of international maritime cooperation, China's foreign ministry spokesperson made no mention of India's role in the rescue effort.

Mission-Based Deployments

Commencing August 2017, the Indian Navy transitioned to a new philosophy of mission-based deployments across the IOR. Drawing on the lessons learnt from the anti-piracy experience, the Navy chose to maintain a near-permanent presence in chosen geographical areas and chokepoints across India's primary areas of interest. The Indian Navy ships deployed in these areas are fully prepared and poised to respond to all contingencies whilst being perfectly placed to monitor all extra-regional forces operating in the IOR. These mission-based deployments have already paid rich dividends in the last 12 months, with Indian Navy ships being the quickest to respond to all manner of operational contingencies.

Indian Navy Shifts to Free Patrols: With the transition to mission-based deployments, the operating instructions for the anti-piracy patrol in the Gulf of Aden were also amended. The POG deployment now also included Passive Surveillance & Monitoring (PSM) off Socotra and a foray into the Red Sea where the ongoing civil war in Yemen had seen stray attacks on merchant ships. Another major change to the Indian Navy POG deployment was initiated later, with the Indian Navy ships being tasked for a free patrol in the Gulf of Aden instead of the traditional concept of close escort. This was necessitated by the steep decline in the numbers of MVs joining the escort groups and also to provide greater flexibility to ships to respond to developing situations. In a major shift in operating philosophy, the Indian Navy ships were also mandated to undertake anti-drug trafficking operations since the Hashish and Smack drug routes transit the GoA. PSMs off the east coast of Somalia were also included, with the Indian Navy ships planning for escort of World Food Programme ships whenever called upon.

The Maritime Anti-Piracy Act, 2022

Enacted by the Indian Parliament to give effect to the United Nations Convention on the Law of the Sea (UNCLOS), the Act is concerned with

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countering piracy on the high seas. The jurisdiction of the Act will apply to all parts of the sea adjacent to and beyond the limits of the Exclusive Economic Zone of India. The Act is applicable to the high seas beyond 200 nm from the coastline.

The Act provides definitions for "piracy", "pirate ship", and "ship", removing the ambiguity in its understanding and usage. Piracy is defined as any illegal act of violence, detention, or destruction committed against a ship, aircraft, person or property, for private purposes, by the crew or passengers of a private ship or aircraft.[36] Inciting or intentionally facilitating such acts would also qualify as piracy. It includes any other act that is considered as piratical under international law. Piracy also includes voluntary participation in the operations of a pirate ship or aircraft used for piracy.

An act of piracy is punishable with life imprisonment or even the death penalty, if the act causes death or attempts to cause death. Attempting piracy, aiding, abetting, directing others to commit piracy are also punishable under the Act. The enforcement powers lie with the Navy and Coast Guard who are authorized to act. These authorized personnel are empowered to board ships, arrest persons, seize ships and property, and investigate offences under the Act. The Act also mentions about designated courts responsible for trial of offences under the Act, and sets out jurisdictional rules, bail provisions, extradition, etc. The Act provides for extradition and international cooperation, which enables India to cooperate with other States for prosecution of piracy suspects.

Resurgence of Piracy Post-2023

After 2018, the number of reported piracy attacks was either nil or considerably reduced. However, due to the chaos generated by the Israel–Hamas war, pirates have made a comeback. The situation is conducive due to the Red Sea crisis where the Iran-backed Houthi militia launch missiles on target merchant ships belonging to Israel, passing through the region. Resurgence in pirate attacks has once again disrupted the movement of shipping. The Indian Navy has responded swiftly under the aegis of Operation Sankalp. In January 2024, guided-missile destroyer INS *Chennai* was deployed with Marine Commandos (MARCOS) aboard, who successfully rescued a Liberia-flagged vessel MV *Lila Norfolk* carrying 15 Indian crew members en route to Bahrain.[37] Later, on 26 January 2024, INS *Visakhapatnam* swiftly responded to a distress call from a UK-linked tanker MV *Marlin Luanda* struck by a Houthi missile.[38] Shortly after, the patrol vessel INS *Sumitra* carried out rescue missions off the Somali coast. One was on 28 January, wherein it freed an Iranian-flagged vessel FV *Iman* which was seized by pirates. Just 48 hours later, INS *Sharda* rescued another Iranian vessel FV *Omani* with 11 Iranian and 8 Pakistani crew members on board.[39]

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Operation Sankalp

Following the worsening situation of the Gulf region, post attacks on merchant ships in the Gulf of Oman, the Indian Navy commenced maritime security operations. Codenamed Operation Sankalp, it commenced on 19 June 2019 in the Gulf region to ensure safe passage of Indian Flag Vessels transiting through the Strait of Hormuz.[40] Anti-piracy is a key component of Operation Sankalp to ensure safe navigation while countering threats by thwarting piracy that has again made a comeback.

Under the umbrella of Operation Sankalp, the Indian Navy has been conducting maritime security operations in three areas of operations: Gulf of Aden and adjoining areas; Arabian Sea; and off the east coast of Somalia. Since December 2023 the operation saw the deployment of over 5,000 personnel at sea, 21 ships deployed, over 450 ship days and 900 hours of flying by maritime surveillance aircraft to address various threats in the region including piracy.[41] Over the years, the Indian Navy has responded to 18 incidents and played a pivotal role as the "First Responder" and "Preferred Security Partner" in the Indian Ocean Region. The response of the Indian Navy to various security situations has once again proved that "Safety of Life at Sea" remains an overarching principle irrespective of the nationality of seafarers.

MV Ruen

Malta flagged vessel MV *Ruen* was hijacked by Somali pirates in December 2023 and initially intercepted by the Indian Navy on 15 December 2023. During the operations in December 2023, the Indian Navy ship was able to extricate an injured crew member through sustained coercive actions without firing a bullet. Three months after the hijacking, MV *Ruen*, commandeered by Somali pirates, was monitored transiting from the coast of Somalia into the high seas, with the possible intention of hijacking more merchant vessels transiting through the region.

The Indian Navy as part of Operation Sankalp had been carrying out extensive surveillance in the region including monitoring of traffic in areas of interest. Based on the analysis of the surveillance information the Indian Navy was able to track the movement of the pirate ship *Ruen* and directed INS *Kolkata* to intercept the ship approximately 260 nm east of Somalia. INS *Kolkata* intercepted *Ruen* in the morning of 15 March 2024, and confirmed the presence of armed pirates through a ship-launched drone. In a reckless hostile act, the pirates shot down the drone and fired at the Indian Naval warship. In a calibrated response, INS *Kolkata* disabled the ship's steering system and navigational aids, forcing the pirate ship to stop.

INS *Subhadra* was deployed on 16 March 2024 to support the ongoing operation and Marine Commandos (PRAHARS) were dropped at about 1400 hrs by C-17 aircraft the same afternoon. Additionally, the pirate vessel

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was kept under surveillance by HALE RPA and P8I maritime reconnaissance aircraft. Due to sustained pressure and calibrated actions by the Indian Navy for over 40 hours, all 35 Somali pirates surrendered. All 17 original crew members of MV *Ruen* were also safely evacuated from the pirate vessel without any injury.

Fig 8.2: Commandos Being Air Dropped on Hijacked Ship



Source: Naval History Division, Indian Navy

This operation was the first instance wherein the Indian Navy empowered by Maritime Anti-Piracy Act 2022 (MAPA–22) was able to progress an anti-piracy operation to its logical conclusion, by prosecuting the pirates in India on the basis of Indian laws. The Navy's proactive on-scene actions consolidated India's strategic narrative as "First Responder" and "Preferred Security Partner" in the region and contributed to the Prime Minister's vision of "Security and Growth for All in the Region" (SAGAR).

POG, Seventeen Years On Taking Stock

From 2008 to 30 November 2025, the Indian Navy deployed 137 ships, periodically, for anti-piracy operations in the area classified as High-risk Area, which substantially augmented international efforts to eradicate piracy in the region.[42] By the end of October 2025, Indian Navy ships had escorted 3,765 ships in the GoA. During anti-piracy deployments in the GoA and the Arabian Sea, Indian Navy and Indian Coast Guard ships were able to thwart 44 piracy attempts on merchant vessels.

Exposure to Multinational Operations

The anti-piracy operations that the *IN* commenced in the GoA in 2008 afforded the first prolonged operational exposure in a multilateral

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environment to *IN* ships. This also provided exposure to best practices being adopted by the world's leading navies as well as those being adopted and refined by the merchant marine world. This exposure has significantly enhanced standard operating procedures in actual operational scenarios.

Demonstration of Operational Reach and Sustenance

Over the years, the Indian Navy has witnessed a steady increase in patrol durations. The POG has afforded the Indian Navy ships the right avenues to test Operational Logistics capabilities and ability to respond to unforeseen logistics challenges. It is to the Indian Navy's credit that it is the only navy to maintain continuous escort cycle throughout the IRTC, even in the midst of the monsoon. Another aspect which has seen substantial gains is the impetus to the culture of innovative repairs at sea, which has been imbibed by ships deployed for long patrols. This has led to higher self-reliance by ships and the ability to tackle complex defects at sea.

Tactical Benefits

Deployment in the GoA has offered the *IN* priceless experience of Low Intensity Maritime Operation (LIMO).[43] The requirement to undertake Visit Board Search & Seizure (VBSS) operations at short notice has brought in greater focus on boat maintenance, training, and operations. The mission challenges in POG have further led to induction and focus on night vision devices and their operational exploitation. There has also been a marked improvement in small arms handling and training, which is a necessary skill set for such missions. The versatility of the timeless Chetak helicopter in cabin gunning role has been demonstrated time and again. The PoG has also provided exposure to marine commandos on counter-piracy tactics in a "live" theatre, thereby streamlining SOPs for the same.

Intelligence Gathering

Regular deployment in the GoA has enhanced the Navy's knowledge about patterns of life in the west Arabian Sea. Substantial information and vital intelligence have also been gathered about other navies' capabilities, emission parameters and limitations. Units deployed for GoA patrol have also been able to undertake mapping of coastal radars across the region which has further enhanced the Navy's knowledge of the regional players. The Indian Navy units on GoA patrol have had excellent exposure to People's Liberation Army (Navy) (PLA [N]) deployment patterns and electronic emission characteristics. The intelligence so gathered has allowed a deeper understanding of the PLA(Navy) Concept of Operations (CONOPS).

Recognition as Navy of Substance

The PoG deployment provided great visibility to the *IN* both within India and across the IOR. The early robust actions by the Indian Navy

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around 2008–10 enhanced its image as an aggressive, professional force and subsequent body blows dealt to pirates in 2011 in the east Arabian Sea invited widespread admiration. This has resulted in the creation of a favourable impression about the Indian Navy amongst the international merchant shipping community. The proactive measures taken to assist island nations in the IOR with EEZ patrolling generated considerable goodwill and as a result the Indian Navy has emerged as the partner of choice for IOR littoral states.

Increased National Multi-Agency Synergy

The piracy threat forced a whole of government approach to be adopted. Inter-ministerial working groups and multi-agency coordination have now emerged as the new normal. It was notable that the HRA reduction and negotiations for release of Indians in captivity were achieved only through commendable cooperation at all levels. SOPs and contingency plans for all piracy and hijacking eventualities have been formulated and exercised as a direct fallout.

Diplomatic Victory

The Indian Navy's successful thwarting of various piracy attacks showcasing robustness in every mission following international laws optimally has created awe in the eyes of the world community. This has created diplomatic leverage for India, which has grown in capability to shape matters in favour of its interest. This can be seen in the pushback of HRA geographical coordinates from longitude 78°E to 65°E with effect from 1 December 2015. The HRA was pushed further westwards to longitude 60°E with effect from 1 May 2019 and to 57°30'E with effect from 1 September 2021.[44] Not only does it bring out the diplomatic capability of the Indian Navy but it also imprints India's position as the preferred security partner in the region.

Evolving Maritime Piracy: Imperatives for the Indian Navy

With the renewal of piracy in the IOR, the burden of tackling such incidents has again become heavy on the shoulders of the Indian Navy. The resurgence brings to light the requirement of the Navy to develop a comprehensive, technology-driven, and community-oriented approach against piracy. Global cooperation alone won't solve the issue and interagency coordination, integration of advanced technologies, and enhancement of human intelligence (HUMINT) alongside technological surveillance has become a prerequisite to tackle the rising menace.

Technological innovations like AI-driven threat detection, blockchain-based shipping transparency, and secure communication networks can transform maritime operations. Participation of fishermen and the coastal resident community is equally vital. Their involvement through training, equipment provision, and trust-based communication channels

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can significantly boost intelligence gathering and early threat detection. With access to new technology such as autonomous underwater vehicles, piracy can showcase unexpected characteristics in the coming years. It is imperative for the Indian Navy to be prepared and equipped with the necessary solutions with robust cybersecurity frameworks to protect ports and maritime infrastructure from digital threats.

Ultimately, safeguarding India's maritime interests in the 21st century requires a holistic strategy that combines technological innovation, community engagement, cyber resilience, interagency synergy, and international collaboration, while also addressing the primary root cause of piracy.

The anti-piracy campaign since 2008 has seen the Indian Navy gain increasing recognition across the region as a maritime player of significance. The unbroken patrol by 137 ships of the Indian Navy in the Gulf of Aden over the last 17 years has been by all counts an unqualified success. A total of 3,765 ships and more than 30,000 seafarers have been safely escorted and 44 piracy attempts thwarted. A merchant ship under Indian Navy escort has never been captured by pirates. The Indian Navy is committed to remaining forward deployed and ready for action across the IOR.

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Chapter 9

Mumbai Terror Attacks, 2008

On 26 November 2008, the Pakistani terror group Lashkar-e-Taiba (LeT) attacked some of the landmark locations of Mumbai in what became the deadliest and most brazen terror attack in Indian history. Mumbai was gripped by terror for three days as 10 LeT terrorists carried out premeditated attacks across the city. When the dust settled on 29 November 2008, all but one terrorist (Ajmal Kasab) had been neutralized, leaving in its wake 166 people dead and 308 wounded.

The maritime dimension of these attacks was unprecedented, both in terms of execution and implications. The terrorists were able to traverse nearly 500 nautical miles (nm)[1] of open ocean, hijack an Indian fishing vessel, and penetrate Mumbai's harbour undetected. It was thus fitting that the Indian Navy was the first responder to the crisis.

The initial assessment attributed the attacks to "gang warfare", but at about 2330 hrs on 26 November, a request was received from civilian authorities regarding assistance that the Indian Navy could provide. In the meantime, the Marine Commandos (MARCOS) from INS *Abhimanyu*[2] and NSWTTC[3] were directed to reach the affected sites. A formal telephonic request was made by the Chief Secretary of Maharashtra at 0104 hrs seeking MARCOS aid in controlling the situation, which was getting out of hand with each passing minute. Four teams of MARCOS were dispatched, three to Taj Hotel and one to the Oberoi-Trident Complex.

MARCOS Operation at Taj Hotel

The MARCOS team at Taj Hotel, comprising five officers and 36 sailors, was the first specialized team to enter the holdup area of the hotel. The team encountered a few policemen and three to four members of the hotel staff at the reception lobby. Being the first responders, the team had no information about the attackers' locations, motives, or weapons, as no clear reports had surfaced by that time. The Naval team leader was informed by the staff that three to four terrorists had entered the hotel and were shooting down guests. The team was given a general brief of the hotel, based on which the MARCOS started formulating their plan of action.

Their first priority was to save as many lives as possible. Access to the CCTV control room was sought and readily given by the hotel staff, and the team along with one staff member began moving towards the room located on the second floor of the hotel. While proceeding, the team met with heavy gunfire and grenade attack. With the aim of saving lives by evacuating people

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and blocking off the terrorists, it was imperative that the CCTV footage be available with the MARCOS. However, on reaching the control room, it was found to be engulfed in fire, making access to the CCTV footage impossible.

Soon, more gunfire was heard and the staff informed the team that it was coming from the hotel kitchen. The team moved swiftly towards the kitchen to engage the terrorists. By this point it was clear that the terrorists were constantly changing location, so a plan was formulated to corner them in order to make civilian evacuation possible. Enroute to the kitchen, the team faced heavy gunfire and retaliated with accurate and suppressive fire. However, the MARCOS had to refrain from firing indiscriminately to avoid civilian casualties.[4]

The terrorists, now aware that the team approaching them was no ordinary one, were alerted and exchanged one more round of gunfire. However, as the MARCOS team closed in, the terrorists lobbed multiple grenades at them, taking them by surprise with the large amount of firepower. Immediately, the terrorists broke contact and managed to escape from the kitchen. As the terrorists were pushed back, the team carried out a thorough search of the area and instructed the hotel staff to evacuate the injured.

For next two hours, there was an eerie calm. The gunfire had stopped and no trace of the terrorists could be found. The teams continued clearing the area and evacuating when, at 0330 hrs, gunshots were heard. The team, now aware of the locations within the hotel, concluded that the fire had come from the chamber hall, and two teams swiftly moved towards it, cleaning all the rooms enroute. On reaching the chamber hall, the team faced heavy fire from the terrorists. They had by this time planned to surprise the MARCOS team using the threat of life of hostages, who were held in a room adjacent to the chamber hall. The terrorists fired continuous shots from the dark hall and threw a large number of grenades at the team. In order to press down on the terrorists so that civilian lives could be protected, the MARCOS team continued direct confrontation. During the intense engagement, two members of the unit sustained injuries. The wounded personnel were swiftly extracted from the area and provided immediate medical attention. In the meantime, the remaining MARCOS team continued with their original plan and undertook a tactical maneuver, repositioning themselves effectively to block the crucial entry and exit points of an adjacent room that, at the time, was occupied by a significant number of hotel guests. This repositioning was executed to ensure a protective barrier between the civilians and the terrorists, thus enhancing the security of the hostages and making any attempts by the terrorists to reach them more difficult.

The MARCOS team was by then confident that the terrorists were effectively isolated within their hideout, and further movement from their location was improbable. Although the team was aware that the chamber hall had large glass windows, which opened towards the terrace, they

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were from the perspective of the team a dead end for the terrorists as two snipers were positioned on top of Gateway of India overlooking the Taj. Recognizing this containment, the team decided to reinforce the defensive posture and nullify any potential escape avenues.

At approximately 0600 hrs, the second phase of the operation commenced when the MARCOS team re-entered the chamber hall with the objective of locating and apprehending the terrorists. The team carried out a room intervention drill and went inside only to find it empty. The terrorists had escaped from the stairways situated at the rear of the hall, of which the MARCOS teams were not aware due to lack of detailed building maps. During their retreat, the terrorists left behind substantial material evidence, including a rucksack containing multiple AK-47 magazines, hand grenades, ammunition, credit cards, electronic watch and an identity card. These items were promptly collected and secured by the MARCOS operatives, who later transferred the evidence to the police and National Security Guard (NSG)[5] authorities for forensic analysis and intelligence gathering. Post clearing the chamber hall, the team moved to the adjoining hall and safely evacuated 150 civilians who were huddled there. In addition to this primary group, the commandos identified and safely escorted nearly 50 other guests who had been stuck in various other rooms. This comprehensive evacuation process not only signified tactical success but was also an outstanding demonstration of humanitarian responsibility amidst chaos.

By the time the NSG arrived on site at the Taj at around 0700 hrs on 27 November, only four rooms on the floor where the terrorists were holed up remained to be flushed out. At 0930 hrs, the team handed over the counterterrorist operation to the NSG. The latter thereafter conducted Operation Black Tornado, which ended on 29 November.

Analysis of these actions at the Taj Hotel reveals that the MARCOS, operating with minimal prior intelligence regarding the hotel's intricate internal layout and the size and formation of the terrorist groups, nonetheless succeeded in fundamentally disrupting the adversaries' intentions. The terrorists, evidently not anticipating the swift deployment and tactical prowess of the MARCOS, were visibly surprised by the intensity and professionalism of the initial counteraction—an inference validated by their abandonment of substantial ordnance, personal identification items, and tactical equipment during their flight from the chamber hall. Ultimately, through coordinated action, rapid situational assessment, and disciplined execution, the MARCOS team successfully secured the safety and evacuation of nearly 250 civilians, including both hotel guests and staff.[6]

Operations at Oberoi-Trident Complex[7]

While MARCOS teams engaged terrorists at the Taj Hotel, a parallel operation was unfolding at the Oberoi-Trident Complex. At approximately

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0200 hrs on 27 November, one unit of highly trained operatives from the MARCOS, alongside the Explosive Ordnance Disposal (EOD) Team, made their entry into the Oberoi-Trident Hotel. On arrival, the team was informed by the hotel's chief security officer, who provided critical information, about the possibility that two or three heavily armed terrorists had forcibly breached the Trident. To aid the commandos in rapidly formulating their operational plan, the security officer supplied a concise yet vital overview of the hotel's sprawling layout and presented CCTV footage, which clearly captured the terrorists entering and moving through the facility.

The Oberoi-Trident presented exceptional challenges for any security operation due to its vast scale—it comprised over 500 rooms distributed across two buildings, intricately linked by connecting alleyways both at the ground level and the third floor. The initial visual assessment by the MARCOS was that the site was in complete disarray: the surroundings bore marks of violent conflict, with bloodstains smeared across multiple surfaces, shattered glass and broken windowpanes littering the corridors, and scattered empty 7.62 mm caliber cartridge casings throughout the area.

At roughly 0245 hrs, while the MARCOS team was systematically attempting to pinpoint and contain the terrorists' positions within the building, grenade explosions and repeated bursts of gunfire were heard from the hotel's third floor. Reacting decisively, the team swiftly advanced to the third-floor location. However, upon their arrival, they found that the terrorists had stopped firing and relocated, evading contact. About 15 minutes later, as the personnel maneuvered from the Trident section to the adjoining Oberoi building, a team member sighted one of the terrorists moving between the ninth and tenth floors. The MARCOS rapidly approached the area but were detected by the terrorists, who then opened fire to repel the advancing commandos. An intense exchange of gunfire ensued, during which the terrorists utilized hand grenades to disrupt and slow the commandos' advance.

Despite these setbacks, the MARCOS unit persisted in their efforts to maintain a relentless operational momentum. By 0515 hrs, the commandos were able to secure a crucial vantage position, effectively forcing the terrorists to withdraw from open confrontation.

The unit at Oberoi-Trident now began a meticulous door-to-door search within the hotel. A systematic sweep was carried out through the vast and complex internal structure of the hotel. At approximately 0830 hrs, reinforcements arrived in the form of an NSG team from Delhi. The operational control and primary responsibility for the mission were transferred to the NSG.

The MARCOS were soon called upon again, at the specific request of the NSG. They were redeployed to the Oberoi at 1400 hrs to lend their expertise and support in flushing out the remaining terrorists. During a critical

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intervention on the hotel's 19th floor at 1700 hrs, a sudden hostile outburst occurred when a volley of bullets was fired from inside a barricaded room. In response, a MARCOS buddy pair was designated to cover and secure the possible escape routes, ensuring that no terrorist could break out unnoticed. The ensuing firefight extended over several hours, with sustained exchanges until 2010 hrs. Thereafter, the NSG assumed complete responsibility for the final clearing operations to "mop up", and the MARCOS teams withdrew, having fulfilled their operational mandate.

Maritime Infiltration and Target Selection in the 26/11 Attacks

The terrorists set off from Karachi in a small boat at approximately 0800 hrs on 22 November 2008. After sailing for about 40 minutes, they shifted to a bigger boat, *Al-Husseini*, which, according to the captured terrorist, belonged to Zaki-ur-Rehman Lakhvi, the chief commander of the LeT. There were already seven LeT members on board. The terrorists spent the entire day on board *Al-Husseini*. On 23 November 2008, an Indian registered fishing vessel, MV *Kuber*, was hijacked and boarded. Four crew members of MV *Kuber* were killed by the LeT members. The captain of the trawler, Amar Singh Solanki, was allowed to remain on board *Kuber* and it was he who navigated it for approximately 550 nm to Mumbai.

MV *Kuber* was four nautical miles off Mumbai at 1600 hrs on November 26 when Solanki was killed. As the group approached the designated disembarkation zone close to Mumbai's shoreline, they transitioned into a 12-man capacity black *Gemini*, which was later recovered. The vessel was carrying life jackets, patching material, 12 mm rope and spare spark plugs, indicating that the crew were well prepared to deal with a breakdown, if any. Utilizing this vessel, the attackers arrived at Machhimar Nagar, which is adjacent to Cuffe Parade in South Mumbai, and set about executing their planned assault.

Subsequently, MV *Kuber* was discovered deserted approximately five nautical miles off the Mumbai coastline, bearing evidence of its role in the operation. The following transcript of an intercepted conversation highlights how an extremely well-orchestrated assault was planned in detail in terror camps, but the threat of the Indian Navy caused the terrorists to panic and make mistakes from the get-go.

Call transcript: Hotel Taj Mahal, 0126 hrs, 27 November 2008[8]

Caller: Are you setting the fire or not?
Receiver: Not yet. I am getting a mattress ready for burning.
Caller: What did you do to the dead body?
Receiver: Left it behind.
Caller: Did you not open the locks for the water below? *(Probably of MV Kuber)*

> Receiver: No, they did not open the locks. We left it like that because of being in a hurry. We made a big mistake.
> Caller: What big mistake?
> Receiver: When we were getting into the boat, the waves were quite high. Another boat came. Everyone raised an alarm that the Navy had come. Everyone jumped quickly. In this confusion, the satellite phone of Ismail got left behind.

This coordinated offensive against Mumbai marked an extraordinary departure from conventional terror tactics. Unlike previous bombing incidents targeting singular or isolated locations, the terrorists attacked multiple high-profile sites across the city, deliberately chosen for their potential for widespread destruction and to attract global attention. The attackers relied on surprise and mobility, employing novel tactics that had not been anticipated by Indian security forces, thereby magnifying the impact and confusion. Critical among the terrorist selections were iconic landmarks in South Mumbai, notably premier hotels like the Oberoi-Trident and Taj Mahal Palace, as well as more public venues such as Leopold Café—a popular destination for expatriates and tourists. The inclusion of CST Railway Station (formerly known as Victoria Terminus) served a strategic purpose: creating mass panic among Mumbai's local residents and amplifying both the terror and publicity for their cause in Pakistan-based media outlets. Nariman House, known also as Chabad House and located at Colaba, was specifically chosen because it housed Jewish and Israeli families, hence fulfilling ideological and propaganda objectives.

Each target was selected with precision, considering factors like symbolic visibility, anticipated psychological and physical impact, security vulnerabilities, ease of public access, and practicality for hostage situations, along with available defensive positions for resisting police or counterterrorist intervention. The attack at Nariman House pointed to the exceptional degree of pre-planning and intelligence gathering by the terrorists. Despite Jewish communities, especially Israeli nationals, being regular targets of violence worldwide, few would have anticipated the inclusion of Nariman House within Mumbai's urban fabric as a focal point for such violence.

During the rampage by the terrorists, their overlords in the neighbouring country guided them based on inputs received from TV journalists and other reports. The effects of poor journalism, focused solely on generating views and TRP, led to critical information about the movement of MARCOS and placement of snipers becoming public, creating further difficulty for the special forces as the terrorists were able to respond tactically.

Call transcript: Hotel Taj Mahal, 0137 hours, 27 November 2008

> Caller: Let me talk to Umar.
> Receiver: Note a number. Number is 00437 20880764.

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> Caller: Whose number is this?
> Receiver: It is mine. The phone is with me.
> Caller: The ATS Chief has been killed. Your work is very important. Allah is helping you. The "Vazir" (Minister) should not escape. Try to set the place on fire.
> Receiver: We have set fire in four rooms.
> Caller: People shall run helter skelter when they see the flames. Keep throwing a grenade every 15 minutes or so. It will terrorise. Here, talk to "Baba".
> Caller (2): A lot of policemen and Navy personnel have covered the entire area. Be brave![9]

Ultimately, the highly detailed nature of the terrorists' surveillance, their detailed knowledge of the cityscape, and careful mapping of routes and vulnerabilities, all point towards prolonged and coordinated planning far in advance of the attack. It is evident from subsequent investigations that extensive groundwork had been done before 26/11.

Maritime Security Measures Post-26/11

The 26/11 attacks resulted in a fundamental change in the coastal security framework. The events underscored the urgent necessity for the establishment of a specialized Marine Police wing, enhancement of the Indian Coast Guard (ICG), the creation of fishermen "watch groups", modernization of port traffic monitoring systems, implementation of uninterrupted Automatic Identification System (AIS) coverage along the coastline, establishment of Joint Operation Centres (JOCs), and the creation of a central apex body for the comprehensive management of maritime affairs.[10]

In the immediate aftermath of the attacks, several pivotal measures were approved, with a particular emphasis on strengthening maritime security—especially concerning coastal protection. The Indian Navy was designated as the primary authority for overall maritime security, encompassing both coastal and offshore domains, supported by the Indian Coast Guard, State Marine Police, and Indian Customs authorities. JOCs were established in Mumbai, Visakhapatnam, Kochi, and Port Blair, placed under the respective Commanders-in-Chief and jointly staffed by personnel from both the Indian Navy and the Indian Coast Guard.

The Sagar Prahari Bal (SPB), comprising 1,000 dedicated personnel, was constituted, and a fleet of 80 Fast Interceptor Craft (FIC) was inducted to enhance rapid response capabilities. The National Committee for Strengthening Maritime and Coastal Security (NCSMCS), chaired by the Cabinet Secretary, was instituted in August 2009 to ensure effective and timely implementation of critical government decisions pertaining to maritime and coastal security.

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Lessons Learnt from the 26/11 Attacks

The role of the media during the 26/11 attacks emerged as one of the controversial and problematic aspects of the crisis response. Television news channels, competing aggressively for viewership and ratings, broadcast real-time tactical information that directly compromised security operations and endangered both commandos and hostages.[11]

The ability of 10 terrorists to traverse nearly 500 nm of ocean, hijack an Indian fishing vessel, and penetrate Mumbai harbour completely undetected represented a failure of maritime domain awareness. Further, the attacks focused on "soft targets"—facilities not traditionally subject to high security levels such as hotels, restaurants, and transportation hubs. Initially, the attacks were mischaracterized as "gang warfare", causing crucial time to be lost in threat assessment and appropriate response authorization.

Notes

1. One nautical mile (nm) is a unit of distance used in maritime contexts, equivalent to 1.852 km. Historically, it was based on one minute of arc along a line of longitude, making it a useful measure for plotting courses.
2. INS *Abhimanyu* is a naval base in Mumbai, India, that serves as the home for the Indian Navy's elite special forces MARCOS (Marine Commandos).
3. Naval Special Warfare Training and Tactical Centre or NSWTTC is the premier training centre for the Marine Commandos, then located at INS *Karanja*. NSWTTC has since been relocated to Goa (INS *Mandovi*).
4. Anup Singh, *Blue Waters Ahoy! The Indian Navy 2001–2010*, HarperCollins, New Delhi, 2018, pp. 114–18.
5. The NSG, also known as Black Cats, is India's premier counterterrorism unit. It was formed in 1984 and trained for urban counterterrorism, hostage rescue, and bomb disposal. NSG's Operation Black Tornado was the final assault phase in the 26/11 operations, supported by Naval Commandos.
6. Kumar, "Mumbai–26/11", https://kumar-theloneranger.blogspot.com/2008/12/mumbai-2611.html?m=0, accessed on 15 September 2025, quoted in Singh, *Blue Waters Ahoy*, p. 117.
7. The Oberoi and Trident hotels in Mumbai form an interconnected complex comprising two luxury hotels with shared security and emergency access points. This layout presented unique tactical challenges during the 26/11 siege, requiring simultaneous clearance operations across interconnected corridors and floors.
8. Excerpts from "Mumbai Terror Attacks, Nov. 26-29, 2008", Federation of American Scientists, 5 January 2009, https://irp.fas.org/eprint/mumbai.pdf, pp. 52-55, accessed on 22 September 2025.
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Chapter 10

Indian Navy's Role in Operation Sindoor, 2025

An In-depth Analysis

Operation Sindoor served as a coordinated precision strike operation launched by the Indian Armed Forces on 7 May 2025, targeting nine terrorist infrastructure sites in Pakistan and Pakistan-occupied Jammu and Kashmir (PoJK).[1] This operation was in retaliation to the Pahalgam terrorist attack in Jammu and Kashmir, which was carried out by The Resistance Front (TRF), linked to Lashkar-e-Taiba.[2] The attack, which killed 26 civilians, was the deadliest such attack since 2008, prompting a coordinated military response from the Indian Army, Air Force and Navy.[3]

Although the Indian Navy did not orchestrate a direct strike, its involvement was multifaceted, showcasing its strategic, tactical, and technological prowess.[4] The operation not only reaffirmed India's maritime deterrence capabilities but also highlighted the Navy's expanding role in broader national security and regional stability.[5]

Since 1971, the Indian Navy's operations have adhered to a well thought-out doctrine and strategy that has changed in response to both internal and external technological improvements.[6] The Indian Navy has been fully mobilized and deployed twice since 1971: in 1999 during Operation Talwar and in 2001-02 during Operation Parakram.[7] Both deployments were successful and created a template that can be used to frame strategic-level planning and provide a variety of operational-level deployment options, depending on political directives, the current security situation, and the available technology and assets.[8]

Importance of Indian Maritime Policy and its Strategic Context

Many alternatives for possible force projection are detailed in the Indian Navy's maritime strategy.[9] These include long-range weapons like the ship-launched BrahMos or the ship/submarine-launched Klub land-attack missiles, as well as maritime strikes using carrier-borne aircraft.[10] The plan also calls for preventing or interfering with the enemy's use of the sea for maritime trade and military objectives to exert "strategic leverage", including economic and psychological pressure.[11]

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The Indian Maritime Doctrine 2009, updated in 2015 and 2025, lays emphasis on "Sea Control" and "Sea Denial" as crucial facets of India's deterrence policy.[12] The doctrine suggests multiple facets of power projection, among which sea control "denotes a condition where one is able to use a defined sea area for a defined period of time, for one's own purposes, and at the same time deny its use to the adversary... Sea control is the central concept around which the Indian Navy is structured".[13] At the same time, sea control serves as a tool to achieve other maritime goals and activities, such as amphibious operations, SLOC protection, SLOC interdiction, and force projection. It is not an aim in and of itself, the doctrine believes.[14]

Meanwhile, the concept of sea denial involves preventing the enemy from using a sea area for a specific amount of time when it is not necessary for our use.[15] Submarines are regarded as the preferred "platforms for executing sea denial in choke points", especially those near enemy bases, because they are less likely to be detected and can be placed and maintained inconspicuously, which reduces the effectiveness of enemy countermeasures.[16] Mining is another option that may be used, especially in waters that are relatively shallow.[17]

In this regard, maritime power has traditionally focused on using tactics that seek to accomplish political goals by projecting their presence and "non-contact" force instead of fighting directly.[18] "Demonstrative actions by the fleet, in many cases, have made it possible to achieve political ends without resorting to armed action, merely by application of pressure and threat of military operations," said Admiral Sergey Gorshkov, the Soviet Navy's commander-in-chief from 1956 to 1985, decades ago, describing the fleet's enduring usefulness.[19]

India's Prevailing Geo-strategic Environment

India has a geographical advantage due to its extensive coastline, which stretches over 11,098.81 Km and offers unparalleled maritime reach.[20] At the same time, India's central location along the main International Shipping Lanes (ISLs) gives it distinct advantages and places the majority of choke points and the outer fringes of the Indian Ocean Region (IOR) nearly equally from India, making it easier for its maritime forces to reach, sustain, and move throughout the region.[21] As a result, India is in a strong position to shape the maritime environment and advance and protect its maritime interests throughout the IOR.[22]

The operation is therefore executed with an awareness of the significance of the choke points in the Indian Ocean, particularly the Bab-el-Mandeb, the Strait of Hormuz, and the Malacca Straits, which are essential for trade routes and energy security well beyond India's marine environment.

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Indian Navy's Role in Operation Sindoor

The Indian Navy was well prepared for Operation Sindoor and any additional Pakistani hostilities may have been "catastrophic for it", said Lieutenant General Rajiv Ghai, DGMO of the Indian Army. He further stated that the Navy had "sailed into the Arabian Sea" and was "very well poised".[23] Similarly, within 96 hours of the terrorist assault, the Navy had already changed to a high-alert posture, preparing its aircraft carrier, submarines, frontline surface warships, and maritime patrol planes for action.[24] In the Arabian Sea, the ships, submarines, and aeroplanes engaged in tactical drills. Vice Admiral A.N. Pramod, Director General Naval Operations, underlined that these exercises were "mission-critical validations, not routine drills".[25]

This surveillance covered Pakistan's whole Makran coast, which has vital energy and connectivity resources in addition to substantial maritime infrastructure, including ports that span west to east, including Jiwani, Gwadar, Pasni, Ormara, Karachi, and Port Qasim.[26] This type of surveillance tracks the movements of Pakistani marine and coastal shipping as well as ships and aircraft, primarily from the Pakistan Navy and Air Force.[27] For carrying out maritime strikes against both marine and land targets, this in turn offers a high degree of Maritime Domain Awareness (MDA) and targeting information.[28]

The "naval compellence" has been an effective instrument of state policy to change people's behaviour and make an enemy do something he does not want to do or prevent him from doing something he plans to do.[29] The use of coercive sea-based forces—which may or may not entail actual violence—is how this is accomplished.[30] Similarly, according to Indian Maritime Doctrine, compellence can be used tactically, such as to halt or divert a ship or aircraft; operationally, such as to force the opposing to surrender; or even strategically, such as to force the other state to change its course of action or policy.[31]

The Navy deployed INS *Vikrant* carrier battle group, guided-missile ships equipped with Brahmos missiles, at least six submarines, MiG-29K fighters, and airborne early warning helicopters in order to maintain control of the maritime domain, particularly along Pakistan's western border.[32] Marine Commandos stood by for clandestine tasks ashore and at sea. In order to create a deterrent presence with their long-range attack potential, submarines maintained their silent patrol regions farther ahead and below the surface.[33] This force created a de facto blockade that kept Pakistani Navy troops confined to their harbours and posed a significant numerical and tactical threat to the Pakistani Navy.[34] Task force units are believed to have revalidated crew readiness and ensured operational readiness by conducting live missile fire simulations.[35]

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Fig 10.1: An Indian Naval Ship Firing a Missile



Source: Naval History Division, Indian Navy

In the "Strategy for Conflict", networked operations within the Navy and cooperative coordination with the Army and Air Force—both of which are classified as "Operational Enablers"—made MDA's efficacy and operational reach possible.[36] This strategy also aligns with the additional operational principles of "Application of Force" and "Strategic Effect" by placing the delivery of firepower under "Force Projection" against legally specified targets.[37]

The number of ships at sea, particularly the carrier battle group, backed by land-based maritime surveillance aircraft ranging from P8Is, newly inducted MH60R and HALE RPAs systems, would have allowed the necessary level of "sea control", which was at the heart of the Indian Navy's major operations and employment.[38] Naturally, the Pakistan Navy's absence from the deployment regions made this easy.[39]

The Pakistan Navy's primary focus is on coastal defence and maintaining credible maritime deterrence against India through a strategy of "sea denial", states Admiral Arun Prakash, whereas "the Indian Navy hopes to play the role of a blue-water navy with power-projection capabilities across the Indian Ocean and beyond".[40] While both fleets have expanded in strength and capability over the last few decades, the Indian Navy has maintained a sizeable advantage, he asserted.[41]

India's naval might was crucial to the outcome of operations in both war theatres during the 1971 conflict. It had launched two ship-launched surface-to-surface missile attacks in the west, causing the Pakistani Navy to suffer attrition and severely damaging the Karachi port, which forced the Pakistani Navy to cease operations.[42] Ports, shipping, and riverine trade were severely damaged by the Indian Navy's carrier-borne aircraft, which flew widely over East Pakistan in the eastern theatre.[43] The psychological effects of this conflict have persisted in Pakistan, and Pakistani Navy forces refrained from venturing outside during Operation Sindoor.[44]

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The Indian sea-surveillance system served as a basis for this naval operation. New Delhi has made significant investments in integrating satellite monitoring, naval intelligence, airborne maritime assets, and coastal radar networks since the 2008 Mumbai attacks.[45] The resulting integrated picture would have reduced the risk of surprise and given India clear informational supremacy by giving near real-time intelligence on Pakistan Navy movements along the beaches of Sindh and Makran.[46]

Meanwhile, strong coastal and offshore security measures, closely coordinated with the Coast Guard, were crucial in preventing any hostile actions by Pakistan at or from sea, and shore-based facilities offered vital logistical and operational support, enhancing the Navy's standing as a force capable of fighting, credible, cohesive, and prepared for the future.[47]

Fig 10.2: An Indian Naval Ship in Action



Source: Naval History Division, Indian Navy

In addition, Indian naval ships with indigenous Indian Naval Air Squadron (INAS) aircraft and missile systems showed their operational readiness and technological independence, with the operation highlighting India's technological advancements, particularly in indigenous defence systems like BrahMos cruise missiles.[48] Moreover, India's technological superiority was reaffirmed when its electronic warfare (EW) capabilities, such as jammer and cyber defence systems, successfully neutralized hostile foreign-supplied technologies including Chinese PL-15 missiles and Turkish UAVs.[49]

Although the precise use of nuclear weapons in the maritime domain is still up for debate, the existing naval system can encourage Pakistan to use tactical nuclear weapons (TNWs) against the carrier battle group.[50] However, it is unclear if Pakistan possesses TNW for use at sea, so land-based missiles could be used as a substitute.[51] In the event of a significant attack on Indian territory or Indian forces anywhere, India's nuclear doctrine stipulates that nuclear weapons must be used only in retaliation.[52] This also applies to attacks using biological or chemical weapons.[53] India can consider

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intensifying its operations while controlling escalation to prevent the raising of the nuclear flag, as this could affect conventional operations under the nuclear shadow.[54]

Although Operation Sindoor has clearly highlighted the differences between India and Pakistan on a conventional basis, it would be premature to expect it to stop cross-border terrorism, as Indian Army Chief General Upendra Dwivedi has pointed out.[55] Having said that, the operation was not merely a naval power projection but a coordinated message to Pakistan that India would take stern action against non-state actors as well as on military installations that harbour terrorists. Operating from an advantageous position, the Indian Navy limited the alternatives available to the enemy, reassured the country, and gave the political leadership the means to affect the enemy's calculations.[56]

Following Operation Sindoor, the Indian Navy also conducted a thorough evaluation of maritime operations to improve its Concept of Operations (CONOPS) and identified a number of capabilities enhancements for induction in all domains.[57] These evaluations were predicated on the proliferation of uncrewed assets, the shifting geopolitical landscape, and the study of disruptive technology deployment in modern conflicts.[58]

Operation Sindoor has left lasting lessons for the future—it has reiterated that preparedness is the foundation of credible deterrence and that the sea influences both security and the economy by influencing naval posture and commercial domain.[59] As the Navy adjusts to new challenges, such as rising technology, grey zone uncertainty, cyber-enabled operations, and persistent surveillance across large oceanic expanses, these lessons will also serve as a guide.[60]

India demonstrated its capacity to use conventional force while exercising strategic restraint, below the margin of a full-scale war.[61] The operation adhered to the Indian Maritime Doctrine, which emphasises the importance of cooperation, coordination, and technical integration in contemporary combat situations and for credible deterrence. Although there are questions about how the next confrontation will play out, the operation has established a considerably stronger level of deterrence.[62]

Conclusion

Operation Sindoor was not merely about the projection of hard power. It was also about deterrence, signalling, and strategic communication. By operating from a position of advantage, the Indian Navy constrained the adversary's options, reassured the nation, and provided the political leadership with tools to influence the adversary's calculations. It demonstrated how control of the maritime domain can extend strategic reach, deep into adversary's territory, and influence the course of a conflict even when the primary actions are witnessed over land. The operation highlighted that maritime

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power is a key facet of India's defence architecture and central to national security. As directed by Prime Minister Narendra Modi, an act of terror on Indian soil would be considered an "act of war" and responded to with overwhelming force. Therefore, in a prevailing no-war-no-peace scenario, the Indian Navy remains combat ready at all times and "stood to" for an immediate response to any misadventure by Pakistan.

For the Indian Navy, Operation Sindoor was a turning point that exemplified the values of contemporary maritime deterrence, quick reaction, technical innovation, and cooperative military action. In addition to demonstrating India's increasing naval might, the operation established a new standard for India's military posture, which is action-oriented, technologically sophisticated, and steadfastly dedicated to "full-spectrum deterrence". The Indian Navy's contribution to building an efficient, resilient, and self-sufficient force is crucial to preserving both regional peace and national sovereignty as India continues to develop its maritime strategy.

Equipped with long-range missiles, the Indian Navy task force had the firepower to hit ships, harbours, and shore infrastructure, said Admiral Arun Prakash, adding that the Navy hasn't, in keeping with its moniker, been the "Silent Service". Operation Sindoor showcased that the Indian Navy is combat ready, integrated in approach, agile in employing new capabilities, and always ready to safeguard national maritime interest, anytime, anywhere, anyhow.

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Part II
Humanitarian and Disaster Relief and Non-combatant Evacuation Operations

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Chapter 11

Tsunami, 2004

The tsunami (Japanese term for harbour wave) that occurred in the Indian Ocean in 2004 caught the coastal populations of the Andaman and Nicobar Islands and the southern states (especially Tamil Nadu) of India completely off guard. The disaster was caused by the third largest earthquake ever recorded, measuring 9.0 on the Richter Scale. The earthquake struck off the west coast of northern Sumatra (approximately 03°42' N 95° E, or 200 nm south-southeast of Indira Point) at 0758 hrs on 26 December 2004.[1] A repeat occurrence was reported at 0953 hrs at 6.9°N 92° 56' E, i.e., 53 nm south-southwest of Indira Point. With the longest duration of faulting ever observed—between 8 and 10 minutes—the earthquake caused the entire planet to vibrate by nearly 1 cm and triggered earthquakes as far away as Alaska.[2]

While the earthquake occurred at around 0620 hrs IST, the tsunami struck the coastlines of 14 countries within a span of 15 minutes to 7 hours, claiming over 2 lakh lives. Indonesia was the hardest hit, followed by Sri Lanka, India, the Maldives and Thailand. The worst-affected states in India were Tamil Nadu, Andhra Pradesh, and Kerala. The tsunami not only swept entire villages into the sea but also killed many individuals who ventured out to sea after witnessing the unprecedented retreat of the ocean.

Variously named the South Asian Tsunami, Indonesian Tsunami, Christmas Tsunami, and Boxing Day Tsunami, the disaster affected more than 2,250 km of India's coastline. It resulted in 12,405 deaths and displaced 6,47,599 people across Tamil Nadu, Kerala, Andhra Pradesh, and Puducherry. Due to its proximity to the earthquake's epicentre, the otherwise tranquil Andaman and Nicobar archipelago, comprising a chain of 572 islands, suffered particularly severe destruction by the tsunami.[3]

From Indonesia to India: The Tsunami's Path of Destruction

Indonesia

Being the closest to the epicentre of the earthquake, Indonesia was the most severely affected by the tsunami. The first reports indicated that some 30,000 people had died.

India

Andaman & Nicobar Islands (ANI): Major cracks spanning around 100 metres were observed on the Port Blair runway, and structures in Campbell Bay and Port Blair were damaged, along with port infrastructure of

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commercial/passenger terminals. MV *Teal* and MV *Kalapani* capsized/sank at Port Blair, but all Naval and Indian Coast Guard ships were safe and the remaining runway was approved to be operated by Dornier, AN 32, IL 76, and Boeing 737 aircraft. Of all the islands in the ANI, Car Nicobar Island likely suffered the worst damage in terms of "military strategic assets"—370 people went missing, 264 were injured, and 753 servicemen died in the wake of the tsunami. At Port Blair and its surroundings, every service member and their family were secure, though the tsunami claimed the lives of 65 IAF members and their families at Car Nicobar Air Force Station.[4]

Coast of Mainland India: Considerable loss of life and damage was reported along the coastline of Andhra Pradesh, Tamil Nadu, and (parts of) Kerala.

Sri Lanka

Colombo, Galle, Trincomalee, and Jaffna experienced flooding. The naval base at Galle was hit particularly hard, and naval jetties at Kankesanturai and Trincomalee were destroyed. An estimated 2,000 people died in Sri Lanka and several military posts and units along the coast were impacted. It was recognized that the Sri Lankan Armed Forces could not handle the relief and disaster efforts on their own. Declaring a state of national emergency, the Sri Lankan prime minister requested India's High Commissioner for assistance.

The Maldives

The Indian High Commission could not be reached at first. It was learnt that the waves had flooded much of the capital, Male, seriously disrupting its infrastructure.

Indian Navy: First Responders

The killer waves left behind a deadly trail that was unprecedented in the recorded history of natural disasters. Along the impacted coastline of India as well as in other countries, the Indian Navy swiftly sent out its ships to conduct simultaneous search and rescue operations and provide emergency relief, including medical assistance and rehabilitation initiatives. The Navy mobilized 5,500 personnel, 32 ships, 8 aircraft, and 21 helicopters for its largest peacetime mission to date. Overall, all armed forces' disaster relief efforts were coordinated by Headquarters' Integrated Defence Staff (HQIDS). The Navy coordinated relief efforts from the War Room at NHQ, and the Duty Commander, War Room, served as the main liaison between all relief agencies and stakeholders.

Humanitarian Assistance and Disaster Relief (HADR) operations were planned in three parts:

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- Operations Rainbow West and East were planned for the west and east coasts of Sri Lanka by the Southern Naval Command (SNC) and Eastern Naval Command (ENC), respectively, subsequently supported by Western Naval Command (WNC).
- Operation Madad was to be executed by ENC for relief operations for the east coast of India and the ANI.
- Operation Castor was to be executed by WNC for relief operations for the Maldives.

At the same time, the operations were divided into three phases:

Phase I: The initial phase concentrated on the immediate response following the disaster while its primary activities were to locate survivors, assess the potential damage, administer first aid, and ensure provision of essential relief items such as food, water, and clothing. This stage also encompassed the disposal of deceased individuals and the evacuation of affected populations to secure locations.

Phase II: The second phase was oriented towards stabilizing post-emergency and sustaining measures, and involved the supply of provisions for relief camps, prevention of outbreak of epidemics, rehabilitation of displaced personnel, salvage and debris clearance, hydrographic surveys to reopen ports and harbours, medical aid, drinking water facilities with portable reverse osmosis (RO) plants, provision of generators, and restoration of infrastructure.

Phase III: The third phase sought to maintain operational continuity beyond the initial emergency interventions. Given the large volume of materials and supplies required, logistical reinforcement was arranged through the mobilization of two ships, in addition to INS *Jyoti*, to transport extra stores as well as petroleum, oils, and lubricants (POL) to Port Blair and Car Nicobar. The continued supply of stores, medical support, and related equipment was coordinated based on the assessments and inputs provided by naval vessels already stationed across the affected regions.

Command and Control

Both the operational commands—the ENC and the WNC—were charged with the responsibility of undertaking immediate and effective rescue and relief operations. The ENC was tasked to handle operations on the entire east coast of India and affected areas of Sri Lanka and Indonesia, and provide resources in terms of platforms and relief material to the Andaman & Nicobar Command (ANC) as well as the mounting base[5] at Chennai. In similar fashion, various units were mobilized from WNC as well, to render assistance on the west coast of Sri Lanka in addition to rescue and salvage efforts in the Maldives, Indonesia, and the Andamans.

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The ENC effectively utilized its resources for HADR operations, both domestically and internationally. Along the east coast, the disaster-affected region from Guntur in Andhra Pradesh to Kanyakumari in Tamil Nadu was methodically segmented into maritime areas corresponding to the jurisdiction of coastal districts. Naval authorities, operating both from shore establishments and afloat units, were appointed to oversee coordination within each designated sector.

A central planning and execution team was constituted to supervise operational efforts, while all naval units were directed to maintain readiness for immediate departure. Dockyards and repair yards transitioned to an intensified operational stance, akin to a wartime routine, and naval aviation assets were placed on high alert for rapid deployment. Comprehensive mobilization of personnel was instituted to support these measures.

The naval hospital INHS Kalyani at Visakhapatnam was assigned to establish medical camps, with healthcare teams strategically allocated to specific geographic regions. Additionally, a contingency response centre was established at the Material Organisation, Visakhapatnam, and staffed continuously throughout the relief period to manage and coordinate logistic requirements round the clock.

The WNC extended its HADR operations across multiple regions including the Maldives under Operation Castor, the western coast of Sri Lanka via Operation Rainbow (West), the Andaman and Nicobar Islands through Operation Seawaves, and Indonesia via Operation Gambhir. Although the east coast of India and the ANI experienced greater destruction, the WNC was heavily engaged, mobilizing significant resources for HADR efforts both within domestic and foreign maritime zones. The naval hospitals INHS Asvini and Sanjeevani contributed critically by providing medical personnel and necessary pharmaceuticals. Additionally, INS *Nirdeshak* was repurposed as a temporary field hospital ship, enhancing medical relief capabilities.

Given that the Andaman and Nicobar Command (ANC) was the most severely impacted and faced significant shortages in assets and logistical resources, substantial support—including platforms, supplies, and response assets—was requisitioned from the ENC and the Indian Air Force to facilitate search and rescue (SAR), relief, and infrastructure restoration efforts. To ensure effective command and control, an interim organizational structure was implemented to coordinate the relief operations efficiently. For command and control, an interim organization was established as follows:

- Integrated Relief Command (IRC): The IRC was established immediately after the tsunami under the chairmanship of the Lieutenant Governor of ANI. The Commander-in-Chief, Andaman and Nicobar Command (CINCAN), was its vice-chairman, operational head and spokesperson.[6]

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Due to the efficiency and total control by this organization, many precious lives were saved and a greater death toll averted.

- Island Integrated Relief Organization (IIRO): Sub-groups formed the Island Integrated Relief Organization at Little Andaman, Car Nicobar, Nancowry and Great Nicobar to search for survivors by land, sea, and air effort over a period of one month after the tsunami. The Navy positioned at least one ship with a helicopter onboard near each of the island groups to render immediate assistance as any need arose. A total of 11,725 people were evacuated and 8,500 were given first aid in the first three weeks.[7]

Operational Logistics

The logistics demands of relief operations on the mainland required substantial and immediate support from the Logistics Departments within each Naval Command. During the initial phase, the provision of large quantities of potable water, foodstuffs, bedding, medical supplies, and portable generators ensured that fundamental needs were met promptly and in sufficient measure. Subsequently, the delivery of construction materials facilitated the progression from immediate relief to the essential stage of rehabilitation.

The logistics support framework was promptly activated immediately after the disaster. On the Eastern Naval Command, the Base Victualling Yard (BVY) and the Material Organization (MO) at Visakhapatnam formed the primary network of logistics support on the eastern front while HQWNC, BVY (Mumbai) and MO (Mumbai) fulfilled the logistical requirements on the west coast. Logistics Support Cells were also established at both commands. Each cell comprised two to three officers with at least one officer manning it round the clock, to enable uninterrupted coordination with the Maritime Operations Centre (MOC) for prompt provisioning, receipt and loading of relief material on board ships for dispatch to various nodes. Since everything was not available (in the desired quantities) at the depots or store houses, provisions had to be gathered from various markets and contractors at short notice.

Numerous shops and water-bottling plants had to be opened in the middle of the night while several ration items had to be sourced from Visakhapatnam, Hyderabad, Chennai, Coimbatore, Bangalore, Kolkata, and as far as Ludhiana in Punjab. Transport operators had to be persuaded to provide supplies to the coastal areas as they were unwilling to go there.

In the Andaman and Nicobar Islands (ANI), Logistics Cells were established with a dual mandate: to support integrated relief and rehabilitation efforts and to communicate supply requirements to the Ministry of Home Affairs (MHA). Incoming material was stocked at Naval Air Station (NAS) INS Utkrosh at Port Blair, Air Force Station at Car Nicobar, INS Kardip at

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Kamorta Island, and at the Coast Guard District Headquarters at Campbell Bay. Given that the large vessels could only dock at Port Blair and a limited number of ships was available for inter-island movement, commodities had to be broken up into smaller parcels for movement to each island by various means of water/air transport.

Ship-to-shore movement remained the most challenging task for transshipment of supplies, vehicles, and equipment. To address this, a marine hard—a cemented or concrete area serving multiple logistical functions—was constructed at Campbell Bay in collaboration with the Andamans Public Works Department and Army engineering units. Similarly, beaching sites were developed, tested, and effectively utilized at Tarasa Island.

An inventory management system was instituted at Haddo Wharf, Port Blair, through the collective efforts of civil and military officials. Logistics chains at INS Utkrosh, Air Force Station Car Nicobar, and various other locations in the ANI were upgraded to ensure optimization and proper distribution of supplies. Critical material for intermediate shelters was airlifted from various destinations in the country by the heavy lift IL-76 aircraft to the Islands. Similarly, other items were transported from Visakhapatnam, Chennai, and Kolkata by naval ships.

Navy's Swift HADR Operations on Domestic Front

Operation Madad

The 2004 tsunami was a significant test of the Eastern Naval Command's (ENC) preparedness and organizational capabilities across a vast and dispersed coastline. Operation Madad was launched to conduct relief and rescue missions along the east and west coasts of peninsular India, including the Andaman and Nicobar Islands (ANI). A wide array of naval ships and aircraft were deployed along the Indian coastline. All available aircraft at INS Dega, INS Rajali, and Naval Air Station (NAS) Ramanathapuram (NAS Ramnad) were put on standby. Ships' boats and Gemini vessels were utilized to access remote creeks and provide diving support as well as to transfer supplies ashore. In addition to their own boats, the ships carried medical supplies from the naval hospital INHS Kalyani, divers, and extra Gemini boats from the Clearance Diver Training Team (CCDT(V)) and MARCOS commandos from *INS Kalinga*.

Most vessels underwent operational turnaround (OTR) at Chennai, during which additional disaster relief materials were loaded. Upon completing initial relief efforts, the ships were instructed to proceed to the ANI for further operations. Naval aircraft conducted aerial reconnaissance missions: while helicopters surveyed coastal areas and were also deployed to districts in Andhra Pradesh to support state administration requirements, Islander aircraft were used for coast surveys and ferrying aircrew. *IN* aircraft performed aerial reconnaissance over the Andaman and Nicobar Islands.

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In Tamil Nadu, relief operations commenced with INS *Khanjar*, *SDB 57* and *SDB 58*. INS *Khanjar,* carrying a medical team, medical stores, five divers, one Gemini, and four MARCOS, was the first ship to reach the worst-affected area off Nagapattinam. The ship's team reestablished communication at Naval Detachment (NAVDET) Nagapattinam and set up medical camps at several key locations, including temples and churches. The relief operation expanded with INS *Ranjit* and further support vessels like *SDB 57* setting up additional medical camps and ferrying personnel, treating approximately 3,100 patients at Nagapattinam alone. Other ships such as INS *Khukri* and INS *Sukanya* provided relief along the Chennai, Cuddalore, Nagapattinam, and Puducherry coasts, including search operations and medical assistance.

INS *Khukri* and INS *Sukanya* were already in Chennai harbour on 26 December 2004 for a planned day-at-sea for cadets of the Officers Training Academy (OTA), Chennai. Subsequently, INS *Khukri* sailed on the same day with relief supplies and arrived off Cuddalore the following day, where it was augmented by a helicopter on 27 December afternoon. Both INS *Ranjit and Khukri* carried out relief operations along the Cuddalore, Nagapattinam, and Puducherry coasts. Search operations requested by district authorities led to the recovery of several missing boats near Cuddalore. After relief operations, INS *Khukri* proceeded to Chennai for operational turnaround before deployment for Operation Gambhir in Indonesia. Islander aircraft were utilized to transport medical supplies to NAS Ramnad and Chennai for further transfer by ships to Indonesia. Helicopters conducted sorties to replenish medical stocks on vessels and provide aerial reconnaissance for media teams. The *IN* helicopter assisted fire officers in controlling a significant fire in Akkirapattai, Tamil Nadu. INS *Ranjit* functioned as the helicopter control ship off Nagapattinam, with the police parade ground converted into an improvised helipad to support operations.

INS *Ranvijay*, carrying a helicopter, operated off Ramayapatnam, where it initially established a medical camp at Pallepalyam village, later shifting it to Krishnapatnam and subsequently establishing additional camps at Durgarajpatnam and Tuplipaliyam. Another medical camp was established at Gangapatinam. INS *Sharabh* conducted relief activities off Maipadu, Muthukur, and Midrevur near Krishnapatnam port.

The Naval Officer-in-Charge (NOIC) Tamil Nadu deployed the entire flotilla of available ships along the Tamil Nadu coast, with SDB units operating off Pulicat and Nagapattinam. Naval Detachments (NAVDETs) engaged in search and rescue (SAR) operations in Palk Bay and near Pulicat Light. Support was provided to NAVDETs at Nagapattinam, Thopputhurai, and Kodikarai, including manpower reinforcement and technical expertise in electrical and mechanical domains to enhance living conditions. They were resupplied with essentials such as drinking water, clothing, cleaning

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materials, bleaching powder, portable generators for electricity, and pumps to extract saline water from wells.

The NOIC at Tuticorin coordinated relief endeavours in southern Tamil Nadu, maintaining liaison with Maritime Operations Centres (MOC) Chennai and Kochi. A 22-member naval contingent, including medical personnel and an ambulance, was dispatched overland to Kanyakumari to carry out SAR and medical aid in villages such as Kottilpadu, Colachel, Muttom, and Azhikal. INFAC T-84 was deployed to conduct SAR operations along the coasts of Kanyakumari, Tuticorin, and Colachel. More than 700 families were evacuated to the Tuticorin Port Trust Building, which fell under NOIC Tuticorin's oversight.

A diving team carried out the removal of fishing nets that had fouled bridge support pillars in Vettar River (near Velankanni). Gemini was made available to the local police authorities for reaching inaccessible areas to remove dead bodies in Vellar River and off Nagapattinam. Extensive diving operations were undertaken by two teams in Chennai, Nagapattinam, Vellar River, Kollam, and Visakhapatnam, for underwater videography, salvage/clearance of underwater obstructions including ropes, anchors and chain cables, assessment of underwater damage to jetty piers, and for assistance in immediate repairs to a floating crane. In Kollam, 19 dead bodies were recovered in response to an urgent request from the state government.

Nine medical camps were established across Nagapattinam, Kanyakumari, and Kollam districts, treating approximately 6,800 individuals. Over 45 tons of relief materials, including provisions, blankets, tents, sheets, generators, clothing, and medicines, were distributed. Daily patient treatment at these camps consistently exceeded a thousand individuals. While INS *Magar* and INS *Jyoti* provided logistical support to deployed relief vessels, *Darshak*, *Sandhayak*, and *Nirupak* contributed to initial disaster relief and also served as hospital ships while conducting hydrographic surveys of channels, ports, and coastlines in affected regions.

Islander aircraft were employed to ferry medical supplies from NAS Ramnad to Chennai, where onward maritime transfer to Indonesia was arranged. Helicopter sorties were carried out in Tamil Nadu and Andhra Pradesh. Naval aircraft were also stationed at INS Rajali and INS Dega as required to support civil administrative needs. Helicopters facilitated the aerial delivery of food packets and replenishment of medical stocks on vessels and at various camps, reflecting the high consumption rate at shipboard relief facilities.

Meanwhile, the relief operations along the Andhra Pradesh coast involved the deployment of naval assets, including INS *Ranjit, Ranvijay, Kirch, Khukri*, and *Sharabh*, supported by naval helicopters. These vessels carried essential medical supplies and specialized diving teams. Small boats and Gemini crafts were utilized to access difficult-to-reach creeks and

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to provide diving assistance as well as transfer supplies ashore. Medical assistance was rendered to over 1,000 individuals by various camps established across the Andhra Pradesh region. Furthermore, diving teams collaborated with the Visakhapatnam Port Trust in conducting underwater search and marking operations for two sunken vessels that had capsized, obstructing the navigation channel.

INS *Ranjit* was positioned off Antarvedi on the morning of 27 December 2004 and commenced relief operations off east Godavari district. Sorties by Kamov helicopters along the coast from Machlipatnam to Visakhapatnam through Sacramento, Antarvedi, Goguleru Creek, Kakinada, and Pudimadaka revealed severe waterlogging and a large number of fishing craft were swept up to 1 km inland. Upon completion, *Ranjit* proceeded to Nizampatnam to rendezvous (R/V) *Kirch*. On 28 December 2004, a medical camp was established in the fishing harbour at Nizampatnam Bay and 700 patients were treated. Kamov sorties were undertaken in adjoining areas in search of marooned fishermen and their trawlers. The Kamov of *Ranjit* was disembarked to INS Dega on 28 December and a helicopter was provided to the ship in lieu. Thereafter, *Ranjit* proceeded to Nagapattinam and *Kirch* was detached to Chennai for Operational Turn Around (OTR). Food and medical facilities were provided at relief camps set up in Godavari, Krishna, Guntur, Prakasam, and Nellore districts.

At the same time, on 28 December, *Ranvijay* set up a medical camp at Nellore at the request of the district collector and *Kirch* set up a medical camp at the Nizampatnam fishing harbour. INS *Sharabh*, on return passage to Visakhapatnam on completion of Defence of Gujarat Exercise (DGX), was diverted to proceed for relief operations off Nellore. INS *Rajput* sailed for relief operations off the Andhra coast and was later diverted to Port Blair.

Operation Madad was conducted simultaneously with Operation Seawaves, which specifically targeted focused relief efforts in the Andaman and Nicobar Islands (ANI). For Operation Seawaves, a total of 16 ships, nine helicopters, and two aircraft were exclusively deployed to carry out humanitarian assistance and disaster relief (HADR) operations within the ANI. Over 234 tons of relief materials, including provisions, blankets, medicines, packaged water, generators, portable reverse osmosis plants, and clothing were delivered. Fourteen relief camps were established across Nancowry and Great Nicobar Islands, collectively accommodating approximately 9,385 individuals. Additionally, naval vessels and aircraft evacuated more than 3,000 people from various islands, while the Indian Air Force facilitated the evacuation of 6,573 individuals to Port Blair and transferred 1,218 others to the mainland. [8]

On 26 December, INS *Gharial* was on transit from Tuticorin to Port Blair for de-induction of troops of the 18 Maratha Light Infantry of the Indian Army along with their vehicles, when it was diverted to Car Nicobar.

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Gharial was the first naval ship to arrive for relief operations at Car Nicobar. *Sharabh,* which was on return passage to Visakhapatnam on completion of Defence of Gujarat Exercise (DGX 2004), provided relief at Nellore before carrying out OTR Visakhapatnam. It embarked relief stores provided by the Government of Karnataka for the Andaman and Nicobar administration, and medical supplies for INHS Dhanvantri at Port Blair. The ship was eventually directed to disembark all the relief stores at Kamorta Island.

INS *Magar* with a helicopter was deployed to the ANI on 27 December. On arrival the next day, the ship launched the helicopter for aerial reconnaissance and airdropped food, water, and relief material. The ship's LCAs transferred more than 14 tons of relief material to Katchall Island. It also acted as a 120-bed, floating, mobile hospital during the relief operations. The ship carried out extensive relief operations at Chowra, Tarassa, Nancowry and Trinkat Islands, utilizing its LCAs and helicopter. It evacuated a total of 1,283 survivors from Chowra Island to the Tarasa Island Relief Camp. It also disembarked 6.4 tons of provisions of water, blankets, durries, and bedsheets at the Tarasa Relief Camp.

Infantry reestablished the road link between Mus harbour and Carnic airfield. On 27 December 2004, the ship also delivered packed food, provisions, medicines, and supplies to the Air Force station at Carnic using Landing Craft Assault (LCA) vessels. Extensive LCA operations continued on 28 December to offload personnel and materials at Mus harbour. In addition to the troops from INS *Kumbhir*, food supplies, personnel, and materials from INS *Cheetah* were also transferred, including Indian Reserve Battalion personnel, medicine packets, dry provisions, clothing, and six evacuees from MV *Nicotrade* and MV *Bay Island*.

Following the completion of its assigned tasks, whilst enroute to Port Blair, INS *Gharial* was diverted to Hut Bay for evacuation of personnel. Along with INS *Rajput* and other vessels of Andaman Nicobar Command, INS *Gharial* arrived at Hut Bay on 29 December. After initial reconnaissance, a suitable landing site was established close to the old, broken jetty. INS *Rajput* evacuated 300 people from Hut Bay while INS *Gharial* performed extensive LCA operations despite adverse weather conditions, and 645 people were evacuated. Notably, among the evacuees were three women in advanced stage of pregnancy, and another who needed an immediate delivery and gave birth on board INS *Gharial*, marking the first emergency childbirth on an Indian Navy warship.

The ship entered Port Blair for OTR on 30 December and after loading 60 tons of relief stores there, proceeded to Campbell Bay to continue relief operations. The helicopter that *Magar* was carrying was transferred to *Gharial*. Enroute to Campbell Bay, *Gharial* launched this helicopter off Butler Bay to airdrop relief stores. On 2 January 2005, *Gharial* conducted extensive aerial operations, using the helicopter to airdrop relief supplies

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across the Nancowry group of islands and to evacuate stranded individuals from Gandhi Nagar in Great Nicobar Island to Campbell Bay. The following day, INS *Gharial* and INS *Rajput* jointly evacuated civilians from Gandhi Nagar. The helicopter and Landing Craft Assault (LCA) units of *Gharial*, along with the helicopter of *Rajput*, were heavily engaged in rescue and relief operations. Nearly 250 people were airlifted from Gandhi Nagar to Campbell Bay helipad, while 160 evacuees transported aboard *Rajput* were shifted from anchorage to the Campbell Bay jetty. On the same day, INS *Cheetah* delivered 90 CRPF personnel, 18.5 tons of provisions, 15 tarpaulins, and 8 tons of relief material in addition to six IRS personnel with rations and stores to Campbell Bay.

On 4 January 2005, the *IN* helicopter continued operations, transferring 143 evacuees from Gandhi Nagar to Campbell Bay. Two scientists from Campbell Bay were transported to Gandhi Nagar as part of the mission. Later that day, *Gharial* reached Nancowry Harbour and conducted LCA and helicopter-based unloading of relief stores. The helicopter was additionally employed for casualty evacuation of a civilian, alongside routine logistics and relief duties. Relief items were offloaded at Kardip, and stores at Tarasa, following which the ship departed for Visakhapatnam.

Meanwhile, the Western Naval Command dispatched INS *Brahmaputra* from Mumbai on 31 December 2004, carrying two helicopters, a medical team, relief material, inflatable boats, and portable generators for deployment in the southern Andaman and Nicobar Islands (ANI). Arriving in Chennai on 3 January 2005 for OTR, the ship embarked additional provisions such as tinned food, refined oil, clothing, and 500 relief kits from NGOs, departing for Port Blair the next day with 18 tons of bottled water. The crew cleaned and filled the forward and aft ballast tanks with 40 tons of fresh water and filled approximately 2,000 jerry cans en route. Based on direct assessments from naval units near Great Nicobar and Katchall Islands, relief materials were delivered to Gandhi Nagar and Shastri Nagar.

Reaching Campbell Bay on 7 January 2005, INS *Brahmaputra* began heli-borne unloading of stores due to unavailability of boats. Two medical camps were set up at a Government Higher Secondary School, where patients were treated for malaria, injuries, and minor ailments, and children received typhoid vaccination. The ship also provided seaward security during the Prime Minister's visit on 8 January 2005. INS *Brahmaputra* departed Campbell Bay on 13 January for Nancowry Harbour, conducting reconnaissance over Katchall Island and initiating boat-based disembarkation of supplies to Kamorta Island. A temporary medical relief camp was organized in a church building, providing healthcare until 15 January, during which patients were treated and children were vaccinated. Water sources were chlorinated and surplus medicines handed over to local primary health centre representatives at Campbell Bay and Katchall.

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INS *Jyoti* transported paramilitary personnel to Kamorta for relief efforts and later sailed to Port Blair with personnel on 12 January 2005, offering logistical assistance to ships in the area as a fleet tanker. Concurrently, INS *Darshak, Sandhayak*, and *Nirupak* operated in the Andaman and Nicobar Islands, conducting survey tasks, relief distribution, and medical aid under operations following Operation Rainbow (East) and Operation Gambhir.

Navy's HADR Response in the Indian Ocean

In addition to addressing issues on India's domestic shores, the Indian Navy also promptly stepped out to extend its support to other tsunami-affected countries in the Indian Ocean Region by launching HADR operations across the Indian Ocean. These consisted of Operation Rainbow in Sri Lanka, Operation Castor in the Maldives, and Operation Gambhir in Indonesia.

The Indian Navy delivered relief supplies and executed 1,063 maritime sorties.[9] In doing so, it showcased exceptional operational readiness, manpower efficiency, technical expertise, and humanitarian commitment during the disaster response. Naval efforts encompassed a wide spectrum of activities including search and rescue missions, evacuation operations, distribution of essential provisions such as food and water, establishment of temporary shelters, and provision of medical aid. Additionally, specialized teams undertook diving and salvage operations, cleared harbours, conducted repair and restoration of essential services, and contributed to long-term rehabilitation and reconstruction efforts, notably through the installation of Bailey bridges. The extensive supply of relief materials—comprising food, clothing, medicines, tents, and potable water—brought substantial relief to the affected communities.

Operation Rainbow, Sri Lanka

Sri Lanka, like other coastal nations in the region, endured the devastating impact of the tsunami. The Indian Navy's swift initial response was equally remarkable. By 1755 hrs on the day of the disaster, the Integrated Headquarters, Ministry of Defence (Navy), had launched Operation Rainbow (East and West), alongside Operations Madad and Castor. Within hours, a naval aircraft reached the Sri Lankan Air Force Station at Ratmalana, carrying a relief team and medical supplies. This marked the first instance of international humanitarian assistance to reach Sri Lanka.[10] Following this, an Indian Armed Forces Disaster Relief Coordination Centre was established at the office of the Defence Adviser, functioning from 26 December 2004 to 31 January 2005.

Two specialized Disaster Assistance and Relief Teams (DART), one each from the Indian Navy and Indian Army, were deployed to Sri Lanka. The 65-member naval DART contingent included mechanical and electrical technicians, carpenters, plumbers, telecommunications experts, medical

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officers, and sanitation specialists. Naval divers conducted extensive underwater operations for salvage, debris removal, and damage assessment at Galle and Trincomalee. The initial naval medical team—arriving aboard the first Dornier—was assigned to Hambantota, where it assisted the Sri Lankan Army in the dignified disposal of approximately 5,500 bodies. Subsequent relief efforts involved four naval medical teams operating across Galle, Trincomalee, Colombo, Batticaloa, and Ampara, providing medical care to nearly 34,000 individuals. In total, Indian Navy vessels delivered over 435 tons of relief materials, including 5.3 tons of medicines, to Sri Lanka.

Operation Rainbow (East)

On 26 December 2004, INS *Sandhayak*, which had been engaged in hydrographic survey operations off Palk Bay, was promptly recalled and redirected to Trincomalee to provide immediate disaster relief assistance. Concurrently, INS *Sukanya* and INS *Khukri*, which had recently arrived in Chennai with cadets from the Officers Training Academy, were prepared for humanitarian deployment. INS *Sukanya*, equipped with an embarked helicopter and loaded with relief materials, sailed for Trincomalee, where INS *Sandhayak* became the first Indian vessel to reach Sri Lanka, entering the port at 1430 hrs on 27 December 2004. Later that day, it was joined by INS *Sukanya*.

Upon arrival, INS *Sukanya* offloaded relief supplies at Trincomalee Harbour and conducted a detailed survey to ensure the harbour's navigational safety. Using its survey motorboat, the crew successfully located displaced boom nets and harbour barriers and identified navigational hazards, including two shoals near the Sri Lanka Navy Dockyard. These were charted and marked, and all buoys dislodged by the tsunami were repositioned and recorded. Subsequently, *Sandhayak* and *Sukanya* were relieved by INS *Kirch* and INS *Ghorpad*, which carried additional relief cargo.

On 29 December 2004, following a brief operational turnaround and the embarkation of relief materials in Chennai, INS *Kirch*—previously engaged in disaster relief near Nizampatnam—was dispatched to Sri Lanka carrying generators, electrical cables, water containers, bedding, and medical supplies. On 1 January 2005, the ship's medical team established a camp at Muttur, treating 300 patients. Over the next 10 days, the team extended services to six refugee camps in Gopalpuram, Nilaveli, Adampodai, China Bay, Sambaltheevu, and Vellore, attending to more than 1,000 individuals. The local health authorities subsequently entrusted the Indian Navy's medical teams with the management of three camps at Gopalpuram, Adampodai, and Periyakulam, serving approximately 750 families.

Two relief teams, each comprising three officers and 25 sailors, were formed to support ground-level efforts. Operating from the Sri Lankan Naval Base, SLNS Vijayaba at Nilaveli, they undertook multiple community

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assistance projects. Another smaller detachment assisted the Kinniya Government Hospital in restoring infrastructure and relocating facilities. Within 10 days, Indian personnel cleared 30 houses of debris, pumped water from 27 wells and four bunkers, and restored several community utilities across affected villages including Gopalpuram and Vellore.

INS *Ghorpad* departed Visakhapatnam on 30 December 2004 with approximately 80 tons of relief supplies, carrying a 65-member team that included officers, sailors, and a technical detachment from the Fleet Maintenance Unit (Visakhapatnam). It established an Indian Navy Relief Camp at Trincomalee and assisted the Sri Lankan Navy in the reconstruction of SLNS *Vijayaba*, which had sustained 80 per cent structural damage. The relief contingent was divided into four specialized groups: rehabilitation and repair, medical, technical support, and logistics. Indian Navy personnel assisted residents in Gopalpuram, Kaachuni, Vellore, Salli, and Sambaltivu with debris clearance, medical outreach, and restoration of power supply infrastructure. The technical unit repaired electrical systems, engines, and boats, and carried out essential carpentry work.

The medical division established mobile clinics across multiple refugee settlements in Muttur, Adampodai, Periyakulam, Sambaltivu, Salli Kovil, Vellur, Irakkandy, Gopalapuram, and Gandhinagar in the Nilaveli region, treating 2,308 individuals. Preventive health measures were implemented to mitigate epidemic risks, and a school health program was conducted in three regional schools, offering medical examinations and treatment. The naval medical unit also restored the functionality of SLNS Vijayaba's sick bay. After completing its initial assignment, INS *Ghorpad* returned to Chennai on 3 January 2005 to embark 90 additional tons of relief supplies, including donations from the Confederation of Indian Industry (CII), before sailing again on 6 January for Point Pedro, arriving in Trincomalee on 7 January.

Throughout the operation, Indian naval crews worked continuously in coordination with the Sri Lankan Navy, which maintained security patrols using coastal patrol craft armed with 12.7 mm and 7.62 mm machine guns. Armed sentries and provost sailors provided round-the-clock jetty security, ensuring safe and uninterrupted humanitarian operations.

Operation Rainbow (West)

This phase of disaster relief operations was largely undertaken by Indian Navy assets based along the western seaboard and, as implied by its title, concentrated on Sri Lanka's western coastline. While INS *Sandhayak* and INS *Sukanya* reached Trincomalee on the eastern side, INS *Sharda* and INS *Sutlej* proceeded to the southwest port of Galle, one of the worst-affected areas. The tsunami had caused significant topographical changes to the seabed, completely disrupting harbour functions. Naval and fisheries installations, along with navigational buoys and channel markers, had either

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sunk, been destroyed, or displaced. The devastation was further exemplified by the sight of the Sri Lankan Naval Ship SLNS *Parakrambahu*, which had capsized by 60 degrees and ran aground alongside the jetty. In response, Galle Harbour was declared non-navigable and temporarily closed on 26 December 2004.

The Indian Navy initiated large-scale clearance and restoration work. Four Gemini craft, equipped with two officers, 10 divers, and diesel-driven pumps, were deployed to clear debris and pump out water, while a survey motor boat from INS *Sutlej* conducted a detailed hydrographic assessment of the harbour. This mission was later reinforced by INS *Sarvekshak* and INS *Jamuna*. Despite adverse weather and challenging sea conditions, the operations were completed swiftly through the dedicated efforts of Indian naval specialists. By 4 January 2005, Galle Port was declared open, marked by the berthing of INS *Sarvekshak* at the New North Jetty and INS *Sutlej* at the Closenberg Jetty. *Sutlej* and *Sarvekshak* also established two medical camps in Galle, jointly treating nearly 9,000 patients, with naval helicopters facilitating the transport of relief and medical teams who worked in coordination with the District Medical Officer to restore essential healthcare services.

At the same time, INS *Aditya* arrived in Colombo on 31 December 2004 with approximately 16.8 tons of relief material, including provisions, tents, and potable water, which were handed over to local authorities. Its medical unit, comprising seven doctors and 12 paramedics, was deployed ashore before the ship sailed to Male for Operation Castor. Additionally, INS *Nirdeshak* was repurposed as a hospital ship within 72 hours, embarking a Technical Support Platoon from INHS *Asvini* and a helicopter. After rendering assistance at Chennai and Meulaboh, Indonesia, it reached Colombo on 13 January 2005, unloading 40 tons of relief material. It further handed over medical and hygiene packages to Sri Lanka's Ministry of Health.

INS *Khanjar*, carrying medical stores from INHS *Kalyani*, arrived on 9 January 2005. Embarking relief stores, along with 103 Army Composite Team personnel—including engineers, signal corps members, and medical staff—the ship initially sailed for Meulaboh to relieve INS *Khukri* but was redirected to Colombo, arriving there on 13 January. Seventy tons of dry rations were offloaded for distribution in the Ampara district before the ship returned to Kochi on 16 January for disembarkation of the embarked army and medical teams.

INS *Taragiri* sailed from Mumbai on 11 January, carrying diving and medical personnel, supplies, and a helicopter. After a brief stop at Kochi for operational turnaround, it entered Galle on 17 January. The ship carried out extensive reconstruction and rehabilitation tasks, including underwater inspections, repair of fishing trawler engines, restoration of wells, and

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strengthening of medical infrastructure. Its teams also participated in repairing the offices at SLNS Dakshin and supported a medical camp at Closenberg Hotel, treating hundreds of patients and chlorinating open wells.

Working jointly with the Indian Army, the naval team set up nine relief camps across Rejipura and Televatha. Between 19 and 29 January 2005, they constructed cooking facilities and sanitation units at Kahawe and Televatha, treated hundreds of patients at Dudanduva, repaired wells at Seenigama, and provided welding support to an American vessel docked in Galle. They also pitched tents, built sewage pits, refurbished Sudarma School, and overhauled fishing trawler engines. The diving unit further carried out underwater bridge inspections for the railway department, while engineering personnel restored a damaged water pipeline between Wellvetta and Seenigama and cleared seven more wells in the Hikkaduwa region.

As relief operations stabilized, Indian Armed Forces assets were officially placed under the operational direction of Sri Lankan authorities. Uniquely, Indian personnel lived and worked alongside Sri Lankan troops in their facilities, unlike foreign contingents accommodated in hotels. Their exemplary assistance and cooperation led to the Indian team becoming the only military delegation to be accorded a special audience with the President of Sri Lanka at the Presidential Palace.

Operation Castor, the Maldives

Although the Maldives did not experience devastation on the scale of Indonesia or Sri Lanka, it nonetheless sustained considerable damage from the tsunami. Under Operation Castor, three ships from the Indian Navy's Western Fleet—INS *Mysore*, INS *Udaygiri*, and INS *Aditya*—were deployed alongside four helicopters and a Coast Guard Dornier aircraft to support relief efforts. INS *Mysore* and INS *Udaygiri* departed Mumbai for Male on 26 December 2004, carrying a Mobile Surgical Technical Support Platoon (MSTSP), an operation theatre kit, diving teams, tents, medical supplies, rations, and packaged drinking water. Each vessel was equipped with a helicopter, while INS *Mysore* additionally embarked a maritime patrol helicopter off Kochi to enhance aerial relief operations.

INS *Aditya* departed Mumbai a day later, on 27 December, functioning as a depot and support vessel. It carried supplementary relief materials to resupply the deployed naval units and was equipped with a shipwright workshop for conducting first-line maintenance on fleet assets. The ship was also prepared to serve as a hospital vessel, fitted with an eight-bed sickbay and staffed by seven medical officers and 12 medical assistants. INS *Mysore* was the first to arrive at Male, reaching the port at 0800 hrs on 28 December 2004.

From 29 December 2004 to 2 January 2005, the Western Fleet ships carried out relief operations across the Mulaku, North and South Nilandhe,

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Kolhumadulu, Hadhdhunmathi, and Huvadhoo Atolls. These efforts covered 53 islands over an operational range of approximately 598 nautical miles. Each phase of the mission was preceded by aerial reconnaissance or site surveys and close coordination with the respective atoll chiefs to ensure targeted delivery of humanitarian assistance.

A joint Maritime Coordination Committee was established comprising personnel from the Indian Navy and the Maldives Coast Guard to streamline relief operations under Operation Castor. At the same time, two Pakistan Navy vessels on a goodwill visit to the Maldives were also engaged in coordinated humanitarian efforts. Through effective liaison, operational efficiency was maintained by clearly demarcating areas of responsibility—Pakistan Navy ships were tasked with operations in the northern sector while the Indian Navy operated in the southern sector—to avoid overlap or interference in mission activities.[11]

Relief measures undertaken included the distribution of medical aid, establishment of community kitchens, disinfection of water sources through chlorination, and debris clearance to prevent potential epidemics. Essential supplies, such as food provisions, medicines, and packaged drinking water, along with additional relief material, were distributed across various islands using naval ships, aircraft, and helicopters operating from Male.

Owing to the geographical positioning of most inhabited islands along the eastern edges of their atolls, operations had to be conducted from the weather-exposed eastern side. Adverse sea and wind conditions rendered Gemini craft operations impossible, necessitating complete reliance on helicopter sorties for transfer of personnel and supplies. Skilled navigation through uncharted coral waters, efficient use of helicopters for aerial delivery, and the coordinated employment of locally hired *dhoni*s (traditional sailing vessel) for the simultaneous conveyance of relief materials demonstrated the Indian Navy crew's adaptability, professionalism, and commitment under challenging conditions.

Operation Gambhir, Indonesia

Operation Gambhir, launched by the Indian Navy as part of India's humanitarian response to the 2004 Indian Ocean tsunami, aimed to provide relief assistance to Indonesia's Aceh province. On 31 December 2004, two naval vessels—INS *Nirupak*, a hydrographic survey ship converted into a hospital ship and equipped with a helicopter, and INS *Khukri*—were dispatched to the affected region. Together, they carried essential relief material, including food provisions, medicines, drinking water, and clothing, and reached the vicinity of Meulaboh on 5 January 2005. Located along the southern coast of Aceh and approximately 40 nautical miles from the earthquake's epicentre, Meulaboh had suffered near-total devastation, with waves inundating the town up to 3 km inland and claiming more than half its population.

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During transit from Visakhapatnam, INS *Nirupak* was reconfigured to include an onboard operating theatre and specialized medical wards. INS *Khukri* carried additional relief material and medical supplies. A replenishment-at-sea was conducted on 4 January with INS *Jyoti* and INS *Khukri*, during which an Mk-II airborne stretcher was airlifted from *Khukri* to *Jyoti*, and *Nirupak* refuelled from the tanker. Initially assigned to Great Nicobar Island, *Nirupak* was redirected to Meulaboh following revised operational orders. It arrived off Meulaboh Port on 5 January 2005, anchored near Meulaboh Light, and offloaded relief supplies and a medical team, which immediately established a shore-based relief camp to begin humanitarian operations.

With the local civil administration in collapse, the Indonesian Army and Navy coordinated relief activities. The Indonesian Navy facilitated unloading by providing a Landing Craft Vehicle Personnel (LCVP) and two fishing boats to transfer supplies from Indian Navy ships, as the Rigid Inflatable Boats (RIBs) and survey boats from INS *Khukri* and INS *Nirupak* were unsuitable for the shallow coastal areas. Additional assistance came from Singapore's RSS *Endurance*, which provided two fishing craft and an LCVP to support offloading operations on 9 January. To optimize the limited aviation fuel (AVCAT) available on-board INS *Nirupak*, refuelling for the helicopter was carried out from INS *Khukri*, ensuring continuous aerial relief and medical evacuation efforts.

Following their arrival off Meulaboh, the executive officers of INS *Nirupak* and INS *Khukri*, along with the officer-in-charge of the Indian Naval Medical Team, were joined by the defence attaché from the Indian embassy in Jakarta to conduct an initial reconnaissance of the affected area. On 6 January 2005, a medical camp was established in tents at Masjid Agung to provide primary healthcare to survivors. Basic medical treatment was conducted ashore, while critical or surgical cases were transferred to INS *Nirupak* for specialized care. The camp was relocated to a nearby house on 7 January to facilitate better accessibility and operations.

On 8 January, the Indian medical team participated in a comprehensive coordination meeting held at the government hospital, which included representatives from multiple relief agencies, notably the Indonesian Health Services, Tentara Nasional Indonesia (TNI), Singapore Armed Forces (SAF), Japanese Red Cross, Korean Red Cross, and Médecins Sans Frontières (MSF). This collaboration aimed to synchronize medical aid efforts and allocate resources efficiently across Meulaboh.

By 9 January, INS *Nirupak* resupplied its shore-based facility with additional medical stores to support operations at the government hospital. The mission was subsequently strengthened through the installation of a field anaesthesia unit in the hospital's dressing room, effectively creating a minor operating theatre. Further infrastructural improvements included the

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establishment of a sanitary landfill and a blood transfusion unit on 12 January 2005, with operations managed by the Indian Navy's blood transfusion technician. On the same day, INS *Khukri* departed for Visakhapatnam upon completion of its assigned tasks.

A coordination review was conducted on 13 January under the supervision of Dr. Shannon Doocy, the United Nations Coordinator for medical relief in Aceh Province. During this meeting, supply requirements and shortfalls of all participating organizations were identified and addressed. Relief priorities also transitioned from emergency medical response to restoring safe living conditions and supporting the return of displaced populations to their homes and livelihoods.

On 14 January, the Indonesian Centre for Disease Control and Prevention launched a large-scale immunization drive with participation from members of the Indian medical mission. A child registry was simultaneously created to document orphaned and displaced minors, while the Indian medical unit submitted daily epidemiological reports on communicable and notifiable diseases to local health authorities. Upon successful completion of its relief mandate, INS *Nirupak* departed Meulaboh at 1600 hrs on 17 January 2005 and proceeded to the Andaman and Nicobar Islands to reinforce ongoing humanitarian operations there.

During the course of Operation Gambhir, the Indian medical camp treated patients—many among the displaced population, who had been relocated inland after the tsunami, availed themselves of the medical services provided at this facility. Critical patients requiring advanced medical intervention or surgical procedures were transferred to the hospital ship INS *Nirupak* for specialized treatment.

In addition to providing direct healthcare services, the camp supplied essential medicines and dressing materials to the Meulaboh General Hospital and Singapore Medical Mission. The Indian medical contingent also established diagnostic facilities ashore, including units for clinical screening, blood grouping, and radiological examination. Close coordination between Indonesian health officials and Indian medical professionals ensured efficient allocation of resources and a harmonized approach to disaster relief operations.

The aerial component of the mission was equally significant. The ships' helicopters conducted 30 sorties, amounting to a total of 2,220 flight hours. Overall, 90 landings were executed at the medical camp site and 100 deck landings on the ships, facilitating continuous transfer of personnel, supplies, and medical equipment throughout the relief effort.

Lessons Learnt

Following the completion of immediate Humanitarian Assistance and Disaster Relief (HADR) operations, the Eastern and Western Naval

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Commands (ENC and WNC) compiled detailed reports outlining the logistical, operational, and infrastructural challenges encountered during the execution of relief missions. These assessments could serve as a strategic framework for addressing such challenges in the future:

- Earthquakes and tsunamis strike without warning. Hence a Tsunami Warning System and broadcast measures are required to avert damage to life and property.
- A well-defined disaster management plan aimed at smoothening joint operations undertaken by civil and military agencies as well as NGOs was prepared. Emphasis was laid on constructing buildings in seismic sensitive areas as per the architectural/design requirements in those regions.
- Survey ships can sustain at sea for prolonged periods. Moreover, because a tragedy involving damage to the ports/ shoreline/seabed requires the quickest response, it can be provided by specialized personnel and equipment on a survey vessel. Hence, survey ships were found to be suitable platforms for relief operations. Further, availability of survey facilities like specialized tentage, boats and, most importantly, their designed capability to be converted to hospital ships make them even more ideal. A Landing Platform Dock (LPD) with a large helicopter deck and crane facilities, medium and heavy lift–capable helicopters, massive hangarage for stocking vehicles and food/rations, medicines, bedding, tents, etc., is another asset to relief operations and the Navy. LPDs also carry multiple LCAs or air cushion vessels (hovercrafts) which can be landed ashore with huge quantities of material as well as personnel, without the need of jetties.
- It takes extensive effort and time to restore a paralysed communication system in the aftermath of a disaster. There is, therefore, a necessity to establish an interim communication system in the form of a containerized communication node for effective relief operations. For instance, INMARSAT mobile terminals/mobile phones may be made available for prolonged aircraft/relief detachments, especially in foreign countries.
- The Indian Navy's rations are issued in bulk. Breaking them into smaller packets requires time, effort, and packing material. What is needed, therefore, is MRE, or heat-and-eat food in packets as also water in PET bottles/ sachets, composite food, toilet rolls, and towels, and polythene sheets/bags.
- The relief stores need to also cater to temporary shelter and damage control items. More importantly, the items, of proper quality, need to be procured and stocked for ready use at MOs. The stores should also be packed in such a way as to enable easy transportation, embarkation/

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disembarkation, and should have adequate storage life. Composite relief package should consist of daily-need items like buckets, mugs, toothpaste/brushes, daily clothing, etc., and adequate, easy-to-install, lightweight tentage.

- It was found that the relief stores with which the ships departed base ports were medical war stores, which were of limited use in a tsunami-hit area. The medical stores should thus be customized to meet disaster-relief requirements. The standard disaster medical "bricks" (pre-packed/predetermined packets) are of 600 kg. However, medicines need to be packed in such a manner that they are available every day in smaller quantities. Medical bricks must also include medicines to treat patients with chronic illness such as diabetes, hypertension, IHD, epilepsy, etc.

The Andamans after the Tragedy

The Andaman and Nicobar Islands (ANI) bore the brunt of the 2004 tsunami, suffering extensive loss of life and widespread destruction of infrastructure. The relief and reconstruction process faced considerable challenges owing to mass departure of the labour force following the disaster and acute shortage of construction materials required for rebuilding activities. Despite these constraints, the Indian Navy and Coast Guard swiftly restored operational capability at critical maritime and air facilities, including jetties and airfields at Port Blair, Car Nicobar, and Diglipur. Comprehensive and multi-pronged efforts were subsequently initiated to reconstruct damaged assets and upgrade existing infrastructure as part of the long-term rehabilitation and rebuilding programme.

The MILAN series of multinational naval exercises, traditionally hosted biennially by the Indian Navy at Port Blair, had initially been scheduled for February 2005, shortly after the disaster. To allow adequate time for recovery and rehabilitation, the event was deferred to 2007. However, given the rapid pace of reconstruction and the significant progress achieved, a deliberate decision was made to advance the exercise to January 2006 as a symbolic demonstration of restored normalcy in the islands. Conducted from 9 to 14 January, MILAN 2006 saw participation from eight nations—Australia, Bangladesh, Indonesia, Malaysia, Myanmar, Singapore, Sri Lanka, and Thailand. With a total complement of eight ships, 20 officers, 802 sailors, and 21 civilian representatives, it constituted the largest assembly of naval forces in the MILAN series up to that point, reflecting both regional solidarity and the resilience of post-disaster recovery efforts in the islands.

Asset-deployment in the ANI

Ships: On an average, in the first six weeks since the tsunami, 14 to 16 warships were deployed at any given time. They transported construction

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material from the mainland as well as between the islands. Further, heavy engineering equipment, including 57 special vehicles, were transported by Indian Naval Ships in a total of 109 voyages.

Air Traffic: There was an exponential increase in air traffic, with a record 94 planes landing or taking off from Port Blair Airport on 31 December 2004, compared to a maximum of 10–12 flights a day. Between 27 and 31 December 2004 and during the month of January 2005, 30 to 80 sorties were handled each day at INS *Utkrosh*, Port Blair. By 30 April 2005, a total of 1,477 air sorties were undertaken in the islands, wherein 1,860 tons of stores were airlifted—a record in itself—whether in disaster relief operations, or any other contingency, in India.

Stores: The quantum of stores procured, transported and distributed during this HADR operation was massive. Based on the requirements projected by HQ ANC, 25 tons of packaged water and 29 portable generator sets (gensets) were procured at Visakhapatnam on the night of 26–27 December 2004. A total of approximately 150 tons of potable water was distributed during the operation and 2,800 tons of essential supplies, 5,700 personnel, 57 vehicles, engineering and plant equipment were moved and trans-shipped, to or from, the Southern Group of Islands.

Indian Navy: The First and Largest Responder

The Indian Navy responded to the 2004 Indian Ocean tsunami with remarkable swiftness and operational precision, mobilizing its assets to deliver humanitarian assistance and disaster relief (HADR) across affected areas. The experiences and insights gained during these extensive operations have since shaped the Navy's institutional approach, transforming it into one of the most capable and reliable providers of humanitarian relief not only within the Indian Ocean Region (IOR) but also beyond. The efficiency, speed, and professionalism shown during the mission inspired confidence both domestically and internationally, earning global acclaim for India's effective and large-scale response to a natural calamity of unprecedented magnitude.

In the words of the former US Secretary of State, Condoleeza Rice: "There are countries like India that have emerged in recent years as major factors in the international economy, in international politics, taking on more and more global responsibilities. I was really quite interested in the fact that when we had the tsunami cooperation, which was a kind of ad-hoc arrangement for a while, to respond to the immediate needs of tsunami, India was able, I'm told, to mobilize its ships and go to sea in about 48 hours or so. That's extraordinary, and that shows that India's potential is very great to help resolve humanitarian and other needs for the world, and so, we will continue to talk with people about Security Council reform, reform of the UN, but clearly we also note that there have been great changes in

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the world and that international institutions are going to have to start to accommodate them in some way."[12]

The Indian Navy's inherent attributes of mobility, perseverance, and adaptability proved instrumental during these operations, reaffirming its role as a dependable first responder in times of crisis. Former Vice Chief of Naval Staff, Vice Admiral (Retd.) S.N. Ghormade, credited the 2004 tsunami response as a transformative moment in India's maritime and diplomatic engagement, noting that "Tsunami response marked the beginning of India's recognition as a dependable partner in the region. The success of these operations established the Indian Navy as the first responder in the Indian Ocean Region (IOR), a reputation it has built upon in subsequent missions".[13]

Reflecting on the event, Commodore G. Prakash highlighted that prior to 2005, the Indian Armed Forces were effectively the only national institution capable of delivering large-scale disaster relief across the country. "An empowered national set-up, with an effective structure and trained manpower, was missing. It was the unprecedented Indian response to the Tsunami of December 2004 that changed all that. The world sat up and took notice when India, despite her own damage in the Tsunami, deployed its Armed forces to Indonesia, Sri Lanka and the Maldives within 24 hours of the tragedy. Even the Americans in the Indian Ocean region had not reacted by the time the Indian Armed Forces were in action abroad," he added.[14]

Recounting his personal experiences as the commanding officer of INS *Taragiri*, which led relief operations at Galle, Sri Lanka, Commodore Prakash described the mission as both challenging and deeply rewarding. "Working in an area of 600 sq km in the Hikkaduwa region, setting up IDP camps, cleaning hundreds of wells, restoring electricity and water supply, repairing fishing boats, checking out railway bridges for damage, distributing food, rebuilding infrastructure, and conducting medical camps, in close cooperation with the local administration and the Sri Lankan Navy, was an experience that at least two generations of Sri Lankans will not forget. The goodwill that results from such events strengthens bilateral relationships like nothing else," he explained.[15]

Notes

1. See https://sos.noaa.gov/datasets earthquakes-2001-2015/, accessed on 12 September 2025.
2. As per NASA imagery and model calculations, the tsunami should have, mathematically speaking, decreased the length of the day by 2.68 microseconds.
3. Report by Directorate of Naval Operations, Naval Headquarters, at Naval History Division.
4. Air Commodore Nitin Sathe, *A Few Good Men & The Angry Sea: Tsunami 2004, The IAF Story*, Vitasta, New Delhi, 2015, p. 91.
5. Chennai Port is the primary port for cargo, logistics, and even personnel/families moving to Port Blair. In the event of any contingency requiring movement of armed forces/heavy

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and voluminous equipment, it is Chennai which is nominated as the mounting base for such operational logistics to be conveyed by naval or leased merchant vessels.

6. Sathe, *A Few Good Men & The Angry Sea*, p. 91.
7. Ibid.
8. Ibid.
9. *Annual Report 2004-2005*, Ministry of Defence, Government of India, p. 202. https://mod.gov.in/en/annual-report-archive, accessed on 15 September 2025.
10. Report of the Defence Adviser at the High Commission of India, Colombo, held at Naval History Division.
11. In accordance with the directives of the *IN* team, the Maritime Coordination Centre established the sectors of responsibilities for *IN* and PN for relief operations to avoid mutual interference.
12. See US Dept of State Archive, https://2001-2009.state.gov/secretary/rm/2005/43490.htm, accessed on 10 September 2025.
13. S.N. Ghormade, "The Indian Navy's Humanitarian Role: Strategic Soft Power in Action", The Diplomat, 24 July 2024, https://thediplomat.com/2024/07/the-indian-navys-humanitarian-role-strategic-soft-power-in-action/, accessed on 31 October 2025.
14. Records held at Naval History Division.
15. Farheen Hussain, "India's Internal Disaster Management Has Improved, Contribution to Global Relief Significant: Experts", *The Times of India*, 25 May 2021, https://timesofindia.indiatimes.com/india/indias-internal-disaster-management-has-improved-contribution-to-global-relief-significant-experts/articleshow/82941826.cms, accessed on 31 October 2025.

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Chapter 12

Operation Sukoon, 2006

On 12 July 2006, hostilities broke out between Israel and Hezbollah following the abduction of two Israeli soldiers. The conflict escalated rapidly, with Israel launching extensive air strikes across southern Lebanon. Within hours, the situation deteriorated into a full-scale war, leaving thousands of civilians trapped amidst the violence. Among them were a large number of Indian nationals residing and working in Lebanon, most of whom suddenly found themselves in a war zone with limited means of escape. Recognizing the urgency, the Government of India directed the Indian Armed Forces to undertake an emergency evacuation operation to bring its citizens back.

Between June and July 2006, four ships of the Indian Navy's Western Fleet,[1] the destroyer INS *Mumbai,* the frigates INS *Brahmaputra* and INS *Betwa,* and the fleet tanker INS *Shakti,* constituting Task Group (TG) 54.1, were deployed on an overseas mission to the Mediterranean Sea under the command of Rear Admiral Anup Singh, with the Flag Officer Commanding Western Fleet (later Vice Admiral and C-in-C) embarked on the flagship *INS Mumbai*, leading the group's goodwill visits and naval interactions.[2]

As the task group headed south through the Suez Canal, the Naval Headquarters gave orders to redirect the ships back to the Mediterranean to begin evacuation operations. However, transit through the Suez Canal was a major logistical challenge as it requires significant fees, advance notice, and special diplomatic clearances, especially for warships. Therefore, trying to invoke the urgency clause for the Suez is more complex than entering/leaving any foreign port. This meant hectic parlaying at the politico-diplomatic level which succeeded, and all four ships of TG 54.1 were accommodated in the northbound convoy the very next morning.

Port of Embarkation

The Naval Headquarters instructed the Fleet Commander to proceed towards Tripoli (Tarablus) in northern Lebanon, a location considered safer and farther from the escalating hostilities. As the reverse transit through the Suez was coming to an end, the port of embarkation was revised by Naval Headquarters to the capital port city of Beirut even though the fighting was closest to that port and the entire city seemed to have been abandoned by the locals. Realizing that the evacuation was to take place from an active combat zone, with no clear perspective of the actual situation, the Fleet Commander directed his force to the highest state of combat readiness. Operation Sukoon was eventually launched on 19 July 2006.

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The next set of orders focused on the urgent task of replenishing essential supplies. The second directive passed by the Fleet Commander related to enhanced Force Protection Measures (against terrorist acts as well as an attack under mistaken identity). Rules of Engagement and Weapon Policy for actual battle were also promulgated.[3] The following set of orders related to logistics, which were as important as combat-related instructions. The most urgent requirement was stocking up victuals and fresh provisions as the duration of involvement in the war zone was unknown. Each ship embarked nearly two tons of provisions from a boat tied up alongside, but propelling on its own as the ship moved through the canal.

Communication with the Missions

The movement of the convoy enroute to Tripoli (which was later changed to Beirut) was communicated to the Indian Missions at Beirut (Lebanon), Tel Aviv (Israel), Larnaca (Cyprus) and Cairo (Egypt). The offensive in Lebanon followed a day of heavy fighting, in which the Israelis suffered their worst losses on the border in several years.[4] After Israel launched large-scale military operations on 13 July 2006, the Indian Navy, through the Defence Attaché in Tel Aviv, promptly obtained the necessary clearances from the Israeli Defence Forces (IDF) to ensure safe passage towards Beirut.

Israel's Blockade and Entry into Beirut

As the conflict reached its peak, Israel imposed a strict naval and aerial blockade around Beirut, cutting off access to the port city and enforcing control with intensity. The blockade zone stretched roughly 70 nautical miles (nm) west and 58 nm south of Beirut. The seriousness of the blockade can also be gauged from the fact that apart from Israeli naval vessels, the Israeli air force had F-16s maintaining intense air activity to further enforce deterrence. Even helicopters of the IDF were seen on offensive patrol. The IDF cautioned that any vessel breaching the blockade without permission would be targeted by Israeli forces. A designated entry point on the western edge allowed passage for friendly warships with prior clearance. Guarded by Israeli naval ships, the blockade was total and highly effective. The blockade follows wide-ranging Israeli air raids on southern Lebanon, which killed at least 35 civilians.[5]

The Indian Task Group obtained clearances through India's diplomatic channels. Not only was naval diplomacy at work (the Task Group had just completed a four-day Overseas Deployment [OSD] and interaction with the Israeli Navy in June 2006 in Haifa), but more importantly, India's relations with Israel were marked by friendship and trust, with growing interactions in all fields—civil and military. Similarly, India's strong diplomatic ties with Lebanon proved crucial in securing approval for TG 54.1 to use Beirut harbour for the evacuation.

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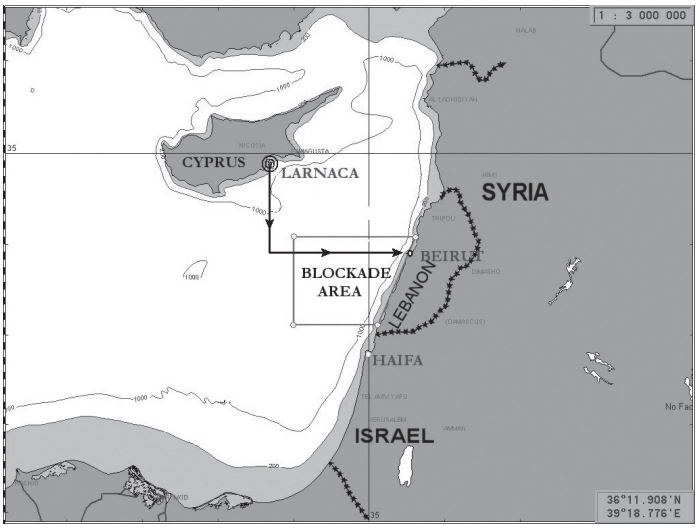
Fig 12.1: Map Showing the Blockade



Source: Naval History Division, Indian Navy

By 0220 hrs on 20 July, while still at a distance from the blockade, TG 54.1 started communicating with the IDF for entry through the gate. The TG intended to make a quick ingress into Beirut via a north-western corridor. The Israeli Air Force started to pound the area in Beirut where Hezbollah had its powerbase. Entire neighbourhoods were reduced to rubble. After coordinating with the Israeli Navy, the Task Group entered the blockade from the north at 0415 hrs on 20 July, reaching the gate by 0500 hrs before proceeding eastward into Beirut. Throughout the passage, all ships remained at Action Stations, weapons ready, to guard against any potential attack from mistaken identity.

The Port City: Inside Beirut Harbour

Media reports and the Embassy of India in Beirut had indicated heavy bombing in southern Lebanon, with the situation worsening by the day. Exercising utmost caution, it was decided that INS *Mumbai*, the flagship and most heavily armed ship of the Task Group, would enter the harbour first. The Fleet Commander would personally assess conditions on the ground before approving a full-scale evacuation. The port looked like a ghost town, silent and deserted, except for Lebanese Army patrols along the waterfront. Large parts of the city were experiencing power outages due to damage to infrastructure following the war. The port was actually closed down except for vessels involved in evacuation.

The Fleet Commander had decided that only one ship would be positioned in Beirut harbour at a time. Following this plan, INS *Mumbai*

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entered the harbour on 20 July. Upon arrival, the crew secured the embarkation area, while the Evacuation Liaison and Coordination Team (ELCT) set up desks on the jetty to screen, register, and verify evacuees' documents. Embarkation completed, *Mumbai* headed at best speed to arrive at Larnaca in Cyprus before the dawn of 21 July. This was done as the Navy and MEA had arranged for two Boeing 747s to fly the evacuees from Larnaca to Mumbai and Chennai each day.

The Evacuation

Operation Sukoon was launched on 19 July 2006[6] to evacuate Indians, nationals of Sri Lanka and Nepal, and Lebanese nationals with Indian spouses. The conflict between Israel and Hezbollah militants intensified, with Israel taking the route of a military offensive. Over the course of 11 intense days, the Indian Navy carried out four rounds of evacuations[7] under Operation Sukoon. From the war-torn port of Beirut, evacuees were ferried to Larnaca in Cyprus, where Air India flights awaited.

- **First Evacuation (20-21 July):** The evacuation was carried out by *Mumbai*. A total of 608 evacuees, including six Nepalese, two Americans (PIOs), one Sri Lankan, and three Lebanese nationals were saved.
- **Second Evacuation (22-24 July):** Three ships—INS *Mumbai* (445 evacuees), *Brahmaputra* (188 evacuees), and *Betwa* (254 evacuees)—were involved in the evacuation. They brought out 887 evacuees from Lebanon, including 57 Sri Lankan, 41 Nepalese and five Lebanese nationals. Of these, 34 Sri Lankans could not be flown out of Larnaca as the Air India chartered flight was filled to capacity. These foreign nationals were retained onboard *Shakti* for two days before being flown out by the next chartered flight.
- **Third Evacuation (26-27 July):** Although the Indian ambassador in Beirut had indicated the presence of a large number of evacuees, only 374 people came forward for embarkation on *Mumbai* for the third evacuation. They included 54 Sri Lankans (all female) and 16 Nepalese nationals.
- **Fourth Evacuation (29-30 July):** *Betwa* carried out the fourth and final evacuation as *Mumbai, Brahmaputra,* and *Shakti* set sail for Port Said. *Betwa* successfully evacuated 411—primarily non-Indian nationals (324 Sri Lankans and five Nepalese).

Before concluding Operation Sukoon on 1 August 2006, INS *Betwa* made a final voyage, delivering 65 tons of relief material from Larnaca to Beirut. In the words of the Fleet Commander, "Every evacuee who voluntarily wanted to come out was evacuated to safety." Operation Sukoon witnessed the evacuation of a total of 2,280 stranded people from Beirut.

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War in the Air

On 23 July 2006, a heavy bombing raid over South Beirut caused deafening explosions, the tremors of which were felt even aboard INS *Brahmaputra*, which was then departing with evacuees. Israeli F-16 airstrikes were also sighted over Tripoli and Beirut, proving that the Indian ships were operating in an active war hotspot. During 22–24 July, three Indian Naval ships were kept in a waiting area outside the harbour while one ship proceeded inside.

Hospitality and Responsibility

Despite limited space, the crew ensured every evacuee was cared for with dignity. The ships' staff doubled and tripled up in the available space to ensure that the evacuees were comfortable and felt at home. Preparations were made for checking of documentation, validation of identity, screening of baggage, and luggage management. The logistics required careful planning, as the ship's galley had to prepare meals for more than twice its usual number of people, while separate toilet facilities had to be arranged for women.

Fig 12.2: Indian Navy Personnel Offering Help with Dignity



Source: Naval History Division, Indian Navy

Arrangements at Larnaca Airport

At Larnaca Airport, the departure area had a limited capacity of 2,500–3,000 people. However, during the first two sets of evacuation by the Indian Navy on 21 and 24 July, around 10,000 to 12,000 evacuees of distinct nationalities crowded the terminal. Amid this chaos, the presence of the Indian Navy's pre-designated Airport Coordination Team proved invaluable.[8] They efficiently

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organized, guided, and assisted evacuees from India, Sri Lanka, and Nepal, ensuring calm and order in an otherwise overwhelming situation.

Diplomatic Support and Media Presence

The Indian Ambassador Nengcha Lhouvum in Beirut and High Commissioner of India Neelam D. Sabherwal in Cyprus coordinated tirelessly during the operation. In addition, Col Ajay Talwar, Defence Attaché, Turkey (accredited to Lebanon), urgently routed himself from Ankara via Damascus and reached Beirut just in time for coordination with the TG. Similarly, the efforts of Col Rajiv Anand, DA, Cairo, were most appreciated in his liaison work with the Suez Canal Authority as well as the Egyptian Ministry of Defence. Being accredited to Cyprus, he promptly arrived at Larnaca before the TG brought the first batch of evacuees, and assisted the Indian Mission in liaison thereafter.[9]

Indian media personnel from Star News, NDTV, Aaj Tak/Headlines Today, CNN-IBN and other international and local media extensively covered the disembarkation of evacuees. Six Indian media personnel were also embarked on *Mumbai* for onward passage to Beirut to cover the war on land and the subsequent evacuations.

A Landmark Operation for Indian Navy

Operation Sukoon was one of the first large-scale evacuation missions conducted by the Indian Navy in an active war zone, nearly 4,000 nm from home. The operation's success reflected meticulous planning, coordination, and India's strong diplomatic relations with Lebanon, Israel, Cyprus, and Egypt. Continuous dialogue between the Fleet Commander, the Ministry of External Affairs, and Indian missions abroad ensured the ships' safe transit through the blockade and protection during their stay in Beirut.

A key requirement in such operations is securing diplomatic clearances for safe transit through blockade zones and port entry. This was achieved through constant coordination between the Fleet Commander, IHQ MoD (N), MEA, and Indian missions in Lebanon, Israel, Cyprus, and Egypt. Further, it is to the credit of India's very warm relations with Egypt that special arrangements were made at extremely short notice on 17 July for the TG to return with the next morning's convoy in order to re-enter the Mediterranean.

India's Naval ships transited safely through Beirut thanks to continuous diplomatic coordination with Israel and Lebanon, ensuring a brief window of security. In particular, the IDF ensured that no raids or direct attacks were launched at Hezbollah hideouts close to the Beirut harbour while the Indian Naval ships were present. India's strong ties with Cyprus and the High Commissioner's close rapport with local authorities ensured smooth and priority clearance for all evacuees brought in by TG 54.1.

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Operation Sukoon was unique in that the Indian fleet, while not engaged in combat, remained fully combat ready and took all defensive precautions. Evacuees were transported to Cyprus, from where chartered Air India flights completed the air–sea bridge to India. The operation earned widespread recognition for India and its Navy. Hailed by international media as "the biggest evacuation after Dunkirk",[10] Operation Sukoon demonstrated the Indian Navy's capability to operate 4,000 nm from home in hostile conditions to rescue Indian and foreign nationals. As one of the few Asian countries to undertake such a mission, it brought immense pride to the country and the Indian Navy.

Notes

1. Around the same time, four Indian warships were in the Mediterranean Sea returning from a "goodwill" trip to Greece, https://maritimeindia.org/the-indian-navy-and-indias-overseas-citizens-operations-sukoon-and-rahat/#_ftnref5, accessed on 19 October 2025.
2. Vice Admiral Anup Singh, *Blue Waters Ahoy! The Indian Navy 2001–2010*, HarperCollins, New Delhi, 2018, p. 102.
3. Ibid, p. 103.
4. "Israel Imposes Lebanon Blockade", BBC News, 13 July 2006, http://news.bbc.co.uk/1/hi/world/middle_east/5175160.stm#map, accessed on 19 October 2025.
5. "Israel Imposes Lebanon Blockade," BBC News, http://news.bbc.co.uk/1/hi/world/middle_east/5175160.stm#map, accessed on 19 October 2025.
6. "Operation Sukoon for the Evacuation of Indian Nationals from Lebanon", Ministry of Defence, PIB, 24 August 2006, https://www.pib.gov.in/newsite/.erelcontent.aspx?relid=20224, accessed on 20 October 2025.
7. Singh, *Blue Waters Ahoy*, pp. 105–106.
8. Singh, *Blue Waters Ahoy*, p. 107.
9. Ibid, p. 107.
10. The Dunkirk Evacuation of 26 May to 4 June 1940, known as Operation Dynamo, was the attempt to save the British Expeditionary Force in France from total defeat by an advancing German army. Nearly 1,000 naval and civilian craft of all kinds, aided by calm weather and RAF air support, managed to evacuate around 340,000 British, French, and Allied soldiers. See https://www.worldhistory.org/Dunkirk_Evacuation/, accessed on 19 October 2025.

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Chapter 13

Operation Lehar, 2014

India's east coast has been at the receiving end of seasonal storms for centuries. States such as Odisha and Andhra Pradesh, in particular, have frequently borne the brunt of nature's fury, experiencing cyclones of varying intensities. The Bay of Bengal is especially prone to intense cyclonic systems. One such event was Cyclone Hudhud, which made landfall in Visakhapatnam on 12 October 2014. It was one of the most severe cyclones to directly impact the city of Visakhapatnam, destroying infrastructure, uprooting trees, and overturning automobiles, both inside the Naval Base as well as in civil areas. However, due to the location on the eastern seafront, most of the Indian Navy's operational assets, such as ships, submarines, aircraft, and major dockyard infrastructure, remained intact despite the fury of the storm. The cyclone is estimated to have claimed at least 124 lives and caused damage amounting to US$3.4 billion.

Preparedness

In the words of the Officer-in-Charge, Shipwright School, during Hudhud: "The unit, being in a low-lying marshy area, has been prone to severe inundation during heavy rains. Preparations for annual inspection aside, we plunged into preparations for precautionary measures to deal with the cyclone. We removed and secured the electric motor of workshop machineries, shifted RU stores to higher floor levels, secured all display boards and ship models to safer areas, secured all doors and windows, conserved water, charged emergency lights, etc."

The Indian Navy was at the forefront of providing relief and succour to the citizens of Visakhapatnam and surrounding areas. The meteorological forecasts and satellite and Doppler imagery were constantly monitored at Headquarters Eastern Naval Command. Meetings were held 48 hours preceding the cyclone and through dissemination of information, the Command was brought to a heightened state of preparedness.

Several arrangements were made before the cyclone made landfall. The existing berthing hawsers were replaced with stronger ones and the ropes tripled in most cases for extra durability. In addition, hurricane hawsers were prepared for a worst-case scenario. Both anchors were put underfoot to provide additional protection, gangways were secured with additional ropes and fenders, and all pneumatic fenders were kept ready for immediate use. Adequate crew was positioned in the ships to operate the engines and machinery.

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The Military Engineering Service (MES) had put up notices in all residential areas and SMS were sent to residents informing the community of possible damage to power and water lines and consequent disruption of supplies. Advisories to sensitize people on the need to store and conserve water were promulgated.

MADAD state-II was assumed to provide immediate relief and support in the aftermath of the cyclone. Teams were positioned in suitable and appropriate locations with tools and equipment, ready to intervene as required in case of emergencies.

Four ships were kept on standby for Humanitarian Assistance and Disaster Relief (HADR) with adequate ready-to-eat food and other aid for a large number of people. Helicopters and aircraft were kept on standby at INS *Dega* for HADR and Search and Rescue (SAR) deployment. A total of 15 well-equipped, specialized diving teams were positioned across Visakhapatnam, Srikakulam and Anakapalle. Operation Meghdoot was executed to deal with flooding associated with heavy rains, especially in low-lying naval areas. Water level monitoring was accorded the highest priority. De-flooding pumps were tested and deployed at naval areas including Shipwright School (now INS *Vishwakarma*), Material Organisation and INS *Dega*. They were directed to closely monitor the situation and keep Maritime Operations Centre (MOC) informed of developments.

Coordination

Alternative communication circuits were operationalized, including NEWN/NEX NEWN, MSS Briefcase Terminals (Satellite Terminal), MTX 638/960 and portable V/UHF sets. All portable sets were kept fully charged with additional batteries, ready for immediate mobilization. The Quick Reaction Group (QRG) communication was also kept ready.

At Indian Naval Hospital Ship (INHS) *Kalyani* medical teams were augmented and kept ready to handle large-scale emergencies or medical aid and assistance. A medical section consisting of qualified personnel and medical stores for more than 1,000 casualties was kept on standby. All transport sections of *Kalyani* including ambulances and support vehicles were kept ready and placed on call. This helped minimize the damage when the storm hit and were mobilized at the earliest.

Impact of the Cyclone

Vice Admiral Ajendra Bahadur Singh recalled, "Notwithstanding the extensive preparations, berthing ropes did break, fenders were punctured, bollards on the jetty were uprooted and two ships tied together on those were adrift for a while, the jib of a jetty crane fell on one of the ships, the drydock caissons shuddered both in HSL and Naval dockyard, giving us anxious moments."

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Hudhud was unlike any cyclone that Visakhapatnam had witnessed in a century. It was the first time the city was laid to waste by winds of over 200 kmph reinforced by heavy rainfall. Due to sophisticated technology in early warning systems and timely precautionary measures, loss of life was minimal. However, the damage and destruction to infrastructure and resources was incalculable.

From Dockyard to *Dega*, INS *Circars* to *Eksila*, everything lay in a shambles. The tempest and torrential downpour flattened trees, toppled microwave towers and electricity poles and blew away roofs, doors, and windows. The airport suffered massive damage, the beach was eroded, 80% of the trees were uprooted, and wildlife all but perished. In the aftermath, there were significant power outages and communication network disruption. Water became the biggest need of the hour.

Relief and Rehabilitation

As the storm passed, 14 naval ships and establishments recalled their personnel on the morning of 13 October for Humanitarian and Disaster Relief (HADR). The Indian Navy was at the forefront, from getting the inundated Visakhapatnam airfield operational within 24 hours to providing logistics to far-flung areas and helping port authorities clear the harbour. Through it all, the Indian Navy's resolve was steadfast and earned universal appreciation.

The ships *Ranjit, Shakti, Shivalik* and *Airavat,* which were kept on standby to sail, commenced food distribution. Nearly 2,000 food packets were distributed in Yereda village and the Navy's Dolphin Hill residential area while 10,000 food packets were distributed in Naval Coastal Battery fishing village.

Water distribution was undertaken on war-footing to provide water to all households. Once Army support vehicles arrived from Hyderabad, they were extensively used to supply water and electricity to all residential areas. Air force and naval aircraft ferried freshwater and essential supplies. Bottled water and PVC water tanks were also shipped from Kakinada and Chennai. Food supply counters were established in various parts of the city.

Water cans of 20 litre-capacity were issued to residents of naval areas and the civilian population in the city. INHS Kalyani and INS Eksila provided vast medical cover to affected personnel. Doctors, medical assistants, and portable medical equipment were dispatched for emergencies and aid to remote locations hit by the cyclone. Basic medicines and medical cover were provided to the naval and civil community. These efforts continued till normalcy returned.

Recovery and Restoration

Hudhud left a trail of destruction in its wake. The entire naval infrastructure had taken a battering, and the task of bringing it back on its feet was

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gargantuan. The need of the hour was immediate and concentrated action, beginning with assessment of damage. Several relief teams were dispatched to clear the roads of fallen trees and facilitate movement of people and vehicles. In addition, individual units were employed to clear debris. The major challenges included restoration of power supply, provisioning of drinking water, and re-establishment of road connectivity. Work under special powers was initiated quickly, especially for assets like substations, transmission lines, and pump houses.

Various naval units undertook preliminary damage assessment of areas under their responsibility and also provided assistance to external agencies. Military Engineering Services (MES) authorities worked with the naval authorities to assess damages in liaison with Greater Visakhapatnam Municipal Corporation (GVMC) for supply of water. Thereafter, MES factions at Eastern Naval Command rendered assistance to GVMC for management of water levels at Meghadri Gedda Reservoir, which is the main source of drinking water for the city. Generators were positioned at pumping stations and residential areas to provide electricity for essential services. In liaison with BSNL, action was initiated to restore damaged signal towers.

Post-cyclone, the primary task for the Navy was to restore civil aviation facilities and commence flying operations at the earliest. Debris was cleared from the runway at a brisk pace. Air Traffic Control (ATC) services were restored, fallen trees and flammable items separated and dumped in a "safe ground", far from residential areas. INHS Kalyani ensured consistent medicine services to one and all during the calamity. Consolidated efforts were made by the naval dockyard at Visakhapatnam to provide assistance to ships in the harbour. Clearing of passage on approach roads to work centres was initiated with vigour and urgency. The naval dockyard prioritized repairing of operational ships affected by the storm and put them back at sea in the shortest possible time.

Conclusion

The cyclone and its immediate aftermath resembled a wartime scenario, with enormous challenges and urgent recovery efforts. The scale of destruction was unprecedented. While it was hoped that such a calamity would never recur, the experience proved invaluable for the Indian Navy, strengthening its preparedness and confidence to face future adversities.

Cyclone Hudhud affected every living being in Visakhapatnam. At the same time, the determination shown by the naval fraternity in handling it highlighted the Indian Navy's resolve to face overwhelming odds, restore normalcy and go beyond them to rebuild better and greener. The city and the naval area rebounded with vigour, marked by better infrastructure and a steadily increasing green cover.

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Chapter 14

Operation Neer, 2014

The Government of India responded to a request for assistance by the Maldives, which faced an unprecedented and severe water crisis, and subsequently launched Operation Neer. At 1530 hrs on 4 December 2014, a fire engulfed the control panel and cabling of the generator at Male Water and Sewerage Company, threatening to bring the entire country to a standstill. The island nation needed at least 100 tons of drinking water per day to sustain itself until the plant became operational again.[1] In this situation, the Government of India was quick to provide assistance to the Maldives. The first aid arrived from India's side within 18 hours of the request raised by the Government of the Maldives.[2]

Both the Indian Navy and the Indian Air Force plunged into action and supplied a total of 370 tons of bottled water to the Government of Maldives. Ten sorties were undertaken by IL-76 and C-17 to the Maldives to swiftly airlift the requisite assistance from Delhi to Arakkonam, and then further to Malé.[3] The rapid response by the Indian government underscored India's commitment to its friendly neighbours and reflected the heart of its foreign policy: Vasudhaiva Kutumbakam, i.e. the world is one family. India's vision is to ensure that all its friendly partner countries progress together, and Operation Neer is a testimony to how India successfully translates its diplomatic rhetoric into action on the ground.

Role of Indian Navy in Operation Neer

The Indian Navy jumped into action with alacrity, and INS *Sukanya* was deployed to the operation. INS *Sujata*, which was already at sea, reached Male at 2000 hrs on 5 December, supplying water to the island nation, while INS *Deepak* left the Mumbai harbour, reaching its destination on 7 December. Between 7 and 12 December, INS *Sujata* and INS *Deepak* generated fresh water using their onboard RO (reverse osmosis) plants, which was supplied to the island nation.[4] Operation Neer effectively highlighted the Indian Navy's operational competence, logistical preparedness and exemplary ability to perform its benign role.

First-Person Account: Commodore M. Doraibabu, then Commander and Commanding Officer of INS Sukanya[5]

> INS *Sukanya* had already been out at sea for about sixty days out of base port. The ship was on her way home and somewhere in the south Indian

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Fig 14.1: Operation Neer



Source: Naval History Division, Indian Navy

Ocean region when I got a call from Headquarters giving me a very brief directive—'head to Maldives immediately'. Though I had a multitude of queries, I held counsel and got on to charting my detour to the Maldives. From my present position, it would take twelve hours of steaming at the best speed and I would reach Male, in the wee hours the next morning. Sometime, en route, I was briefed that there had been a fire in the control panel of the main desalination plant rendering it non-operational and the city in a crisis without any fresh water supply. The inhabitants of the city of Male were completely dependent on the water supplied by the desalination plant, which was now defunct. The Government of the Maldives had requested technical repairs and provision of water assistance from two or three countries, including India. Knowing the criticality of time, I pushed the ship to her limits to reach early, and though I was not carrying

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additional water onboard, I decided to supply the water stored in my tanks for my crew to the city of Male. The crew's support was unanimous in this decision and they curtailed their usage of water to a bare minimum so as to save maximum water to be given to Male. At about 0200 hrs, I was able to establish contact with Port Control of Male harbour and the resident Indian Defence Attaché. In the absence of a harbour pilot to conduct my ship into harbour, I decided to enter on my own escorted by an MNDF Patrol Craft in the dark of the night. Having been to the port just a week prior had helped me familiarize myself with the harbour. As soon as I berthed the ship alongside, I issued orders to rig up a pipe supply of water from my tanks to the jetty where the Maldivian officials already had lined up water tankers. The Operation went on the whole night, and in the morning after I had emptied my fresh water tanks, I moved away from the jetty to anchor the ship at an appropriate depth to again start making water using my own Reverse Osmosis (RO) plants. The cycle continued for three days by when INS *Deepak* fetched up from Mumbai with about 2000 tonnes of water. INS *Sukanya* was the first to arrive at the Maldives within twenty-four hours of assistance being sought and the only one providing water till INS *Deepak* arrived shortly. The Indian Air Force had also airlifted about 60 tonnes of packaged water using five C-17 aircraft during this period. Though this detour had changed the ship's plans of heading home after more than sixty days of being away, the crew rose to the occasion with their spirit and seflessness in this HADR venture named Operation Neer, which translates to water, in assisting a neighbouring country during their dire times.

Notes

1. Captain M. Doraibabu and Commander Amrut Dilip Godbole, *A Decade of Transformation: Signalling Power and Partnerships, The Indian Navy 2011–2021*, HarperCollins, New Delhi, 2023, p. 211.
2. Naval Records, Naval History Division.
3. Ibid.
4. Ibid.
5. Doraibabu and Godbole, *A Decade of Transformation*, p. 212.

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Chapter 15

Operation Rahat, 2015

The Indian Navy has successfully executed numerous Humanitarian and Disaster Relief (HADR) missions in India and other countries as the first responder, which is a testament to the indefatigable efforts of the Indian Navy in protecting civilians. These missions also serve as instruments of soft power; often, rescue operations intended for Indian civilians also include those of other Foreign Friendly Countries (FFCs). In the event of an environmental or humanitarian crisis, the Indian Navy comes to the aid of its maritime neighbours.

Operation Rahat of 2015 is one such operation, in which the Indian Navy made use of its capabilities and capacities to undertake a humanitarian mission in one of the world's most precarious regions. As civil war ravaged Yemen, a diaspora of 4,000 Indians found themselves on the brink of homelessness and starvation. In 2015, Houthi rebels took over power in Sanaa, the capital of Yemen, and forced the abdication of President Abd Rabbu Mansour Hadi and his government. This was followed by military intervention and economic isolation by Saudi Arabia, with the support of other allies, leading to aggravation of the humanitarian crisis in Yemen.[1] Against this backdrop, the Indian Navy intervened and carried out an extraordinary rescue operation for not just its own civilians but also those of several other countries.

Rescue in Action: The Navy's Role in Operation Rahat

As a result of the deteriorating geopolitical situation in Yemen, all airports and seaports became non-functional, and on 30 March 2015, the Indian government decided to initiate the evacuation of Indian nationals stranded in Yemen. It was a momentous task to rescue over 4,500 Indian nationals along with civilians of other countries, in a highly volatile conflict zone like Yemen. As a Press Information Bureau release put it, "In yet another difficult and challenging operation, Indian Naval Ship *Tarkash* evacuated 464 personnel of different nationalities from the war-torn city of Aden, Yemen on 10 April 2015."[2] The Indian Navy conducted rescue operations from Yemeni ports, with INS *Sumitra,* an Offshore Patrol Vessel that was on anti-piracy deployment, being relieved from its duty and becoming the first to respond by entering the port of Aden and rescuing around 349 Indians. They were deboarded at Djibouti, where the Ministry of External Affairs had set up a temporary control room to coordinate the evacuation efforts. The evacuees were then airlifted to India by IAF C-17 aircraft. Meanwhile,

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two more warships, INS *Mumbai* and INS *Tarkash*, were deployed along with INS *Sumitra* from 30 March to 19 April 2015.[3]

As Aden was engulfed by the civil war, port authorities started denying entry to ships to the harbour. The port became inaccessible, and INS *Mumbai* was called from its anti-piracy deployment to carry out the evacuation of the 300 Indian nationals stuck at the port of Aden. It arrived there in the wee hours of 4 April, while the frigate INS *Tarkash* ensured that the passenger ships, MV *Kavaratti* and MV *Corals*, reached Djibouti safely. Around 441 people were rescued from Aden Harbour, using boats, to reach INS *Mumbai,* which remained near the shore. The rescue operation carried out on 4 April was significantly exigent, as the very next day (5 April), a large number of civilians were killed at the harbour due to shelling by the insurgents.[4] As Aden became inaccessible, INS *Sumitra* carried out its third rescue operation on 5 April from Ash Shi'hr near Al Mukalla and evacuated around 203 civilians and transported them safely to Djibouti. At the Port of Hodeidah, INS *Mumbai* was in action on 6 April, and it successfully evacuated a large group of stranded Indian nationals, along with several foreign citizens.

Fig 15.1: Indian Navy Prioritizing Safety and Comfort of One and All



Source: Naval History Division, Indian Navy

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During the operation, the Indian Navy prioritized the safety and comfort of all evacuees. They gave their own accommodation spaces to the evacuees, provided hot meals, ensured medical assistance, and offered special care to the elderly. Women and children were boarded in mess decks, while men were accommodated in sheltered areas on the upper decks. Timely medical attention was provided to pregnant women to ensure their well-being throughout the passage to Djibouti.

Operation Rahat became an indication of the Indian Navy's capability to carry out challenging rescue operations in consonance with its growing role as a first responder in humanitarian crises. The Indian Navy played a crucial role in evacuating not only Indian citizens but also civilians from Australia, Bangladesh, Bahrain, Canada, Cuba, Djibouti, Egypt, El Salvador, Ethiopia, France, Greece, Germany, Hungary, Indonesia, Iran, Iraq, Ireland, Italy, Jordan, Kenya, Kyrgyzstan, Lebanon, Maldives, Morocco, Myanmar, Mexico, Moldova, Nepal, New Zealand, the Philippines, Pakistan, Romania, Russia, Somalia, Sweden, Sri Lanka, Sudan, Spain, Switzerland, Syria, Tanzania, the United Kingdom, Uzbekistan, the United States, the United Arab Emirates, Uganda, Ukraine, and Yemen.[5]

Fig 15.2: Team *Tarkash* Conducting Smooth and Structured Disembarkation



Source: Naval History Division, Indian Navy

This large-scale humanitarian mission showcased the Indian Navy's role as a dependable and compassionate force, emphasizing its position as a responsible maritime power on the international stage. It became the largest and most successful Non-Combatant Evacuation Operation (NEO)

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conducted by the Indian Navy from a conflict zone, during which over 4,500 people (including 1,291 foreign nationals) were safely evacuated from war-torn Yemen by *IN* warships.

First-Person Account: Captain Milind Mokashi, SC, then Commanding Officer of INS Sumitra[6]

When we sailed out from Chennai on 04 March 2015 for the ship's maiden Anti-Piracy deployment in the Gulf of Aden, little did we know that unprecedented and historic action awaited us in the ensuing thirty days! Yemen was already burning by then, but no one had foreseen the civil war turning ugly so alarmingly. I still distinctly remember it was the bright, sunny afternoon on 23 March 2015 that INS Sumitra (which was peacefully chugging along the Internationally Recognized Transit Corridor in the Gulf of Aden) got the news of the President of Yemen having escaped the country via sea, and the action suddenly seemed to be happening right around us. With the situation turning desperate, the Government of India was exploring various avenues for evacuation of our diaspora, with the sea route being one of them. Within no time, the ship and its crew were given the mission, and we switched into top gear in planning for what seemed like a herculean operation that involved a Non-Combatant Evacuation from various sea ports of Yemen.

Whilst we prepared for the impending action with what we had (which was not much, as we had already been deployed for over three weeks by then!), we realized that there was much that we lacked. For starters, it was scanty resources—limited amount of accommodation and wash spaces, provisions, linen, medicines, manpower (to simultaneously handle the needs of manning the ship, ensuring her security from asymmetric and conventional threats, the safety of evacuees, looking after their needs, cooking and serve food, maintaining hygiene and habitability etc.), information (about expected threats, ports of evacuation for which we did not have proper charts for navigation, numbers to be evacuated and their identities, unforeseen contingencies, etc.) the list was endless. So that's when we fell back on the superior training imparted by the Service, and every man onboard rose to the occasion and how! We put down the details on paper, made our strategy, divided ourselves into teams to look after various tasks, and worked out our security details for the ship, the crew and the potential evacuees both ashore and onboard. Once we were ready, we indicated our preparedness to the Headquarters, which, placing unwavering trust in us, a motley crew of a ship only six months old, put us right into action. Off we went to Aden, and entered it in pitch darkness with our navigation lights switched off amidst all the flames and noise due to the incessant bombing, shelling on the hills surrounding the city and the continuous rattle of machine-gun firing. We were disconcerted to discover around 350 scared people waiting for us, hiding in containers to save themselves from getting hurt. We were

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given only forty-five minutes to undertake the Operation, and we did it as swiftly as we could and evacuated all of them safely to Djibouti. For the next six days and two other evacuations from Hodeidah and Ash Shihr, we were alone out there until INS *Mumbai,* followed by INS *Tarkash,* joined the operation. The ship ended up undertaking a total of five evacuation Operations, wherein we evacuated 1,621 Indian and foreign nationals. We were the "First In, Last Out" of Yemen, until the last person waiting was evacuated. Every man onboard worked tirelessly for those seventeen restless days and sleepless nights, and displayed the best in them.

Notes

1. "Conflict in Yemen and the Red Sea", Global Conflict Tracker, https://www.cfr.org/global-conflict-tracker/conflict/war-yemen, accessed on 16 October 2025.
2. "Evacuation Operations from Yemen—'Operation Raahat'", Press Information Bureau, Government of India, April 2015, https://www.pib.gov.in/newsite/PrintRelease.aspx?relid=118176, accessed on 16 October 2025.
3. Captain M. Doraibabu and Commander Amrut Dilip Godbole, *A Decade of Transformation: Signalling Power and Partnerships, The Indian Navy 2011–2021*, HarperCollins, New Delhi, 2023, p. 200.
4. Ibid., pp. 200–02.
5. Suo motu statement by Minister of External Affairs and Overseas Indian Affairs in Rajya Sabha on "Recent Developments in the Republic of Yemen and Efforts Made for Safe Evacuation of Indian Nationals from There", Press Information Bureau, Government of India, 20 April 2015, https://www.pib.gov.in/newsite/PrintRelease.aspx?relid=118364, accessed on 17 October 2025.
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Chapter 16

Operation Madad, 2018 and 2024

Operation Madad, 2018

Background and Onset of the Kerala Floods, 2018

The August 2018 floods in Kerala marked a devastating natural calamity which unfolded against a backdrop of meteorological conditions not seen for decades and which changed the monsoon season from a life-giving phenomenon into a destructive force of nature. From June to mid-August 2018, Kerala experienced 42 per cent more rainfall than normal, receiving a total of 2,346.3 mm instead of the expected 1,649.55 mm.[1] The situation became particularly critical in August, when the state received 164% of its normal rainfall levels in the first 19 days of the month.[2]

The crisis escalated dramatically on 9 August, when the shutters of the Cheruthoni dam, which is part of the Idukki reservoir complex, were opened for the first time in decades. The Idamalayar dam in Ernakulam district also opened its shutters, which led to release of massive volumes of water into already saturated river systems. The dam releases were necessitated by extreme rainfall in the catchment areas, particularly affecting the low-lying regions of Ernakulam and Idukki districts.

The situation in Wayanad district was catastrophic, where the heavy rains triggered widespread landslides and flooding. The beautiful district, known for its mountainous terrain and coffee plantations, became isolated as transportation links were severed by landslides and flooding.

Recognizing the magnitude of the unfolding disaster, the Kerala government sought assistance from the Indian Navy. This request marked the beginning of what would become one of the Indian Navy's most significant domestic humanitarian operations in recent decades.

Resource Mobilization and Rescue Operations

Operation Madad, a Humanitarian Assistance and Disaster Relief (HADR) mission, was launched on 9 August 2018 to assist the state administration and undertake disaster-relief operations. Besides the Indian Navy, the Indian Army, the Indian Air Force and Coast Guard personnel were involved in the rescue and relief operations along with the civil administration. Naval air station INS Garuda facilitated civil aircraft operations in addition to the military flying requirements. This was because the international airport at nearby Nedumbassery had shut down in the wake of floods.

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Within hours of the official request, a diving team with a Gemini inflatable boat was airlifted and deployed to Kalpetta, Wayanad, at 2200 hrs on 9 August.[3] This rapid deployment set the tone for what would become a comprehensive 16-day operation involving unprecedented coordination between naval assets and civilian authorities.

The naval air station INS Garuda emerged as the operational nerve centre of the entire relief effort. With the Cochin International Airport being shut down on 15 August due to runway flooding, INS Garuda assumed critical importance not just for military operations but as the primary aviation hub of Kochi. The naval air station underwent rapid modifications to accommodate civilian aircraft operations, with a lot of infrastructure work completed on short notice to ensure compatibility with the requirements of commercial flight.[4]

A total of 20 naval aircraft were committed to Operation Madad, including Dornier maritime patrol aircraft, Seaking helicopters, Advanced Light Helicopters (ALH), and Chetak helicopters. This constituted a significant portion of the Southern Naval Command's (SNC) available air assets, highlighting the Navy's commitment to the relief operation. The air operations reached unprecedented levels, with INS Garuda coordinating more than 60 sorties daily and hosting a total of 40 aircraft — including 10 Indian Air Force aircraft, six Coast Guard aircraft, two civil aircraft, and two Oil and Natural Gas Corporation (ONGC) helicopters. Additionally, heavy-lift aircraft including AN-32, C-130, and C-17 aircraft landed daily with relief material, inflatable craft, and medical teams.

The Western Fleet's contribution proved crucial to the operation's success. The fleet tanker INS *Deepak* and destroyer INS *Mysore* arrived at Kochi carrying fresh water, rations, and 70 tons of relief material. INS *Mysore* additionally transported a Chetak helicopter to augment the SNC's air effort. INS *Sharda* departed Karwar with 15 tons of fresh rations, while INS *Mumbai* was loaded with relief material bound for Kochi.

The mobilization extended beyond air and sea assets to include all available boats and divers from the SNC. Due to the scale of the naval operation, the local resources proved insufficient, and thus additional boats and diving teams were requisitioned from other Naval Commands. The operation reached its peak deployment with 92 rescue teams equipped with Gemini boats deployed in a single day.[5]

The Indian Navy's rescue operations during Operation Madad displayed coordination and courage, saving a total of 16,843 people from flood-affected areas across Kerala. Of these remarkable rescues, 1,173 survivors were airlifted by helicopters from inaccessible areas, while the remaining were evacuated using Gemini boats and ground-based operations. The operation's scale was extraordinary, with diving teams, rescue teams equipped with Gemini boats, and medical teams deployed at strategic locations throughout the affected districts.

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Fig 16.1: Rescue Team in a Gemini Boat



Source: Naval History Division, Indian Navy

The heroic actions of individual naval personnel became legendary during Operation Madad. Captain P. Raj Kumar, flying a Seaking helicopter, conducted rescues, saving 26 people from a rooftop in Kochi while hovering between trees and houses in extremely challenging conditions. Commander Vijay Verma distinguished himself by airlifting a heavily pregnant woman from her partially submerged house near Chengamanad. The woman subsequently gave birth to a baby boy at the Navy Hospital within the SNC. These extraordinary acts of courage under extreme conditions exemplified the Indian Navy's commitment to saving lives regardless of personal risk. Both officers were among the ones honoured with *The Straits Times'* prestigious "Asian of the Year 2018" award in Singapore, recognizing their "death-defying rescue flying" and selfless service during the Kerala floods.[6]

The focus of the Indian Navy was holistic as it had experience of carrying out HADR operations in the past. Thus, apart from rescue operations, relief was also given due importance. Ten air sorties totalling 15 hours of flying were undertaken by various naval aircraft, primarily for air-dropping relief supplies, especially food and medicines. On request from the district collector, relief material such as food, candles and some essential items were air dropped to help approximately 1,500 patients stranded at the Narayana Institute of Medical Sciences, North Paravur, demonstrating the Navy's ability to reach isolated medical facilities.

The Seaking helicopters proved extremely versatile, extensively ferrying diving teams, portable generators, and rescue equipment to Wayanad district, where road access had been completely severed. The helicopters' heavy-lift capability enabled the transportation of critical rescue equipment to areas otherwise unreachable by conventional means.

The operation's geographical scope encompassed the most severely affected districts. In Ernakulam district, teams conducted systematic

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Fig 16.2: Air Dropping Supplies during Operation Madad



Source: Naval History Division, Indian Navy

evacuations from flooded areas including Aluva, where the Periyar River was in full flow, and North Paravur, where dam releases had created particularly dangerous conditions. In Wayanad district, naval teams not only conducted rescue operations but also assisted civil administration in relief material distribution and vehicle management in areas cut off by landslides.

Medical Aid and Infrastructure Support

The Indian Navy's humanitarian assistance during Operation Madad extended beyond the rescue operations, covering medical care, infrastructure support, and logistical coordination that demonstrated the service's varied capabilities. A makeshift relief camp was set up at the T2 Hangar inside Naval Base, Kochi, where people rescued via air efforts were provided food, bedding, and other necessities.

The Navy's medical response was comprehensive and immediate as well. Based on requests from the civil administration, rescue teams at Wayanad were diverted to establish medical camps in remote areas not accessible by road. These mobile medical units provided essential healthcare services to populations cut off from conventional medical facilities due to flood damage and infrastructure collapse.

The Navy's educational infrastructure was also mobilized. Two Kendriya Vidyalaya schools near the Naval Base, which are administered by the Southern Naval Command, were kept on standby as additional relief camps to provide shelter for more displaced persons if needed. The Navy's humanitarian assistance reached even some specialized areas. When the Amrita Institute of Medical Sciences faced critical infrastructure failure due to defective water pumps disrupting water supply, a technical team from the Naval Ship Repair Yard, Kochi, responded immediately and restored the

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system to full operational status within 10 hours. This technical intervention was critical for ensuring smooth medical services during the emergency.

One of the most significant humanitarian initiatives was the community kitchen established by INS *Venduruthy* at the Cochin University of Science and Technology, which catered to 10,000 people throughout the crisis. This massive feeding operation required coordination with civilian institutions, once again displaying the Navy's ability to manage large-scale humanitarian operations.

The Navy's supply distribution network was extensive and well-coordinated. Relief materials including fresh water, provisions, ready-to-eat meals, and medicines that arrived onboard Western Naval Command ships were distributed in various localities in coordination with the civil administration.

The medical infrastructure support was especially noteworthy. Beyond establishing medical camps in remote areas, the Indian Navy provided comprehensive medical care at its own facilities, including the Navy Hospital at SNC, which handled emergency medical cases including childbirth for evacuated civilians. The integration of naval medical facilities into the civilian healthcare response system proved to be crucial during the crisis.

On 22 August 2018, the Southern Naval Command called off its 16-day-long rescue operations in flood-hit Kerala, as waters receded in affected areas and normalcy was slowly restored. The Indian Navy had rescued a total of 16,843 people, including 1,173 survivors who were airlifted by helicopters from inaccessible areas. The Indian Navy also contributed Rs 8.92 crore towards the Kerala Chief Minister's Relief Fund.

Operation Madad, 2024

Background and Onset of the Kerala Floods, 2024

On 30 July 2024, Wayanad district in northern Kerala experienced one of the worst landslides in its recorded history. Triggered by incessant monsoon rainfall, measuring approximately 570 mm over two days, the disaster caused multiple slope collapses across Punjirimattom, Mundakkai, Chooralmala, Attamala, Meppadi, and Kunhome, burying entire settlements under debris. The event claimed over 400 lives, with 150 persons missing and more than 350 injured.

As part of the initial response to the floods, the Kerala State Disaster Management Authority (KSDMA) promptly activated emergency protocols. Teams from the State Disaster Response Force (SDRF), fire force, state police and local authorities were mobilized. However, they were unable to reach the incident site as the bridge over Iruvanjippuzha river connecting

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Chooralmala and Mundakkai had collapsed. This also precluded the movement of ambulances and heavy machinery to Mundakkai, where maximum catastrophe occurred.

Command and Coordination Framework

Consequent to reports of heavy landslides, the Southern Naval Command (SNC) of the Indian Navy launched Operation Madad State III on 30 July 2024. Subsequently, the Navy received a request from Kerala State Disaster Management Authority (KSDMA) for evacuation of residents from landslide-hit areas wherein civilians were trapped. This request was received at INS *Zamorin,* following which SNC headquarters ordered deployment of relief teams from INS *Zamorin* owing to its geographical proximity to the affected areas. The Coastal Defence Headquarters (CDHQ) at Kochi was activated as the Command and Control Centre and it established live coordination with state and military agencies. Simultaneously, the Indian Army mobilized six Humanitarian Assistance and Disaster Relief (HADR) columns comprising about 500 personnel and medical staff, alongside bridging equipment and dog squads for search operations.[7]

In order to coordinate seamlessly with the state administration and to provide assistance for rescue in affected areas, a continuous watch was maintained with the KSDMA. The Naval Officer-in-Charge (Kerala) maintained direct contact with the Onsite Incident Commander, Member Secretary KSDMA, Field Commander National Disaster Relief Force (NDRF) and Force Commanders of Indian Army/ Air Force throughout the operation for effective coordination and execution of Search and Rescue (SAR) efforts by Indian Navy.

Deployment and Multi-Agency Coordination

The Indian Navy's first contingent of 68 personnel, including six officers, five divers, and six fire staff, from INS *Zamorin* reached Kalpetta by 2230 hrs on 30 July and established their operations base at Holy Infant Mary Upper Primary School.[8] HQSNC also deployed an Advanced Light Helicopter (ALH) detachment in Calicut to assist in SAR operations in Wayanad with effect from 31 July 2024.

The Army's Engineer Task Force from the Madras Engineer Group and Centre (MEG & Centre) supported by a team of three officers and 30 sailors of the Indian Navy augmented the efforts in assembling and constructing the crucial Bailey bridge[9] over the river connecting the regions of Chooralmala and Mundakkai, which were isolated by the landslides. The bridge served as the backbone of logistics support, enabling movement of heavy machinery and ambulances.[10] Meanwhile, Air Force C-17, AN-32, and C-130 aircraft transported over 53 metric tons of essentials, including bridge components, dog teams, and medical supplies into the disaster zone.

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Search, Rescue, and Medical Relief

Rescue operations were conducted across five zones identified by the SDRF to streamline SAR activities. The Navy's divers and SAR teams worked in close collaboration with the Army and NDRF. By 1 August, over 1,000 civilians had been rescued and 86 bodies recovered from inaccessible zones.

A medical aid post was set up by naval medics near the Chooralmala mosque, which provided treatment to 20–25 patients daily, supported by mobile paramedic units from the ECHS Polyclinic, Kalpetta.

Humanitarian and Community Support

To sustain those displaced, the Indian Navy established a community kitchen at Kalpetta in coordination with local NGOs, NDRF, and civic volunteers. The kitchen distributed nearly 2,000 meals daily, proving to be a lifeline for both survivors and rescue personnel.[11]

Naval logistics teams airlifted three tons of ration packs, cooking supplies, and drinking water, while naval aircraft from INS Garuda conducted sorties to drop essential supplies in isolated areas. ALH Dhruv helicopters performed critical airlifts, evacuating survivors to safe zones despite continuous rains that restricted visibility.[12]

Deployment from 5 to 9 August

The team from Kochi was briefed by Inspector General of Police Shri Sethuraman (Onsite Incident Commander) prior deployment and divided into two groups. Both groups were directed to carry out searches in the area near Chooralmala bridge with the help of two JCBs and cadaver dog squad. They carried out searches in the assigned areas till 1300 hrs. The Air Force also conducted Helo Operations for collection of body bags from the Indian Navy and distribution of rations as part of relief operations. The teams were then deployed further south near the bridge for search.

Search by Indian naval personnel continued in the village office area in conjunction with 91 Infantry Brigade of the Indian Army along with six JCBs and three dog squads on 6 August. The next day, the team was deployed on the western bank of the river for digging and extraction of trapped individuals/ bodies and search was undertaken. Post a joint meeting of all the rescue forces chaired by the Onsite Commander, it was informed that subsequent relief work would be undertaken by the civil administration. The relief teams from Indian Army, Navy and Air Force were de-inducted commencing 9 August 2024.

Prime Minister Narendra Modi visited the affected areas on 4 August to review on-ground relief work alongside Chief Minister Pinarayi Vijayan and Governor Arif Mohammad Khan, assuring full central assistance for rehabilitation and rebuilding efforts. During his aerial and ground survey,

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the Prime Minister praised the collective efforts of the armed forces and disaster management teams.

Operation Madad 2024 once again demonstrated India's integrated military disaster response capability. Despite extreme weather and terrain, the Indian Navy saved thousands of lives, restored connectivity, and delivered sustained relief to affected communities.

Notes

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Chapter 17

Operation Samudra Maitri, 2018

An earthquake measuring 7.5 magnitude on the moment magnitude scale off the coast of Indonesia triggered a tsunami and caused extensive destruction in the Central Sulawesi province of Indonesia.[1] In response, Operation Samudra Maitri was launched on 3 October 2018 to assist in the rescue efforts and support victims of the earthquake and tsunami. The disaster relief mission began following a telephonic conversation on 1 October 2018 between Prime Minister Narendra Modi and Indonesian President Joko Widodo.[2]

India has repeatedly prioritized its friendly neighbours, especially during times of distress, and Operation Samudra Maitri, which literally translates as Maritime Friendship, demonstrates this commitment. On 3 October 2018, two IAF aircraft left for the affected areas, with one carrying a medical team along with tents and equipment to set up a field hospital and the other carrying relief material such as medicines, generators, tents and water.[3]

The Indian Navy, as a steadfast partner to its Friendly Foreign Countries, deployed INS *Tir,* INS *Shardul,* and INS *Sujata* to provide relief material and medical assistance on 6 October 2018.[4] The Indian Navy contributed to the relief operation by setting up relief camps with medical aid for the survivors, along with aiding in restoration of power supply and water system. Hence, the Indian Navy demonstrated its capability in dealing with a humanitarian crisis and reinforced its role as an all-weather partner for South East Asian countries, which is in line with its Act East Policy. The rapid response by the Government of India underscores the country's readiness to give precedence to its maritime neighbours in the Indo-Pacific.

Notes

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Chapter 18

Operation Sahayata, 2019

On 15 March 2019, Cyclone Idai, a tropical cyclone, made landfall in Mozambique, leaving behind a trail of extensive devastation by destroying homes, disrupting communication networks, and isolating large segments of the population from the rest of the country. The cyclone's impact extended beyond Mozambique, severely affecting the people of Zimbabwe and Malawi as well.

In response to a request from the Republic of Mozambique, the Government of India immediately diverted three Indian Naval Ships to the port city of Beira. Over the following days, the three ships—INS *Sujata*, ICGS *Sarathi*, and INS *Shardul*—undertook Humanitarian Assistance and Disaster Relief (HADR) operations in coordination with local authorities and the High Commission of India, Maputo. The Chetak helicopter onboard the ships undertook several sorties to facilitate aerial surveys by Mozambique's disaster management officials, assist in evacuation of stranded individuals, and air-drop food and water packets in cyclone-affected areas.[1] In a mission defined by compassion and courage, the Indian Navy launched Operation Sahayata 2019, a Humanitarian and Disaster Relief Operation that came to symbolize India's enduring commitment to global solidarity and regional partnership.

Fig 18.1: INS *Sujata* at Mozambique



Source: Naval History Division, Indian Navy

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Operations at Beira, Mozambique

INS *Shardul* actively transhipped relief stores from Maputo to Beira based on a request by the Mozambique government. The ship disembarked 135 tons of relief material. Nine containers of HADR items including medical supplies were handed over to representatives of the Government of Mozambique on 30 March 2019.

Meanwhile, the Indian Navy carried out vital boat operations to Buzi Island, one of the worst-affected regions, on 29 and 30 March 2019. Despite challenging conditions, naval teams worked relentlessly to deliver nine tons of relief material to the stranded islanders, bringing them much-needed food, water, and supplies. About 192 people were rescued from the island by Indian Navy boats during the rescue missions. A total of 42 boat trips were utilized for the rescue/relief operations.[2]

Flying Operations

An *IN* helicopter carried out embarkation/disembarkation from INS *Shardul* to Beira Airport and back towards Operation Sahayata. The helicopter successfully carried out the evacuation of 12 personnel and dropped 1.5 tons of relief material at Buzi Island.[3]

Medical Camp

Nearly 317 personnel were treated in a medical camp at Matadoura School in lmnhamizua on 29 and 30 March. By the time the naval ships departed Port Beira on 30 March, the Indian Navy had extended medical assistance to a total of 2,328 Mozambican nationals.

Deployment of INS *Magar*

Enroute to Port Beira, Mozambique, INS *Magar* entered the harbour on 13 April. The ship was loaded with 250 tons of rice and 500 kg of medicines besides epidemic medicines/ HADR relief stores.

The community service efforts focused on helping rebuild and restore normalcy in cyclone-affected areas. This included laying tarpaulin sheets on damaged roofs, clearing debris from around the premises, removing flood-caused sand, repairing windows and doors, cutting down fallen trees, and most importantly, uplifting the spirits of the local people.[4] The Indian Navy's teams worked at several key locations, including:

- Orfanato Provincial da Beira Orphanage at Macuti Beach
- Sisters of St. Joseph of Cleery Orphanage
- St. Joseph Parish Church and Munnhara Local Hospital
- Chingasura Hospital in Manga
- Centro De Saude Urbano De Inhamizua (the local government hospital)

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- Escola Primary School, Agostinho Neto
- Young Africa Agri-Tech (YAAT), in Dondo, Sofala Province, they restored electrical supply and reactivated two fresh water pumps, ensuring water reached the overhead tanks.

Due to the cyclone and flood, heavy siltation and flotsams were monitored in the channel, which often lead to blockage of suction inlets of DA/AC/Ref plant etc. The diving team undertook diving in muddy water in strong tidal conditions to ensure that the underwater appendages were clear of obstructions and the ships were operationally ready in all respects.

Departure of 1TS Ships

1TS ships departed on 30 March after successful completion of all rescue/relief-related activities towards Operation Sahayata 2019 at Port Beira, Mozambique. The ships had worked closely with the Mozambican government, the United Nations, and Mozambique National Institute of Disaster Management (INGC) throughout the mission. Their efforts included providing humanitarian aid, evacuating stranded personnel, setting up medical camps, and supporting the local community in recovering from the cyclone's impact.

Indian locals in Mozambique played a vital role by supporting the ship's crew during the relief efforts. They provided transportation for medical camps and community service activities, distributed ration supplies, supplied SIM cards for communication, and acted as interpreters to bridge the language gap between the Indian crew and the local population. Their help was highly appreciated and made a significant difference to the mission's success.

Following the havoc caused by Cyclone Idai, the Indian Navy was among the first to respond to the unfolding humanitarian crisis. Relief efforts were also extended to Zimbabwe and Malawi, two other countries severely affected by the cyclone.

Notes

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Chapter 19

Operation Samudra Setu, 2020 and 2021

In the face of an unprecedented global crisis triggered by the COVID-19 pandemic, the Indian Navy launched Operation Samudra Setu (sea bridge) on 5 May 2020 as part of the national effort to repatriate Indian citizens stranded overseas. The planning phase commenced on 14 April 2020, followed by a rapid assessment at Naval Headquarters on 16 April 2020. Though all preparations had been undertaken based on directives from higher authorities, safety precautions to prevent COVID-19 infection among personnel on board were given the highest priority.[1]

Preparations were guided by directives from higher authorities, with particular attention being given to ensuring the health and safety of both evacuees and naval personnel. The measures included determining the embarkation strength while adhering to social distancing norms, embarking Humanitarian Assistance and Disaster Relief (HADR) stores, COVID-19 protective equipment, additional medical and administrative staff, and forming sanitization teams. Dedicated isolation wards were established, and embarkation and accommodation plans were drawn up to ensure efficient management of evacuees. Promulgation of zones on board was established to maintain social distance between the ship's crew and evacuees.

India's External Affairs Minister, Dr Subrahmanyam Jaishankar, announced the launch of Vande Bharat Mission, a massive nationwide effort to bring home lakhs of Indian citizens stranded abroad due to pandemic restrictions.[2] On 6 May 2020, the Ministry of External Affairs sought the Indian Navy's assistance to bring home Indian nationals stranded in the Maldives and Iran as part of the first phase of a major repatriation effort. Just two days later, on 8 May 2020, INS *Jalashwa* set sail on its maiden voyage under Operation Samudra Setu and successfully evacuated 698 Indians from the Maldives to Kochi.[3]

Phase I: May-July 2020

INS *Jalashwa* (Landing Platform Dock)[4], *Airavat, Shardul,* and *Magar* (Landing Ship Tanks)[5] played a central role in the operation. These vessels were specially prepared for the mission, with their onboard clinic, known as Sick Bays, equipped with COVID-specific medical equipment and facilities to ensure the safety of all passengers. Each Sick Bay functioned as a

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miniature hospital, manned round-the-clock by military doctors and trained nursing assistants capable of handling emergencies and conducting surgical procedures.[6] Women officers and nursing staff were also part of the crew to provide dedicated support to women passengers during the voyage.

Fig 19.1: INS *Jalashwa* in Operation Samudra Setu



Source: Naval History Division, Indian Navy

Operation Samudra Setu lasted over 55 days and covered more than 23,000 kilometers by sea. In total, the operation successfully repatriated 3,992 Indian nationals, including 3,551 men, 387 women, and 54 children, to their homeland.[7] The details of the evacuations undertaken from various ports are presented below.

Table 19.1: Evacuations Undertaken from Various Ports

Serial number	*Date of Embarkation*	*Ship*	*From*	*To*	*Number Evacuated*
a	8 May 2020	*Jalashwa*	Maldives	Kochi	698
b	10 May 2020	*Magar*	Maldives	Kochi	202
c	15 May 2020	*Jalashwa*	Maldives	Kochi	588
d	1 June 2020	*Jalashwa*	Colombo	Tuticorin	686
e	5 June 2020	*Jalashwa*	Male	Tuticorin	700
f	8 June 2020	*Shardul*	Bandar Abbas	Porbandar	233
g	20 June 2020	*Airavat*	Maldives	Tuticorin	198
h	25 June 2020	*Jalashwa*	Bandar Abbas	Tuticorin	687

Source: Naval Records, Naval History Division.

While Operation Samudra Setu had fulfilled the State's obligation towards its nationals, the subsequent SAGAR (Security and Growth for All in the

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Region) missions, i.e., SAGAR I to SAGAR IV, reflected the nation's foreign policy outreach by extending humanitarian assistance to the Indian Ocean states. Between May 2020 and August 2021, the Indian Navy conducted four humanitarian missions under the SAGAR initiative, reaffirming India's role as a dependable maritime partner.

Mission SAGAR I, launched in May 2020, had *INS Kesari* deployed to deliver 580 tons of food, medicines, including Ayurvedic products, and multiple medical teams to the Maldives, Mauritius, Madagascar, Comoros, and Seychelles. The ship also deployed medical teams in Mauritius and Comoros to assist local healthcare systems. The details of this mission are provided in Table 19.2.

Table 19.2: Mission SAGAR I

Serial number	*Port, Country*	*Remarks*
a	Male, Maldives	Handed over 580 tons rations
b	Port Louis, Mauritius	• 14-member medical team deputed from 23 May to 14 June • Handed over medical stores
c	Antsiranana, Madagascar	Handed over medical stores
d	Moroni, Comoros	• 12-member medical team deputed from 31 May to 17 June 2020 • Handed over medical stores
e	Port Victoria, Seychelles	Handed over medical stores

Source: Naval Records, Naval History Division.

In the months that followed, three more missions further extended India's humanitarian footprint across the Indian Ocean and Southeast Asia. INS *Airavat,* during Mission SAGAR II, delivered food and relief supplies to Kenya, South Sudan, Eritrea, and Djibouti. Mission SAGAR III, with INS *Kiltan,* transported 30 tons of relief material to flood-affected communities in Vietnam and Cambodia. Finally, Mission SAGAR IV had INS *Jalashwa* and INS *Airavat* delivering over 2,000 tons of rice, hydroxychloroquine tablets, oxygen containers, and concentrators to Comoros, Madagascar, and Indonesia.[8] Together, these missions reflected the Indian Navy's professionalism, agility, and compassion, transforming maritime diplomacy into a lifeline for nations in distress.

The Indian Navy contributed significantly to the fight against the pandemic. Naval IL-38 and Dornier aircrafts were deployed to transport doctors and essential medical supplies nationwide. The *IN* also developed and utilized the NavRakshak[9] Personal Protective Equipment (PPE), hand-held temperature sensors, assisted respiratory systems, 3D-printed face shields, oxygen manifolds, and air-evacuation stretcher pods. These innovations

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were employed aboard ships participating in Operation Samudra Setu and also shared with host nations from where evacuations were conducted.

Operation Samudra Setu concluded successfully on 2 July 2020 after nearly two months of sustained effort, demonstrating the IN's unwavering commitment to safeguarding its people irrespective of the distances and unprecedented challenges.

Phase II: May 2021

In 2021, as India faced a renewed wave of COVID-19 infections, the *IN* launched Operation Samudra Setu Phase II to bolster the national effort in managing the public health crisis. This phase focused on transporting liquid medical oxygen (LMO) and critical medical equipment from international partners to India. Seven Indian Naval ships—*Kolkata, Kochi, Talwar, Tabar, Trikand, Jalashwa, and Airavat*—were deployed to ship LMO-filled cryogenic containers and associated medical equipment from various countries. The operations resulted in the transportation of over 100 MT of LMO and many cylinders and concentrators back home to India.[10]

Fig 19.2: Saluting the Unsung Heroes Combating Covid-19



Source: Naval History Division, Indian Navy

The first batch of ships, INS *Kolkata* and INS *Talwar,* which were already present in the Persian Gulf, were swiftly redirected to the mission and they arrived at Manama, Bahrain, in April 2021. INS *Talwar* embarked 40 tons of LMO and returned to India, while INS *Kolkata* proceeded to Doha, Qatar, and later to Kuwait to load additional oxygen tanks. On the eastern seaboard, INS *Airavat* was diverted to Singapore to embark oxygen containers, and INS *Jalashwa,* previously deployed in the first phase, was pulled out of maintenance to support the mission. Ships such as INS *Kochi,*

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Trikand, and *Tabar* were also redirected from the Arabian Sea to augment the operation. Meanwhile, INS *Shardul,* operating from the Southern Naval Command, was prepared to join the operation, with additional vessels placed on standby for deployment.[11]

Operation Samudra Setu underscored the Indian Navy's capacity to respond rapidly and effectively to humanitarian crises, reaffirming its role as a key instrument of national resolve and maritime diplomacy. The operation stood as a testament to the professionalism, resilience, and dedication of the Indian Navy during one of the most challenging periods in recent history.

Notes

1. Naval Records, Naval History Division.
2. Commander Anand Kumar and Suriya Narayanan, "Mitigating Covid-19: The Indian Navy in the Vanguard—As Always", National Maritime Foundation, 16 May 2020, https://maritimeindia.org/mitigating-covid-operation-samudra-setu/#_edn4, accessed on 1 November 2025.
3. Naval Records, Naval History Division.
4. A Landing Platform Dock (LPD) is a type of naval ship built to carry troops, vehicles, and supplies, and to deploy them ashore using landing craft, amphibious vehicles, or helicopters.
5. The Indian Navy's Shardul-class Landing Ship Tanks (LSTs), built by Garden Reach Shipbuilders and Engineers, are large amphibious vessels designed to transport troops, vehicles, and tanks. They can carry up to 17 tanks, operate helicopters, and include ships like INS *Shardul* and INS *Airavat*.
6. "Mitigating Covid-19: The Indian Navy in the Vanguard — As Always", *National Maritime Foundation*, accessed on 3 November 2025.
7. Naval Records, Naval History Division.
8. Group Captain Raj Mongia, Anand Kumar Tewari, and Roshan Khanijo, "Epitome of Soft Power: The Indian Navy's Benign Missions During the COVID-19 Pandemic", National Maritime Foundation, 24 March 2024, https://maritimeindia.org/epitome-of-soft-power-the-indian-navys-benign-missions-during-the-covid-19-pandemic/, accessed on 3 November 2025.
9. Naval innovation was exemplified by Surgeon Lieutenant Commander Arnab Ghosh of the Institute of Naval Medicine, Mumbai, who designed NavRakshak—an advanced, breathable PPE suit for protection and comfort in tropical conditions. Commonly referred to as the Ghosh Suit, it provided up to 12 hours of safety for medical personnel operating in hot and humid conditions.
10. Naval Records, Naval History Division.
11. "Seven Indian Navy Ships Deployed for Op Samudra Setu II", Press Information Bureau, Government of India, 1 May 2021, https://www.pib.gov.in/PressReleasePage.aspx?PRID=1715355&reg=3&lang=2, accessed on 3 November 2025.

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Chapter 20

Operation Kaveri, 2023

Sudan had been witnessing rising antagonistic tensions between two rival military groups, which eventually erupted into violent conflict as clashes broke out between Sudanese Armed Forces (SAF) and the paramilitary Rapid Support Forces (RSF).[1] The hostilities began on 15 April 2023, derailing an internationally brokered plan to transition Sudan into a civilian-led government. Under the proposed agreement, both the Army and the RSF were to be placed under civilian authority. However, deep mistrust and rivalry between the two factions triggered widespread fighting across the country. Though the conflict broke out for power possession, attacks by the RSF from April to November 2023 can be categorized as ethnic cleansing. It resulted in the killing of several thousand people and left millions as refugees.[2]

As the violence escalated, essential services collapsed, and civilians including foreign nationals were caught in the crossfire. Among them were nearly 3,500 Indian nationals living and working across Sudan. The deteriorating security situation prompted India to launch a large-scale evacuation effort to bring its citizens to safety.

Indian Navy in Action

Responding swiftly to the crisis, the Government of India launched Operation Kaveri on 20 April 2023, aimed at evacuating Indian nationals from Sudan to safety.[3] The Indian Navy and Indian Air Force in coordination with the Ministry of External Affairs, showcasing the finest inter-agency synergy, took on the mission. Three Indian naval ships—*Teg*, *Tarkash* (both *Talwar*- class frigates), and *Sumedha* (a Saryu-class patrol vessel)—were re-deployed to the Red Sea, carrying Humanitarian Assistance and Disaster Relief (HADR) supplies, including food, water, and medical teams.[4]

Their mission was to establish a "Sea Bridge" between Port Sudan and Jeddah, Saudi Arabia.[5] The Indian Navy ships would transport Indian nationals from Port Sudan across the Red Sea to Jeddah, from where evacuees would be airlifted to India by the Indian Air Force. A transit facility was established at the International Indian School, Jeddah, to serve as a temporary shelter for evacuees before their onward journey to India.

A US-brokered 72-hour ceasefire, beginning midnight on 24 April 2023, provided a narrow window to execute the evacuation.[6] INS *Teg* was among the first to arrive at Port Sudan, bringing relief supplies and additional assistance to stranded Indian nationals. The Indian Navy became the first

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foreign naval force to dock at Port Sudan for evacuation operations on 23 April, demonstrating both operational readiness and diplomatic foresight.

Fig 20.1: The First Batch of Evacuees during Operation Kaveri



Source: Naval History Division, Indian Navy

Evacuation Efforts

Under Operation Kaveri, the Indian Navy conducted a series of five sorties between 25 and 29 April, successfully evacuating 1,490 Indian nationals from Port Sudan to Jeddah. Details of the evacuation are given below.

Table 20.1: Evacuation under Operation Kaveri

Date	*Unit*	*Sortie No.*	*Total Evacuated*
25 April	INS *Sumedha*	K1	278
26 April	INS *Teg*	K2	297
27 April	INS *Tarkash*	K3	326
28 April	INS *Sumedha*	K4	301
29 April	INS *Teg*	K5	288
		Total	1,490

Source: Naval records, Naval History Division.

In addition to sea evacuations, the Indian Air Force operated 17 sorties using C-130J and C-17 Globemaster aircraft to airlift stranded citizens. Two additional sorties were conducted directly from Sudan to India for those unable to reach Jeddah.

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Fig 20.2: Evacuees Safely Disembarked to Port at Jeddah



Source: Naval History Division, Indian Navy

A total of 3,776 people were evacuated using Indian military assets, which included not only Indian citizens but also OCI cardholders, 58 Sudanese nationals, three British nationals, and nine Nepalese nationals. In addition, 86 individuals were evacuated through other means, including 61 via South Sudan, five via Egypt, and 20 via Chad.[7] This took the total number of evacuees to 3,862. From Jeddah, 3,775 people were subsequently transported to India through coordinated IAF and civil flights, while 42 individuals made their onward journey to India through private travel arrangements. Operation Kaveri was terminated by the Government of India on 4 May 2023 as no Indian nationals remained to be evacuated and only those Indians who had business interests and family compulsions opted to stay back in Sudan.[8]

Beyond evacuation, India extended humanitarian support to those affected by the conflict, delivering 2,244 packets of ready-to-eat meals, 3,500 water purification tablets, and 50 solar lamps.[9] This demonstrated India's commitment not only to safeguard its nationals but also to provide essential aid during humanitarian crises.

Operation Kaveri marked India's growing capability for Non-Combatant Evacuation Operations (NEO), leveraging both sea and air assets in jointness, a hallmark of synergy between India's defence forces. The operation stood as a testament to the Indian Navy's swift crisis response capability, strategic maritime readiness, and commitment to protect its diaspora. It projected India as a responsible net security provider that prioritizes humanitarian values alongside national interests. Through Operation Kaveri, India once again proved that its power is not merely in military strength but equally in its ability to utilize soft power, and in its compassion and readiness to act in any crisis the world faces, a fitting embodiment of "Vasudhaiva Kutumbakam", the belief that the world is one family.

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Notes

1. Naval records, Naval History Division.
2. "Sudan: Ethnic Cleansing in West Darfur", Human Rights Watch, 9 May 2024, https://www.hrw.org/news/2024/05/09/sudan-ethnic-cleansing-west-darfur, accessed on 31 October 2025.
3. "Question No-2149 Details About Operation Kaveri, Operation Ganga and Operation Ajay", Ministry of External Affairs, Government of India, 21 December 2023, https://www.mea.gov.in/rajya-sabha.htm?dtl/37469/QUESTION+NO2149+DETAILS+ABOUT+OPERATION+KAVERI+ OPERATION+GANGA+AND+OPERATION+AJAY, accessed on 31 October 2025.
4. Naval records, Naval History Division.
5. Ibid.
6. Ibid.
7. Naval records, Naval History Division.
8. Ibid.
9. Ibid.

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Chapter 21

Operation Karuna, 2023

The Government of India launched Operation Karuna, a Humanitarian and Disaster Relief (HADR) mission, in response to Cyclone Mocha, which struck Myanmar on 14 May 2023. In its role as the first responder in the region, India provided support to those affected by the disaster. Three Indian naval ships, INS *Shivalik,* INS *Kamorta,* and INS *Savitri*, mobilized and delivered over 40 tons of relief supplies on 18 May for the aid and recovery of those impacted by the cyclone. INS *Gharial* arrived in Myanmar on 19 May, bringing medical relief materials.

A broad range of relief materials was supplied to the affected people. These included most essential items comprising both edible and non edible materials. INS *Gharial* also carried a portable medical container equipped with a 120-bed hospital facility.

Figs 21.1: Operation Karuna in Action



Source: Naval History Division, Indian Navy

Aligned with India's Neighbourhood First policy, Operation Karuna demonstrated India's resolve to provide assistance to Friendly Foreign Countries (FFCs) without any expectation of reciprocity. The Indian Navy's role as the primary security provider, especially in humanitarian and disaster relief missions, bolsters its soft power and its capacity to respond effectively to global and regional threats, which are often heightened by the vastness of the world's oceans.

Notes

1. "Operation Karuna—India's Humanitarian Assistance and Disaster Relief to Myanmar Following Cyclone Mocha", Embassy of India, Yangon, 2023, https://embassyofindiayangon.gov.in/public_files/assets/pdf/Cyclone_Mocha%20_English.pdf, accessed on 31 October 2025.

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Chapter 22

Operation Brahma, 2025

In the aftermath of the earthquake that struck Myanmar and Thailand on 28 March 2025, Operation Brahma was launched to aid in the rescue efforts. In total, six Indian Air Force aircraft, along with five Indian naval ships, assisted in the efforts and delivered 625 metric tons of relief supplies.[1]

The first set of aid was delivered by India on 29 March, airlifted by IAF aircraft. India's role as the first responder was cemented in light of its quick response in aiding its neighbours. The second tranche included 80 Search and Rescue (SAR) specialists and other supplies for aid, which were transported aboard two IAF aircraft, and arrived in Naypyidaw on 30 March.[2] The next set of aid was transported in two IAF aircraft, which included a 200-bed mobile hospital with an 118-member Indian Army Hospital Team and 60 tons of supplies, reaching Naypyidaw on 30 March.

Indian naval ships from the Eastern Naval Command and Andaman and Nicobar Command were deployed, marking the beginning of this mission on 29 March 2025. Indian naval ships *Satpura* and *Savitri* from the Eastern Naval Command, carrying relief material, departed from Visakhapatnam on 29 March and arrived in Yangon on 31 March. The vessels were on alert to render assistance as required by the affected countries.

Fig 22.1: INS *Savitri* with Relief Material



Source: Naval History Division, Indian Navy

The Andaman and Nicobar Command also played a significant role in the operation. Indian naval ships *Karmuk* and *IN LCU-52* from the Command were scheduled to participate in the India–Myanmar Coordinated Patrol (CORPAT) from 1 to 5 April at Yangon. Along with their CORPAT duties,

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these ships carried Humanitarian and Disaster Relief (HADR) stores and arrived in Yangon on 1 April. Together, the vessels carried a total of 9.1 tons of HADR supplies. Furthermore, INS *Gharial* departed from Visakhapatnam Port on 1 April for Yangon and delivered 442 metric tons of food aid.[3]

Fig 22.2: Indian Naval Ship with Relief Material



Source: Naval History Division, Indian Navy

Operation Brahma highlighted India's unwavering commitment to its Friendly Foreign Countries (FFCs), especially as the first responder and a responsible maritime power that believes in the vision of Security and Growth of All in the Region (SAGAR). Prime Minister Narendra Modi underscored India's commitment to its neighbours during times of crisis: "As a close friend and neighbour, India stands in solidarity with the people of Myanmar in this difficult hour. Disaster relief material, humanitarian assistance, and search and rescue teams are being expeditiously dispatched to the affected areas as part of Operation Brahma."[4]

Notes

1. "Press Brief on Operation Brahma (2000 Hrs, April 01, 2025)", Ministry of External Affairs, Government of India, 1 April 2025, https://www.mea.gov.in/press-releases.htm?dtl=39317/Press_Brief_on_Operation_Brahma_2000_Hrs_April_01_2025, accessed on 31 October 2025.
2. Ibid.
3. "Press Brief on Operation Brahma", Ministry of External Affairs, accessed on 31 October 2025.
4. "Operation Brahma: India Sends Relief Materials to Earthquake-Hit Myanmar", *The Hindu*, 30 March 2025, https://www.thehindu.com/news/national/operaton-brahma-india-sends-relief-materials-to-earthquake-hit-myanmar/article69390029.ece, accessed on 31 October 2025.

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Part III
Force Multipliers

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Chapter 23

Surface Navy

From Buyer's to Builder's Navy

Naval architecture can be traced as far back as the fourth millennium BCE when Egyptians constructed boats and small rafts from bundles of reed tied with hemp rope, propelled by oars or poles.[1] According to Elliot Smith, Egyptian technology laid the foundations of shipbuilding which influenced maritime development worldwide for centuries.[2] Rafts remained common across different parts of the world, evolving into regional variants. The Kon-Tiki expedition of 1947 led by Thor Heyerdahl, a Norwegian explorer, recreated these ancient rafts to demonstrate how early civilizations could have crossed oceans using them. Early water rafts also included dug-outs or hollowed tree trunks, used before advanced shipbuilding techniques emerged.[3]

India's shipbuilding tradition dates back to the Indus Valley Civilization (3,500–1,700 BCE). At that time, maritime trade thrived with planked ships, and skilled navigators who sailed to West Asia, Mesopotamia, Africa, and beyond. Some evidence even suggests these vessels might have been capable of long oceanic voyages—perhaps reaching as far as the Americas.[4] Around 2,300 BCE,[5] the Harappans built what is considered the world's first tidal dock at Lothal (in present-day Gujarat) to berth and service ships. The large anchor stones discovered there support this remarkable feat of early engineering.

Ancient Vedic texts such as the *Rig Veda* and *Shatapatha Brahmana* mention naval expeditions and sea routes to distant lands that were already well known during the Vedic era.[6] By the fourth century BCE, India was constructing large ocean-going vessels and maintaining active trade with Egypt, Arabia, Africa, and Rome.[7] Ships built and crewed by Indians sailed across the Indian and Pacific Oceans long before Western nations ventured there.[8] Sangam literature refers to "catamaran" or "Kattumaram", meaning tied logs in Tamil, which were used as rafts for fishing and transport as far back as 3rd century BCE.[9]

Pali literature describes ships capable of carrying as many as 700 passengers, while Kautilya's *Arthashastra* records detailed knowledge of shipbuilding practices of that era.[10] During the Mauryan period, vessels—some with thirty oars—were reportedly built in the Punjab region for Alexander's fleet.[11]

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From the Mauryan era onward, shipyards flourished in Calicut, Cochin (now Kochi), Kaveripattinam, Masulipatnam, and Calcutta (now Kolkata). The Vijayanagar Empire saw the shipbuilding industry reach new heights, with ships being built not only in India but also in the Maldives.[12] The Chola dynasty (984–1042 CE) launched powerful naval expeditions to Burma (Myanmar), Ceylon (Sri Lanka), Malaya, and Sumatra, putting an end to piracy in the region.[13] Centuries later, in the sixteenth century, Admiral (Sarkhel) Kanhoji Angre's fleet used innovative guerrilla tactics against a superior British navy—further proof of India's enduring maritime strength and shipbuilding legacy.

The Indian Ocean was a vibrant hub of maritime trade during medieval times, linking Indians, Chinese, Arabs, Africans, Javanese, and Sumatrans long before Europeans entered these waters. However, the Mughal dynasty's land-focused outlook led them to prioritize terrestrial trade and warfare, contributing significantly to the decline of India's maritime activity during this period.[14] Indian naval power began its gradual fall in the thirteenth century and had weakened considerably by the time the Portuguese arrived in 1498 CE. From the fourteenth to the sixteenth centuries, European powers extended their dominance over sea trade, while Indian rulers' continental mindset further eroded the subcontinent's maritime strength. Yet, despite Western domination, Indian shipbuilders remained skilled and active well into the nineteenth century.

By the time the British established their presence, India's shipbuilding industry was already thriving, with several coastal shipyards in operation.[15] In 1612, the British set up a factory at Surat—then a prominent shipbuilding centre even during Portuguese times. However, due to its vulnerability to attacks and lack of space for large-scale construction, they shifted operations to Bombay in 1693.[16] Around this period, one name rose to prominence and shaped Indian shipbuilding for the next two centuries—the Wadias. Under the supervision of Master Builder Lowjee Nusserwanjee, the Bombay Dock was completed in July 1750.[17] It was India's first dry dock and remains operational even after more than 250 years. The modern Mazagon Dock Shipbuilders Limited (MDL) traces its origins to this era, beginning as a modest East India Company ship repair yard in the eighteenth century.

The Bombay Dock is still considered a marvel of engineering for its ingenuity and prowess in Indian masonry. Ships, built from teak at Daman, displacing 800 to 1000 tons, were found to be superior to their British counterparts—both in design and durability.[18] Lieutenant Colonel A. Walker wrote in 1911 that "The docks that have recently been constructed at Bombay are capable of containing vessels of any force. … the teak wood vessels of Bombay were greatly superior to the oaken vessels of Old England."[19] Consequently, active measures were adopted to cripple the Indian shipbuilding industry. Nevertheless, many Indian ships were inducted

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into the Royal Navy, such as the HMS *Hindostan* in 1795, HMS *Camel* in 1801, HMS *Minden* in 1810, the frigate *Cornwallis* in 1813, HMS *Ceylon* in 1808, HMS *Ganges* in 1821, and HMS *Asia* in 1824.[20]

The Era of Steam Ships

Steam engines were initially introduced into steamboats while in the 1800s came the paddlewheel steamers. Only later, in the 1830s, were transatlantic voyages made entirely on steam. Within 10 years of the introduction of a steamship in the Royal Navy, an Indian-assembled steamship from the Bombay Dock had been commissioned for the erstwhile Bombay Marine, redesignated as the Indian Navy on 1 May 1830. Thus, the change in technique of naval construction did come to India, but not in as good a time as it should have. Further, with the invention of the screw propeller, British naval policy was to acquire ships from Britain and there was no question of even a discussion on the feasibility of building such advanced ships in an industrially backward India.

Old type ships, however, continued to be built in the erstwhile Bombay Dock under the able guidance of the master builders, the Wadias. It was only with the fourth master builder, Nowrojee Jamsetjee, that steam technology was introduced at the Bombay Dock in the 1830s. The HMS *Investigator*, built in 1881, was the last of the wooden paddle-steamers for the survey service in India, and the HMS *Meeanee*, built in 1842, was the last in the "second rate" 80-gun ships, later converted to a screw ship at Chatham in 1854. Both these ships were launched during Cursetjee Rustomjee's tenure as Master Builder.[21] The HMS *Meeanee* was the last of the ships built for the Royal Navy in the Bombay Dock.[22]

Indian Shipbuilding—Traversing the "Slow" Years

Events, both political and scientific, were occurring in quick succession. The Great Rising of 1857 (also known as India's First War of Independence) was followed by the end of the East India Company rule in 1858 and the redesignation of the Indian Navy as Her Majesty's Indian Navy. Again, in 1863, the designation was changed to the Bombay Marine. Aside from the political scenario, the invention of the iron hull in 1840, the steel hull in 1880, the diesel engine in 1895, the turbine in 1900 and the electric motor vessel in 1903 on the scientific front—all occurring in a matter of five decades—had an adverse impact on the shipbuilding industry in India. From 1857 onwards, shipbuilding in India was done on a low key, in the sense that only smaller ships were built. It is noteworthy, however, that in 1883, the *Nancowry* was built as a wooden screw steamer, and the engines were built in the Bombay Dockyard for the first time.[23]

The Wadia era came to an end in 1884. In a span of 150 years, the Wadia family of nine hereditary Master Builders contributed immensely with their

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skill and energy in constructing 170 war vessels for the East India Company, 34 warships for the Royal Navy and 87 merchantmen, and other specialized vessels for private firms.[24] If these figures are impressive, the performance of each and every vessel was even more spectacular. For durability, there is the *Trincomalee* as a living testimony; for speed, there was the *Punjab*, renamed *Tweed*, which completed its passage from London to Melbourne in 83 days (a record for its time);[25] and for sturdiness, one had the *Ferooz*, unscathed in the worst grounding ever recorded, and the *Salsette*, trapped in ice and escaping unhurt.[26] With the advent of modern shipbuilding in the twentieth century (early 1900s onwards), the industry remained dormant until World War I. "Despite the recommendations of the Indian Mercantile Marine Committee appointed by the Government in 1923, the industry was not revived as it was evidently in conflict with British shipbuilding interests."[27] And so, having missed the propitious Industrial Revolution bus, coupled with its suppression by the colonial yoke, a strategic national industry that had once been an important reason why India had seemed so attractive to its colonial masters, got consigned to dormancy. Between the two world wars, there was hardly any progress in the shipbuilding industry in India, except that the Scindia Steam Navigation Company Ltd ventured to establish a shipbuilding yard in India under the management of the luminary industrialist and visionary, Seth Walchand Hirachand in 1941, at Visakhapatnam. This was a watershed event that heralded the revival of India's once coveted skill even if, at that juncture, shipbuilding wasn't an economically sustainable business for an independent private entity. It is this very shipyard that stands today as Hindustan Shipyard Ltd (HSL).

The ownership of the shipyard in Bombay had changed many hands before being taken over by the Government of India (GoI). Mazagon Dock Limited was acquired by the government in 1960, to set in motion the strategic national objective of indigenous warship building and became a Public Sector Undertaking (PSU) on 14 May 1960.[28] Garden Reach Workshops in Calcutta (later to be named Garden Reach Shipbuilders & Engineers Ltd or GRSE) was involved in small-scale shipbuilding and repairs since 1884. This shipyard was also acquired by the government in 1960. In 1957, the Portuguese established a yard on 6 November 1957 named Estalerios Navais de Goa.

In December 1961, after the liberation of Goa from the Portuguese, the management of the shipyard was handed over to the Mazagon Docks. The yard went through a series of changes before it got its current name, Goa Shipyard Limited (GSL), in 1967 with a majority stake having been acquired by the GoI. The Directorate of Ship Production was first formed as the Directorate of Leander Project in 1968 to steer the construction of the Leander class of Frigates. The Directorate was subsequently renamed as Directorate of Naval Ship Production (DNSP) in the revised organization

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of Naval Headquarters on 26 May 1980 and thereafter as Directorate of Ship Production (DSP) on 2 September 1986. The Directorate has steadily grown over the years, and steered construction of more than 100 ships by 2025.

Despite these additions after Independence, it was felt that this bouquet of yards could not fulfil the requirement of adding more shipping tonnage to the nation. Therefore, in 1972, India's first greenfield shipbuilding yard, Cochin Shipyard Ltd (CSL) was created by the Indian government, with technological collaborative assistance from Mitsubishi Heavy Industries, Japan. Within four years of the shipyard's creation, the construction of the first of the 75,000 DWT (deadweight tonnage) Panamanian-type bulk carriers, *Rani Padmini*, commenced on 11 February 1976. During this period, the yard had also created a facility to dry dock vessels of up to 100,000 DWT.[29]

It would be interesting to note that these "hubs"—MDL, GRSE, GSL and CSL—were historically significant as shipbuilding centres, some of them since the seventeenth century CE. Their roots go deep down into history. It should, therefore, come as no surprise that the medieval era held in its palm the destiny of modern Indian shipbuilding. Conversely, some of the biggest, more prominent shipyards stand as evidence of India's long, arduous and fruitful preoccupation with this craft, thereby not only holding in its fold many stories, but also becoming a story itself, one that is studded with long-standing achievements in the form of several milestones that still continue to be a cause of pride and prestige. The modern warship unlike wooden hulled sail ships stands in a different league of craftsmanship, design prowess and intellectual complexity. Modern warship design and construction is an iterative process that involves numerous interconnected and overlapping agencies. Designing for maximum survivability, yet constructing in a cost-effective manner presents constraints which are not easily surmountable. It, therefore, becomes imperative that "quality" and orderly integration are embedded at every stage of warship building, be it design, construction, trials or training, so that a warship can be equal to the task in the defence of the nation.

Today, the survivability of a warship means more than just enduring the assault of the elements or the foe. It requires that the vessel's infra-red, acoustic and radar cross-section signatures be minimized to the best extent possible, so as to avoid detection by the enemy. The stealth and velocity (of ordnance) are force multipliers in modern warfare. Firepower is obviously the most critical component that needs careful planning. The modern warship typically has multiple weapons. The primary offensive weapon suite is determined by the role of the warship, say anti-surface, anti-submarine, or even strategic delivery. For its defence, it would have anti-aircraft, anti-submarine and anti-surface weapons along with dispensers for decoys and

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electronic warfare packages against anticipated threats. Larger warships also carry secondary weapon outfits for support, if required.

The process of envisaging India's prowess as a shipbuilding major, and placing it in the league of those select nations which have a thriving, flourishing shipbuilding industry would not be complete without elaborating on the manner in which some of these major shipbuilding "hotspots" have evolved and come to stand as they do today. Their evolution also stands as a metaphor, if not as testimony, of India's coming of age as a shipbuilding nation.

Warship Building in India

Mazagon Dock Shipbuilders Limited (MDL)

Genesis

Currently headquartered in Mumbai, Mazagon Dock Shipbuilders Limited (MDL) rose from humble beginnings in the eighteenth century as a ship repair yard for the East India Company. Today, it has emerged as India's topmost shipbuilding and fabrication yard. It would be interesting to recall that it was here that the first of the Wadia "Master Builders" was commissioned by the British in 1774 to set up a dry dock. Over the years, the ownership of the shipyard changed many hands: from the East India Company, then the Peninsular & Oriental Steam Navigation Company (P&O Group) to the British India Steam Navigation Company and thereafter the Mackinnon & Mackenzie Managing Agents, until it was finally taken over by the Government of India (GoI) in 1960. The takeover was done with the objective of setting in motion the strategic national aim of indigenous warship building. MDL became a functioning Public Sector Undertaking (PSU) on 14 May 1960.

Progress

The scale, scope and nature of achievements registered by MDL in the post-Independence era are noteworthy. A shipyard which once built sailing vessels and wooden hulled ships for the British has evolved over the years to currently build the Type 15 B (follow-on of the *Kolkata* class) destroyers, and the modern Scorpène-class submarines. In the interim, as the proverbial saying goes, "a lot of water has flown under the bridge", and the subsequent sections will help illuminate the same.

The Leander

The first modern warship built by MDL was the *Leander*-class frigate INS *Nilgiri*. Its design was obtained from the British Admiralty and the frigate itself was built in collaboration with Vickers Ltd and Yarrow (Shipbuilders) Ltd of the UK. The *Nilgiri* joined the fleet on 3 June 1972,

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after a historic commissioning of the ship by Indira Gandhi, the then Prime Minister. Subsequently, three more *Leander*s christened *Himgiri*, *Udaygiri* and *Dunagiri* were commissioned into the Indian Navy in November 1974, February 1976, and May 1977, respectively.

Observing the trends in the new weapon platforms in advanced countries, the Indian Navy took the initiative to modify the design of the *Leander*-class frigates through in-house efforts. Thus, the fifth and the sixth *Leander*-class ships were completely different in dimensions and packaging from their predecessors. Fundamental changes were made in their guns, radar and fire-control systems (FCS). Two Seacat Surface-to-Air Missile (SAM) launchers replaced the original single unit. The ship was modified to operate the Seaking helicopter (as against the much smaller Alouette Medium-range Anti-submarine Torpedo Carrying Helicopter [MATCH] Role). The new hull design incorporated in the new *Leander*-class frigates and installation of the advanced weapon fit were innovative ventures between the Indian Navy and MDL without any form of external assistance.

The production of the fifth frigate, eventually named *Taragiri*, commenced on 15 April 1975 and the ship was commissioned on 16 May 1980. The construction of the sixth *Leander*-class frigate, *Vindhyagiri*, commenced on 5 July 1976 and it was commissioned on 8 July 1981. The Leander Project ushered in a new crop of designs, scores of modern shipbuilding and integration skills, and greater confidence amongst the yard's workforce.

The Godavari-class Indigenous Design

Concurrent with the acquisition of ships from the Soviet Union from the mid-1970s to the late 1980s (guided missile destroyers, missile corvettes, minesweepers, maritime reconnaissance anti-submarine warfare [MRASW] aircraft and ASW helicopters), another effort at redesigning the stretched *Leander* (*Taragiri*) was underway at the Directorate General of Naval Design. This effort led to the Project 16 *Godavari*-class frigates. The production of *Godavari* commenced on 15 May 1978, and the lead ship was launched in 24 months, that is, May 1980, followed by its commissioning in 1983. Two more, viz. *Ganga* and *Gomati*, followed, the latter having been delivered in December 1987.

The Khukri and Vibhuti classes

After the *Godavari* came the *Khukri* class of ships (*Khukri*, *Kuthar* and *Kirch*) from 1988 to 2001. INS *Khukri* was commissioned on 23 August 1989. After more than 32 glorious years of service to the nation and having participated in all forms of naval operations, the ship was decommissioned in a solemn ceremony on 23 December 2021 when the national flag, naval ensign and decommissioning pennant were lowered at sunset.[30] Along with

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that, MDL also rolled out the follow-on.[31] *Veer* class of missile vessels (INS *Vibhuti* [1991], INS *Vipul* [1992], INS *Nashak* [1994] and INS *Prabal* [2002]) which heralded the yard's entry into the era of building gas-turbine propelled warships, marked yet another milestone in MDL's journey to building state-of-the-art warships.

Project 15: Delhi-*class Destroyers*

The jewel, not only in the crown of MDL but also in that of the nation, was the arrival of the *P-15* class of ships, or, as it was rechristened later, the formidable and majestic *Delhi*-class destroyers—at that time, the largest warships built in India. The three ships of this class, INS *Delhi*, *Mysore,* and *Mumbai,* were commissioned on 15 November 1997, 2 June 1999, and 22 January 2001, respectively. The *Delhi* class were the first destroyers made by MDL. They were larger, faster and more capable in all domains of naval warfare and represented a quantum leap in the country's shipbuilding capabilities. Three ships of the *Delhi* class are in active service now—namely INS *Delhi*, INS *Mumbai*, and INS *Mysore*.

Building upon the achievements of the *Delhi*-class destroyers, MDL advanced with the *Kolkata*-class under Project 15A consisting of INS *Kolkata*, INS *Kochi*, and INS *Chennai* commissioned from 2003 to 2016, which were a stealthier derivative equipped with modern sensors and the BrahMos supersonic cruise missile system. Following the successful legacy of the *Kolkata* class, Project 15B was also executed by MDL, introducing the *Visakhapatnam*-class. The class comprises four ships—INS *Visakhapatnam*, INS *Mormugao*, INS *Imphal*, and INS *Surat*, delivered between 2021 and 2024.[32] The commissioning of INS *Surat* on 15 January, 2025, the fourth and final vessel of the series, marks the successful completion of India's most advanced indigenous destroyer program to date.

Fig. 23.1: An Indian Navy Destroyer Firing a BrahMos Missile



Source: Naval History Division, Indian Navy

Owing to the success of the Leander project, the Navy launched an advanced program to construct a new generation of stealth guided-missile frigates that would be the evolution of older Leander class frigates.

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Incorporating improved stealth features, automation, and indigenous systems the project was entrusted to MDL to build four of the seven frigates. The lead ship, INS *Nilgiri*, had its keel laid on 28 December 2017, and was commissioned on 15 January 2025.[33] INS *Taragiri* (F41) and INS *Mahendragiri* (F38) were launched in 2022 and 2023, respectively, all constructed under Project 17A. Following *Nilgiri*, INS *Udaygiri* (F35) was delivered on 1 July 2025 and commissioned on 26 August 2025.[34] These vessels represent a significant leap in India's indigenous warship design and construction capabilities, combining state-of-the-art stealth, combat, and propulsion technologies developed under the Navy's long-term modernization vision.

The First Submarines

After detailed government-to-government negotiations, Howaldtswerke-Deutsche Werft (HDW) of Germany were selected by the GoI to build two submarines in their yard at Kiel and to transfer the technology used and the material package to MDL for building subsequent submarines in India. MDL began its association with the collaborating shipyard (HDW) in July 1980 and a formal agreement was signed between them in December 1981. The construction of submarines in India was a major milestone, for which the facility named East Yard at MDL was formally inaugurated by Prime Minister Indira Gandhi on 6 May 1984. The production of the first submarine had already begun on 12 January that year and the second one commenced on 12 September the same year. The first indigenously build *Shishumar*-class diesel–electric submarine, INS *Shalki*, was launched on 30 September 1989 and commissioned on 7 February 1992. The second, INS *Shankul*, was launched on 21 March 1992 and commissioned on 28 May 1994. Both were built under a technology transfer agreement. Building on this foundation, MDL undertook the Scorpène-class (Kalvari-class) submarines under Project 75, producing all six advanced diesel–electric boats domestically namely INS *Kalvari*, INS *Khanderi*, INS *Karanj*, INS *Vela*, INS *Vagir*, and INS *Vagsheer*—the last of which was commissioned on 15 January 2025, completing the series.[35]

Other Achievements

Apart from these epochal milestones, MDL has also constructed Offshore Patrol Vessels (OPVs) for the Indian Coast Guard, Offshore Supply Vessels (OSVs) and Multipurpose Support Vessels (MSVs) for the petroleum industry, and even dredgers during the course of its long and eventful history. Apart from this, MDL was the first in India to construct offshore platforms and jack-up rigs, and nearly 50 per cent of all wellhead platforms at Mumbai High.

Today, MDL is one of the premier shipbuilding yards in the country

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not only capable of constructing submarines but also the largest warships with the Indian Navy and Coast Guard benefitting immensely from its contributions.

Garden Reach Shipbuilders & Engineers Ltd (GRSE)

Genesis

Through centuries, the Hooghly River, on whose left bank is situated the port of Kolkata, has seen vessels of all shapes and sizes transiting through it for various purposes, be it fishing, trading, piloting, carrying troops or just for cruising. Even though smaller workshops and *karkhana*s had existed along the river through time, a full-fledged workshop was established in 1884 on the banks of the Hooghly specifically to repair vessels belonging to the River Steam Navigation Company that were used for transportation over the Ganges, Bhagirathi, Hooghly, Brahmaputra and other interconnecting rivers and canals. This workshop, established at the present location of the Main Works of Garden Reach Shipbuilders & Engineers Ltd (GRSE), formed the origin of GRSE.

Garden Reach Works Ltd, located in Kolkata, was developed by the famous P&O Company (formerly the Peninsular and Oriental Steam Navigation Company), to maintain their ships in Indian waters. On 26 February 1934, the Garden Reach Workshop was incorporated as a Joint Stock Company and registered under the Indian Companies Act, 1913 under the name Garden Reach Workshops Limited (GRW). From 1934 to 1960 GRW was managed by Macneill & Barry Ltd, Managing Agents of the P&O Group.

During World War II (1939–45) the shipyard made its mark in carrying out construction, conversion and repair of a large number of naval and merchant vessels. Reportedly, during the war years, over 4,000 vessels were repaired at GRW. After Independence, from the early 1950s onwards, GRW started meeting the nation's needs for small vessels and harbour craft. On 5 November 1957, GRW was rechristened as Garden Reach Workshops Private Ltd, under the Companies Act, 1956.

Warship Building

In 1957, when V.K. Krishna Menon became India's defence minister, he was convinced about the Navy's aim of becoming a builder's navy and therefore envisaged a role for shipyards like MDL and GRW (later GRSE) in building warships at home. After a protracted period of deliberations and negotiations, the GoI, in a package deal with the P&O Group, acquired both MDL and GRW on 19 April 1960 for GBP2,882,487 or INR3.85 crore. This heralded a new dawn for the company as it was reborn as a government-owned Central Public Sector Enterprise and set sail on a course towards self-reliance in the defence sector. In 1961, the first-ever warship designed

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and built in the country, the INS *Ajay*, a Seaward Defence Boat (SDB), was made at GRSE. On 31 December 1976, the company's name was changed to Garden Reach Shipbuilders & Engineers Ltd (GRSE). Since then, GRSE has traversed several such first-time ventures, such as missile corvettes, multirole steam propelled frigates, and fast attack craft, to name a few.

INS *Ajay*, after having served the Indian Navy for 13 years, was transferred (gratis) in 1974 to serve as a warship of the Bangladesh Navy which hardly had any resources, having gained independence three years earlier. Before being transferred, it was put under maintenance repairs (an extensive refit). The Bangladesh Navy renamed it BNS *Surma*. The second ship of the class, INS *Amar*, was transferred to Mauritius in March 1974 to become MNS *Amar* to start with and, later, CGS *Amar*.[36]

Ships for the Indian Coast Guard (ICG)

One of the first decisions taken up on the founding of the Coast Guard (now the Indian Coast Guard or ICG) in 1978 was to place an order to GRSE to construct two patrol vessels for the Indian Coast Guard. Just like the unique distinction of building the first indigenous warship INS *Ajay*, GRSE also holds the milestone of having built the first-ever patrol vessel for the ICG, CGS *Rajhans*.

SDBs for the Navy

GRSE has been a leading player in designing and constructing vessels for coastal security since the early 1960s when the company was known as GRW. The first lot of SDBs built by GRSE had riveted hulls with a displacement of 180 tons. Three such ships were built by GRSE for the Indian Navy from 1974 to 1978.These diesel-powered ships achieved a maximum speed of 25 knots.[37] They were classified as SDB Mk-I ships. The follow-on versions of SDBs were of improved design and came with a number of modifications. These were the SDB Mk-II ships, followed soon after by updated SDB Mk-III between 1983 and 1985.

The First Indian Hydrographic Ship

The first survey vessel for the Indian Navy was also designed and built by GRSE. This 1900-ton ship, INS *Sandhayak*, was commissioned on 26 February 1981. Thereafter, five more survey vessels were built and delivered to the Indian Navy between 1983 and 1993. Later the *Sandhayak*-class (Survey Vessel–Large) project was undertaken by GRSE that comprised INS *Sandhayak*, INS *Nirdeshak*, INS *Ikshak*, and INS *Sanshodhak*, built under a 2018 contract to enhance Navy's hydrographic survey capabilities.[38] The lead ship INS *Sandhayak* of 1981 was decommissioned in June 2021,[39] whereas the new one was commissioned in February 2024, with the remaining vessels launched or delivered between 2022 and 2025. INS *Ikshak* was commissioned on 6 November 2025.[40]

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The First Indian Fleet Tanker
INS *Aditya*, the largest indigenously built fleet replenishment tanker, with a displacement of 24,600 tons, was built by GRSE and commissioned on 3 April 2000.

Landing Ships (1987–2006)
The first indigenously designed Landing Ship Tank-Large (LST [L]), INS *Magar*, was built by GRSE and commissioned on 18 July 1987. Follow-on vessels, Indian Navy Ships *Gharial*, *Shardul*, *Kesari* and *Airavat*, were of improved design. These ships were delivered between 14 February 1997 and 30 March 2009. GRSE, therefore, also has the unique distinction of having built all the LSTs (L) currently in service with the Indian Navy.

Guided Missile Corvettes (1998–2004)
GRSE has built four missile corvettes of the Type 25 A for the Indian Navy.[41] The first corvette under this project, INS *Kora* was commissioned on 10 August 1998. Subsequent vessels of the class were commissioned by 2004. The *Khukri* class corvettes include INS *Kora*, INS *Kirch*, INS *Kulish*, and INS *Karmukh*, commissioned between 1998 and 2004.[42]

Building Frigates for the First Time
After the successful construction of major weapon platforms like the P-25A Missile Corvettes, GRSE was found ready to reach the next level in warship construction. The contract for the construction of three *Brahmaputra*-class frigates (Project 16A) was signed in 1986. This was a turning point in GRSE's shipbuilding capabilities. The *Brahmaputra*-class were steam-engine propelled vessels—something that GRSE had never tried its hand at earlier. These frigates were multirole platforms with a contemporary suite.

Indian Navy's Project 17A, wherein *Nilgiri*-class stealth frigates were built, was not only entrusted with the MDL but a few of them were assigned to GRSE, which was tasked with building and delivery of INS *Himgiri*, the third ship of the *Nilgiri*-class and the first of its class commissioned on 31 July 2025 at Kolkata.[43] The Project 17A frigates are the successors of the *Shivalik* class, and feature advanced stealth, automation, and combat systems, representing India's most sophisticated indigenous surface combatants.

Hovercraft for the ICG
In 1999, GRSE joined hands with Griffon Hoverwork Limited, UK to build a hovercraft.[44] This was a valuable partnership for imbibing new technology. A total of six vessels were built, the first two having been imported directly from the UK and the remaining four built by GRSE between 1999 and 2005.

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Fast Attack Craft

The Fast Attack Craft (FAC) developed in-house in the late 1990s was one of the most successful designs developed by GRSE. The first of this class was delivered on 11 September 2000, and the remaining seven were delivered between February 2001 and July 2006.

Offshore Patrol craft

GRSE developed a series of high-speed offshore patrol vessels between 2007 and 2011. The first of these Car Nicobar-class water-jet propelled vessels is optimized for rapid interception, surveillance, and special operations in India's littoral waters. The class includes several ships such as INS *Car Nicobar*, INS *Chetlat*, INS *Cora Divh*, INS *Cheriyam*, INS *Cankarso*, INS *Kondul*, and INS *Kalpeni*.[45] The *Car Nicobar*-class craft have enhanced the Navy's coastal defence and patrol capabilities through agility and advanced navigation systems. The first two of this class, INS *Car Nicobar* and INS *Chetlat*, were commissioned on 16 February 2009. This was a rare occasion when two warships were delivered concurrently and commissioned together. Contract for construction of four Next Generation Offshore Patrol Vessel (NGOPVs) has been signed with GRSE on 30 March 2023, with deliveries planned from end 2026-28.

Anti-Submarine Warfare Corvette

In 2003, a new milestone was carved with the commencement of the construction of new generation anti-submarine warfare (ASW) corvettes. Four of these ships have since been under construction, under the code Project 28 (P-28). The design and combat features of these ships make them extremely versatile, with excellent stealth features, both above and below the surface. While the first two have been made with conventional material, the two remaining will use composite carbon fiber superstructures—a first in surface vessels in India. More importantly, these ASW corvettes have won a distinction in having over 90 per cent indigenous content, that is, material sourced from India. This has been possible due to sustained efforts to become self-reliant on the part of both the Indian Navy and GRSE. P-28 or the *Kamorta*-class Anti-Submarine Warfare corvettes have advanced sensors, low radar and acoustic signatures. The class comprises four ships—INS *Kamorta* commissioned in 2014, INS *Kadmatt* commissioned in 2016, INS *Kiltan* commissioned in 2017, and INS *Kavaratti*. The last of the series was commissioned in 2020 and all are equipped with state-of-the-art sonar suites, torpedo launchers, rocket systems, and advanced communication networks built by GRSE.

Additionally, GRSE is constructing eight *Arnala*-class Anti-Submarine Warfare Shallow Water Craft under a 16-vessel national program, sharing the build responsibility with Cochin Shipyard.[46] The lead ship, INS *Arnala*,

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was delivered in May 2025, followed by others such as INS *Anjadip*, INS *Amini*, INS *Agray*, INS *Androth*, INS *Akshay*, INS *Abhay* and INS *Ajay*, progressing through various stages of launch and commissioning between 2022 and 2025. INS *Androth* was commissioned on 6 October 2025. [47]

Pursuing Expansion

GRSE has endeavoured to grow with the demands of time, augmenting infrastructure, upgrading technology and enhancing its human capital. As witness to its steps towards diversification, on 1 July 2006, GRSE took over the RBD from the Central Inland Water Transport Corporation (CIWTC), thereby becoming India's biggest defence shipyard in terms of real estate. This facility, spread over an area of 33 acres and with a water front (Hooghly River) of 600 metres, has already enabled the expansion of GRSE's shipbuilding effort.

Aside from the above, GRSE had also embarked upon a phased modernization program for upgrading its infrastructure, given that it is a very old shipyard. Accordingly, a preliminary concept proposal for modernization was prepared in 2001–02. The Initial Phase-I Modernization was completed by 2005–6. Phase-I of this effort was aimed at revamping the existing (somewhat vintage) shipbuilding infrastructure to facilitate construction of larger ships and accordingly, the building berth, block handling, and workshop and store capacity were increased.

Subsequently, the Phase-II Modernization of GRSE was undertaken, the aim of which was to create a new shipbuilding infrastructure that would enable integrated construction of large ships, using advanced modular shipbuilding technology. Accordingly, an integrated shipbuilding facility comprising a new dry dock, building berth, module hall and a 250-ton Goliath crane was created. The crane has a reach that encompasses the dock, the building berth, a module hall as well as the paint cell. With this, the shipyard has doubled its capacity and now has the unique capability of building eight large and six small warships simultaneously. After the modernization of existing infrastructure and acquisition of RBD, the shipbuilding capacity of GRSE will increase to 14 ships at a time. This facility provides greater flexibility to undertake construction of ships in the form of blocks and mega blocks concurrently at different locations including at the vendor's premises. This will considerably reduce the build period to the extent of 30 to 40 per cent.

It would not come as a surprise, therefore, that the GoI, in recognition of GRSE's exceptional performance in shipbuilding, accorded it the Mini Ratna—Category I status on 5 September 2006. This status has provided enhanced decision-making powers and increased delegation of financial powers to the yard. Additionally, GRSE has also undertaken some major research and development programs over the years that include the

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development of new hull forms of warships with sizes varying from 65 to 115m and capable of speeds of 25 to 35 knots. The company also took to structure the design for high-speed small boats (25-30 metres in length with a speed range of 25 to 30 knots) for meeting the requirements of the Ministry of Home Affairs. On the export front, GRSE made history with the MCGS *Barracuda*, an offshore patrol vessel derived from the *Kora*-class design, launched in August 2013 and delivered to the Mauritius Coast Guard, marking India's first-ever export warship and showcasing the country's growing capability in global naval shipbuilding.[48]

Goa Shipyard Limited (GSL)

Goa, a Port City of Infinite Possibilities

Goa was coveted by a great number of Indian kingdoms and dynasties from the fourth century CE onwards as a beacon of advancement and prosperity—its shoreline being just as full of possibilities then as it is now.[49] By 1510, Goa Dourada (Golden Goa) was the centre of the world's spice trade and one of the richest places on earth. It is said that more people lived in Goa than in London or Paris at the time. History has it that the Gomati River (now named Mandovi), flowing between the elevated lands of Tiswadi and Bardez, had developed on its banks dense maritime traffic, both coastal as well as trans-oceanic. Pre-Portuguese Goa was indeed an international port, frequented by ships from Aden, Ormuz, Palestine, Cambay and other hinterland kingdoms. And so, to build new ships and to provide repair facilities, the (pre-Portuguese) rulers had maintained a well-equipped shipyard at old Goa. The easy availability of skilled manpower and requisite material made Goa one of the most sought-after port destinations of shipbuilding.[50]

1957–1970

Since there were only two slipways and limited depth of water at its seafront, shipbuilding during this period was limited to the construction and repair of small vessels, particularly barges. Towards the end of this period, the addition of a third slipway and extension of the first two slipways helped develop infrastructure.

1971–1980

This period witnessed the construction of small auxiliary vessels. Four barges were constructed for the Government of Yemen during this period. This era also saw the construction of an additional fourth slipway and the extension of existing berths. Between 1975 and 1977, additional land measuring 17,400 sqm was acquired for the Yard Expansion Project which included fabrication bays, high-capacity cranes and some essential machinery. This augmentation aided in the construction of larger vessels and a 300-ton barge was also built for the Government of Iran. The year

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1976 saw GSL taking a quantitative leap with the building of three Landing Craft "Utility" (LCU) Mk-II for the Indian Navy. These vessels were built to rigid specifications, demanding exacting standards of an improved design for use during opposed amphibious landings.

1981–1990

By the year 1983, the third and fourth phases of expansion were completed, which significantly increased the yard's capacity to build larger and more sophisticated vessels. A CAD/ CAM Centre, equipped with world-class structural hardware and software, was commissioned in 1989. This era saw a major turnaround in the yard's build capability as a number of defence orders for LCU Mk-III, torpedo recovery vessels (TRVs), SDBs and survey vessels were successfully executed. Seven auxiliary vessels were constructed as well for the Government of Mozambique during this time. These were the years that also saw the shipyard extend its capabilities to include specialized auxiliary vessels such as support vessels for offshore platforms of the Oil and Natural Gas Corporation (ONGC). This project was the first move towards the diversification of GSL's capabilities.

The increased capacity to build hydrographic survey vessels were the main highlights of this era. In a closely contested competition, GSL won a prestigious contract for the design and construction of three Advanced Offshore Patrol vessels—the largest for the ICG.

1991–2000

The augmentation of certain facilities during the period added new momentum to the shipyard's activities. Construction of OPVs, missile vessels (1,241 REs) and hydrographic survey vessels were the main highlights of this era. In a closely contested competition, GSL won a prestigious contract for the design and construction of three Advanced Offshore Patrol vessels—the largest for the ICG. Faith in GSL's growing capabilities was further reinforced when GSL was awarded the order for the construction of the first sail training vessel (INS *Tarangini*). Successful construction of the sailing ship, in collaboration with Colin Mudie of UK, proved to be an exciting challenge that instilled confidence in the yard. It was also during this period that GSL established itself as a dependable yard for the task of designing as well as constructing weapon platforms.

2001–2010

This was a time that saw a plethora of new technologies being imbibed. Besides building conventional vessels, the construction of five Extra Fast Attack Craft (XFACs) was undertaken. These new types of vessels were built on the back of a number of transfer-of-technology (ToT) agreements with European/ Israeli shipyards. The capability of building OPVs was further

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strengthened with the adoption of stealth design for Naval OPVs (NOPVs). These warships were based on the shipyard's in-house R&D effort which led to its own design having been found successful for specific requirements of the Navy. The drive towards infrastructure augmentation and yard expansion continued during this decade and major infrastructure for mine countermeasure vessels (MCMVs; yet to be built) was initiated, including a ship lift, jetties, workshops, etc. There were many other ways in which the period 2001–10 was momentous.

2011–2025

Contract for construction of two additional follow-on ships of Project 1135.6, at GSL with Russian assistance and ToT was signed on 25 January 2019. This contract was signed through a G2G agreement between India and Russia towards promoting indigenous shipbuilding design. The ships being constructed at GSL would be similar to *Teg* class ships, with majority Russian equipment being replaced with indigenous equipment. Contract for construction of seven Next Generation Offshore Patrol Vessels (NGOPVs) was signed with GSL on 30 March 2023. The build period for delivery of the first ships is 42 months (September 2026). The delivery of the remaining ships will be at intervals of six months each.

Survey Vessels

GSL was chosen to construct two survey vessels for the Indian Navy in mid-1995. The design was based on the *Sutlej*-class ships. However, numerous changes had to be incorporated in them due to modifications in design suggested from time to time. One such critical modification was the hull-mounted multi-beam echo sounder which, it was assumed, would pose challenges during the process of dry docking the vessel for refit/maintenance. Further, stern thrusters were introduced on these types of (hydrographic) ships for the first time. It was also the first time that ships were class approved under the Lloyd's Register of Ships (LRS) classification;[51] this approval was limited to hull design only. From approving the hull drawings to surveying the hull—a task that demanded coordination on a large scale—the entire process was carried out by LRS. While the survey equipment of the ships had to be imported, achieving 80 per cent indigenization in the construction of the vessels was a matter of pride for a defence shipyard. The first of the two vessels, INS *Darshak*, was launched on 28 April 1998 and delivered on 23 March 2001. The second ship of the project, INS *Sarvekshak*, was launched on 24 November 1999 and delivered on 22 December 2001.

The Construction of 1241 RE Missile Vessels

The *1241 RE*-class missile vessels, the first four of which were directly imported from the Soviet Union, had their follow-on ships built under ToT

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from ALMAZ of St Petersburg, Russia. Four of these follow-on vessels, viz. *Vinash*, *Vidyut*, *Prahar* and *Pralaya*, were built at GSL. Of these, INS *Pralaya* had a completely new weapon-sensor suite. It was delivered to the Navy on 11 December 2002.

Extra Fast Attack Craft (XFACs)

The Extra Fast Attack Craft (XFAC) class of ships is one of the most efficient surface combatants of its size in the world. The XFAC was designed for being put to sea at the shortest possible notice for day and night coastal surveillance and reconnaissance, search and rescue missions (SAR), special operations tasks and high-speed interception of small intruder craft over territorial waters.

Naval Offshore Patrol Vessels (NOPVs)

Having successfully built various types of vessels for the ICG since the mid-1970s, GSL had mastered the art of designing and constructing OPVs—used for coastal and offshore patrolling, ocean surveillance and monitoring of sea lines of communication (SLOCs), defence of offshore oil installations, escorting high-value ships and embarkation/ operation of the advanced light helicopter (ALH). As compared to the design of similar NOPVs in operation with navies of other countries, the design of this platform incorporates excellent stability and other (improved) features in terms of functionality, maintainability, better ergonomics and habitability.

The keel for the first ship (an NOPV), *Sarayu*, was laid on 15 December 2006 and the construction of the other three vessels also started progressively with the keel of *Sunayna* being laid on 25 September 2007, *Sumedha* on 7 May 2008 and *Sumitra* on 28 April 2010 (P-59). Considering the huge success of *Tarangini*, launched in December 1995, GSL was again called upon to construct its follow-on clone, *Sudarshini*. The vessel's keel was laid on 14 May 2009. Unlike its predecessor, *Sudarshini* was built on the concept of modular accommodation in the living area, which is fully air-conditioned. *Sudarshini* was commissioned in January 2012. Following its success, the *Vishwast*-class Offshore Petrol Vessels comprising ICGS *Vishwast*, ICGS *Vijit*, and ICGS *Vaibhav* were also build by GSL. They represent a series of three advanced patrol ships designed for long-endurance maritime surveillance, anti-smuggling, anti-piracy, and search and rescue (SAR) missions. GSL also constructed the *Samar*-class OPVs for the Coast Guard, which includes ICGS *Samar*, ICGS *Sangram*, ICGS *Sarang*, and ICGS *Sagar*.

Under Project 301–304, GSL delivered the *Saryu*-class long-range OPVs for the Indian Navy between 2011 and 2014, comprising INS *Saryu*, INS *Sunayna*, INS *Sumedha*, and INS *Sumitra*.[52] These 105-metre, 2,300-ton ships, powered by twin diesels and equipped with advanced surveillance and communication systems, are capable of operating both independently and as

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part of fleet formations, enhancing the Navy's capacity for coastal defence, maritime patrol, and anti-piracy operations in the Indian Ocean region.

Other Vessels

Apart from the ships listed above, GSL constructed a number of OPVs and fast patrol vessels (FPVs) for the ICG too during the aforementioned period. GSL was also entrusted with developing mine countermeasure vehicles. However, the project is delayed as of now. It also successfully designed and constructed a number of boats for the Central Police Forces under the Ministry of Home Affairs.

Hindustan Shipyard Limited (HSL)

The long journey towards making ships in India started eons ago. However, one shipyard that was established just before Independence was a first-time attempt at bringing the art of modern shipbuilding to the east coast. This effort was the founding of the first greenfield shipyard in the year 1941 under the name Scindia Steam Navigation Co. Ltd by Seth Walchand Hirachand. Today, it is known as Hindustan Shipyard Ltd (HSL). Seth Walchand selected Visakhapatnam as the port as it was considered an ideal location strategically. Accordingly, in November 1940, he acquired land there. On 21 June 1941, he invited Dr Rajendra Prasad, the then president of the Congress party, to lay the foundation stone of the shipyard, breaking the prevalent norm of inviting British officials to do so.

The establishment of HSL resulted in an exponential increase in the visits of foreigners and traders to Visakhapatnam. Because of this, and the need to transport raw material, the city was linked to Bombay, Madras, and Calcutta by the Indian Railways and subsequently by air too. After the hiatus in industrial activity caused by World War II years, the construction of the yard's infrastructure resumed in the mid-1940s. The first ship to be constructed entirely in India, at a (then) contemporary shipyard, was at this very yard and it was christened the MV *Jala Usha*. Its keel was laid in 1946.

In the absence of any subsidy in the shipbuilding industry, the Scindias had a tough time breaking even in their shipbuilding venture. They sought relief; the government of the day decided to take over the yard but had to step back due to financial constraints facing the country just after Partition. However, it was later decided that the yard be nationalized. In 1952, two-thirds of the yard's holdings were acquired by the GoI in 1952 and HSL was incorporated on 21 January that year. This was one of the rare instances when a private company initiated proposals and willingly handed over an industrial establishment to the government.

The process of expansion and development gained momentum when the government acquired all the shares of the Scindia House in July 1961. And so, HSL emerged as a PSU under the administrative control of the Ministry

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of Shipping & Surface Transport (MOST). The yard's real estate holding was expanded from 55 acres to 73 acres in the 1960s, primarily to accommodate the construction of a graving dock and a wet basin. Construction of the country's largest dry-dock (at the time) was completed at HSL in August 1971. With a size of 244 metres by 38 metres, it was capable of handling vessels up to 70,000 DWT.

INS *Dhruvak*, a mooring vessel, the first vessel built by HSL for the Indian Navy, was delivered on 16 November 1958. In December 1964, the shipyard built the first hydrographic survey vessel, INS *Darshak*, equipped with state-of-the-art sensors and electronic equipment. Non-weaponized warships (survey vessels, OPVs and LSTs) like Indian Navy Ships *Dhruvak*, *Darshak*, *Savitri*, *Gharial*, *Sarayu*, *Sharda*, and *Sujata* were built by HSL. Further, during its life under the MOST, the shipyard also repaired 80 vessels for the Indian Navy and ICG.

HSL entered a new domain, that of conventional submarine repairs, by winning the order for in-depth repair/retrofitment of new equipment on INS *Vagli*, a *Foxtrot*-class submarine which was repaired between 1997 and 2007. The yard was also nominated to undertake the medium repair-cum-modernization of 877 EKM Submarine INS *Sindhukirti*. This first-of-a-kind repair and upgradation was undertaken in 2006 and continued beyond 2010.

Since its inception till 2025, HSL has built 189 vessels and repaired 2,000 vessels of various types including cargo ships, offshore platforms, dredgers, tugs, research vessels, and naval auxiliaries for Indian Navy, Indian Coast Guard, ONGC, and Shipping Corporation of India. Out of these 189 ships, more than 20 ships (including the Korean design OPVs) were constructed for the Navy and the ICG. The yard was a profit-making company till the 1980s and paying regular dividends to its shareholders. However, due to worldwide recession in shipping/shipbuilding sectors, HSL's order book was adversely affected in the ensuing years. This had serious repercussions on its financial earnings. Consequently, after years of trying to break even, a Rehabilitation Plan was presented to the GoI in July 2005.

Due to persistent demands by the Navy to incorporate HSL into the Defence PSU fold, a Group of Ministers (Committee) recommended in 2008 that HSL be transferred to the Ministry of Defence (MoD). Considering the warship and submarine building requirements of the Navy, the yard was brought under the administrative control of the MoD on 22 February 2010. Hereafter, the Navy hopes to capitalize on this yard, it having been added to the "Defence Industrial Base" of the nation and particularly to the strategic industry of warship building.

Among India's earliest indigenously designed and built amphibious warfare vessels are INS *Magar* and INS *Gharial*. The crafts were a joint venture of HSL and GRSE. HSL also has in its portfolio INS *Dhruv*, a

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research and missile-tracking instrumentation ship built for the Indian Navy and DRDO, commissioned on 10 September 2021.

One of Hindustan Shipyard Limited's most remarkable achievements came in 2023, when the rejuvenated yard secured the landmark contract to build five Fleet Support Ships (FSS) for the Indian Navy, valued approximately at INR 19,000 crore.[53] The project involves the design and construction of five 45,000-ton Fleet Support Ships, which will serve as the largest auxiliary vessels ever built in India. These ships will play a crucial role in extending the Navy's operational reach by providing at-sea replenishment of fuel, ammunition, and stores to carrier battle groups and other fleet units. Construction has begun in 2023 and the ships are expected to be delivered between 2027 and 2030.

Another significant milestone for HSL has been its successful construction of two Diving Support Vessels (DSVs)—INS *Nistar* and INS *Nipun*. The first of its class, INS *Nistar* features over 75 per cent indigenous content, and was commissioned on 18 July 2025.[54] INS *Nipun* on the other hand is at an advanced stage. The vessel, when operational, will support deep-sea diving, submarine rescue, underwater repair operations, and will be equipped with state-of-the-art diving systems.

With these accomplishments, HSL has firmly established itself as a harbinger of *atmanirbhar* shipbuilding ecosystem. The increasing indigenization has earned it eligibility for Mini Ratna status.

Cochin Shipyard Limited

Cochin Shipyard Limited (CSL), located in Kochi, Kerala, is India's largest public-sector shipbuilding and repair facility, operating as a Mini Ratna company under the Ministry of Ports, Shipping and Waterways (MoPSW).[55] The shipyard achieved a major milestone with the successful construction of Project 71—INS *Vikrant*, India's first indigenously built aircraft carrier, which marked the nation's entry into the elite group of countries capable of designing and constructing carriers domestically.

In addition to the carrier, CSL specializes in building naval auxiliaries, research vessels, and offshore support craft. The yard is currently executing eight Anti-Submarine Warfare Shallow Water Crafts, and INS *Mahe*, which is already delivered. Six next generation missile vessels designed for high-speed coastal and blue-water operations are underway. CSL has also taken up high value repairs including INS *Vikramaditya*, INS *Shardul*, ICGS *Samar*, INS *Sagardhwani*, and INS *Jamuna*.

Hooghly Dock & Port Engineers Limited (HDPEL)

Located in Kolkata, the Hooghly Dock & Port Engineers Limited is one of India's oldest shipyards, originally founded in 1819. It became a public-sector enterprise when the Government of India took over its operations to enhance national shipbuilding capacity. Initially under the Ministry

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of Industry, it was transferred in 1986 to the Ministry of Shipping. To modernize and revitalize the yard, a joint venture was approved in March 2017 between Cochin Shipyard Limited (CSL) holding 74 per cent equity and HDPEL holding 26 per cent, leading to the incorporation of Hooghly Cochin Shipyard Limited (HCSL). They built the Hooghly-class fuel barge, a series of 1,000-tonne fuel barges for the Indian Navy.[56]

M/s Larsen & Toubro Shipyard

M/s Larsen & Toubro Shipyard (L&T) in a joint venture between Tamil Nadu Industrial Development Corporation (TIDCO) has established a shipyard at Kattupalli, which is approximately 40 km north of Chennai. The shipyard was issued a Warship Production License by the Department of Industrial Policy and Promotion, Ministry of Commerce, Government of India on 27 June 2007 for a period of two years. The initial approval was subsequently extended for lifetime on 25 May 2009. The license covers manufacturing of warships, submarines, weapon platforms and high-speed boats/ crafts. The shipyard has a ship lift facility of over 21,000 tons and four outfitting jetties. The shipyard has constructed OPVs, Interceptor Boats for Indian Coast Guard and is executing construction of three Cadet Training Ships (delivery planed from end 2026 to 2027) and two Multi-Purpose Vessels (delivery planned in 2026) for the Indian Navy. Further, the shipyard has emerged as a success story for PPP model in the country for shipbuilding wherein GRE and HSL have subcontracted part construction of four ASW SWC and two Fleet Support Ships to the shipyard. Out of the four ASW SWC, ex GRSE that have been subcontracted to M/s L&T Shipyard, the first ship, INS *Arala*, was delivered to the Indian Navy in May 2025 and the second ship, INS *Anjadip*, was delivered in end 2025.

MSME Shipyards

Indian Navy has been regularly engaging with Micro, Small and Medium Enterprises (MSME) and Small and Medium Enterprises (SME) Shipyards which have been primarily contracted by the Indian Navy to construct Yardcraft. The engagement with MSME and SME Shipyards has fostered local economic development in the areas, and promoted employment generation across the country. The engagement with shipyards has increased over a period of time and over 12 MSME Shipyards are registered with Indian Navy in 2025.

Naval Dockyard, Visakhapatnam

The Indian Navy's presence at Visakhapatnam dates back to the 1940s, when under the British Raj a small flotilla of warships operated for India's coastal defence. To maintain these warships, a Boat Repair Shop was

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established in 1940 under HMIS *Circars*, providing logistic support to the British Army during operations in Burma. This facility was later expanded into a Base Repair Organisation (BRO) in 1958 forming the foundation of what is today the Naval Dockyard, Visakhapatnam.

During the late 1960s, when the Indian Navy began inducting a new generation of technologically advanced warships and submarines, there emerged a growing operational and maintenance need of this modern fleet. The BRO evolved into a fully-fledged Naval Dockyard in 1972. Spread across 704 acres with a 5-km waterfront and 3.5 km of jetties and berths, the Naval dockyard has become one of India's most sophisticated ship-repair facilities.[57]

The dockyard excels in the repair and maintenance of a diverse range of warships and submarines, equipped with state-of-the-art weaponry, propulsion, and electronic systems, making it the largest naval repair establishment on India's eastern seaboard. The core responsibilities include conducting refits of ships and submarines as directed by Integrated Headquarters, Ministry of Defence (Navy), providing repair and maintenance support and managing berthing, movement, and docking operations for ships.

Indigenous Designing Capability—A Unique Skill for a Navy

Designing warships is a completely different science as compared to designing merchant ships. It is a creative, iterative process with the ultimate objective of fully satisfying the Naval Staff Qualitative Requirements (NSQRs). That apart, it also involves a number of interconnected agencies besides the user-representative directorates at the Naval Headquarters. Two imperatives that can be categorized as "must-haves" are: maximum survivability and cost effectiveness of the final product. These two factors warrant that quality be ensured at every stage of warship building, be it during the time of creating a detailed design or subsequently at the time of construction. The process is an exemplar of a physically large and complex web including numerous equipment, and systems and devices that are integrated in a manner that all types of (desired) functions can be performed with maximum efficiency and least chance of failure.

The most important features that have to be embedded in a warship's design include the properties of mobility, fighting capability and adaptability to varying situations. Speed, stability, seakeeping qualities, strength and stealth are specially catered for, as factors that make them distinct from merchant vessels. Today's warships must also incorporate features that help in avoiding detection by radar, thermal, or acoustic sensors of the adversary. Another requirement unique to warships is accommodating a large crew (as compared to commercial vessels) in a very limited space.

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The most demanding task, of course, is the intricate process of integrating complex systems like the weapon-sensor suite, the combat-management system including networks for feeding inputs, extracting outputs, and providing redundancies in case of defects or damage. In fact, the challenges faced by designers of warships are complex and sometimes conflicting, and these require to be addressed without compromising on the fighting ability and survivability of the vessel. Warships have to be designed for quick deployment, propulsion power for independent maneuverability and high speeds. Yet they must be economical in terms of fuel consumption for "sea legs" (that is, they ought to be capable of being kept deployed for long durations with the onboard fuel). Apart from being highly maneuverable, the design must be such as to keep them stable even in high sea states. This one factor is extremely important for ensuring crew alacrity and weapon efficiency no matter what the nature of the operating environment.

One obvious requirement in designing a warship is the need to pack maximum firepower in the vessel. It requires the placement of large pieces of specialized hardware inside the hull, and on the superstructure. This aspect requires extremely intricate and careful planning for the design effort as it involves interfacing various devices (sometimes from different sources) and integrating all systems for precision control at the nerve centre. Yet another typical necessity in a warship's design is the need to build it in such a fashion that it can accommodate an increase in and the replacement of weapons and other systems as desired during the life cycle of the ship. For this reason, as far as possible, today's warships are designed based on modular concepts.

Because every new class of platform is meant to perform a particular role and fill a vacancy in the desired force structure of the Navy, the process of designing is not as simple as templates on the drawing board. Due to the factors described above, the process of designing a warship is laborious and time-consuming and graduates from the concept design stage through numerous iterations before a final design is produced. When the design gets converted to a full-fledged warship, it is easy to draw the analogy that it is like a city afloat since there are people who work, sleep, operate and monitor equipment, provide electricity, food, water, and all such requirements that are needed for normal life. The most important attribute of a warship, unlike a city, of course, is that it has the capability to fight with weapons.

Indian Roots—Design of Ages

India's pre-eminent position in shipbuilding is common knowledge and is already discussed elsewhere in this book. The country, through the ages and despite several setbacks and less than ideal circumstances, has kept the art and science of shipbuilding alive. The British East India Company observed with envy India's shipbuilding capability as the ships being built out of

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Malabar teak by a supposedly "inferior race" was highly seaworthy and had long survivability, making it far superior to theirs in terms of longevity as well as seakeeping. Throughout the nearly two century-long British rule, ships built in India formed an integral and important part of the British fleet, in waters both home and afar.

In the years immediately after Independence, the Indian Navy consisted of a few and mostly second-hand ships. As a young nation still finding its feet, its requirements were naturally expected to grow, thus necessitating newer acquisitions. Friendly nations willing to offer sophisticated ships to India at that time were scarce and the foreign exchange to fund such acquisitions even scarcer. Thus, it was of vital importance for the country to plan for building indigenous capabilities.

It was as early as 1950 when the Navy recruited its first naval architects and thereby laid the foundation for creating a capability to design and build its own ships. Building a Corps of Naval Constructors within the Navy was thought of sometime in the subsequent years and training of the first few batches was carried out in the UK. The Directorate of Naval Construction was established at Naval Headquarters in 1954. Subsequent batches were trained in India, at the Faculty of Naval Architecture, Indian Institute of Technology Kharagpur (IIT Kgp), the only faculty for the discipline at that time in India. This arrangement was such that engineering graduates inducted by the Navy were sent to IIT Kgp for a period of two years to qualify as naval architects.

In 1962, a small design cell was set up within the Directorate of Naval Construction (DNC). By 1964, it had grown to become the Indian Navy's Central Design Organisation (CDO) which assisted in the construction of the new fleet tanker *Deepak* in the Federal Republic of Germany in 1966. By 1968, CDO had successfully designed numerous auxiliary vessels like the 200-ton water boat *Ambuda* (1966), 500 HP Tug *Balshil* (1966), Hopper Barges *Sevak* and *Sahayak* (1967), Bucket Dredger *Nikarshaka* (1967), and Victualling Barges *Pankaj* and *Amrit* (1967–68). These were modest beginnings that met with varying degrees of success, yet they proved to be critical points in the learning curve of the organization determined to chart an independent and indigenous course.

The Design Bureau

Warship building was well and truly ushered into the country with the licensed production of *Leander*-class frigates in the 1960s. Giving a fillip to the Navy's ambition of becoming a Builder's Navy, Prime Minister Indira Gandhi, following the launch of *Nilgiri*—the first *Leander*—in 1968,

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directed that the Navy's design office should design frigates, submarines and other fast craft (now that there was a design office). This laid the foundation for self-reliance in warship design and production in the "1969–74" Defence Plan. The aim of this plan was to meet the Navy's requirements through indigenous efforts and conserve foreign exchange. Accordingly, the indigenous construction of frigates, patrol craft, submarines, minor war vessels and auxiliaries was accepted therein. In 1969, the Naval Headquarters proposed to the government that a sanction for a full-fledged Directorate of Naval Design (DND) be accorded.

Eventually, in 1970, DND came into being, operating from an office at the R.K. Puram Defence Offices Complex in New Delhi. The newly created DND had a staff strength of about 200 personnel. A noteworthy feature of DND was that it was conceived and created as an integral part of the Navy, thereby enabling a close interaction at all levels, while functioning under the scrutiny of the Naval Staff. In May 1986, DND was segregated into two groups: namely DND "Surface Ship Group" (DND [SSG]) and DND "Submarine Design Group" (DND [SDG]).

Though at the outset, DND was understandably a compact organization, it was slowly but surely laying the foundation for a self-sustaining fleet of the future. The consistency of DND's upward trajectory over the years in terms of its ever-expanding size as well as the complexity of the warships it has come to design will become evident as one goes deeper into the chapter.

The First Attempt—Survey Vessels

One of the early designs from the drawing boards of the nascent directorate was for building survey vessels. These vessels were required to undertake shallow coastal as well as deep oceanic hydrographic surveys and collect oceanographic and geographical data required for the production of navigational charts and publications.

The vessels were designed to carry a range of modern surveying, navigational and communication systems, including echo sounders, extensively equipped laboratories and four survey launches. Besides carrying out the primary role of hydrographic survey, these vessels were also to be equipped to assist in times of war and natural calamities as troop transports and casualty holding (hospital) ships. The designed vessel had a length of 87.8 metres, a displacement of 1,950 tons and a maximum speed of 16 knots. The ship was also required to operate a helicopter needed for extensive surveys and search and rescue (SAR) operations at sea. It was one of the first successful designs to which ultimately eight such vessels were built. The first ship of the class, INS *Sandhayak*, was commissioned in 1981, and the eighth in the series, INS *Sarvekshak*, in early 2002.

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The Stretched Leander

Nilgiri and its three successors—*Himgiri* (1974), *Udaygiri* (1976) and *Dunagiri* (1977)—were landmark inductions in the Indian Navy, as they heralded the age of India's ability to make its own major warships. These four *Leander*s were made under the guardianship of the Directorate of Leander Project (DLP). Thereafter, it was felt that the fifth and sixth ships of the class needed better anti-submarine warfare (ASW) capabilities.

By 1973, the NHQ had decided that the design of the fifth frigate would be given to DND instead of DLP. The revamped weapon and sensor suite replaced several ageing equipment with more contemporary ones. These, along with design changes,[58] delayed the commencement of the construction of the frigate. INS *Taragiri*, the fifth *Leander* (but the first designed by DND and employing new design elements and weapon suite), was commissioned on 16 May 1980. INS *Vindhyagiri* followed suit on 8 July 1981.

The Leander Project commenced with *Nilgiri* under DLP in 1966 and was concluded with *Vindhyagiri* under DND in 1981. By the time of the last ship, the indigenous content of bought-out equipment had risen to 70 per cent. Also, the fifth and the sixth ships had 27 per cent imported content as against 70 per cent in the case of the first ship.

Gaining Confidence in Designing: The Godavari*-class Ships*

Post 1971, the Navy was looking at a platform that would incorporate the lessons learnt in the just concluded Indo–Pak war. This called for an upgraded weapon package which included surface and air capabilities, in addition to the anti-submarine capability of the earlier *Leander*-class frigates.

The need was felt for an option where surface-to-surface, anti-submarine, anti-air, and even air-to-surface (through integral aircraft) capabilities would be available from a single ship.

This naturally required the ship to have surface-to-surface missiles (SSMs), surface-to-air missiles (SAMs), a large stock of anti-submarine torpedoes, and helicopter-launched air-to-surface missiles. It was decided to opt for two Seaking helicopters so that at any given time one helicopter could be kept in the air, be it for an anti-submarine mission or an anti-ship mission. All this appeared to be too much to incorporate in the existing *Leander* design.

The Design Directorate was then headed by S. Paramanandhan.[59] Given the requirements in terms of designing, organizational capability also needed to be built up as there were not enough trained draughtsman or junior designers to assist in the process. Further, a well-thought-out decision was taken to design a larger hull while using well-established, conventional, steam turbine machinery and auxiliaries. This meant that a new frigate had to be designed from scratch, except for the propulsion package.

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Project 16 was the designation given to the three frigates that would follow the stretched-*Leander* Project. The preliminary design was completed by 1975. Initial checks indicated that with all weapon packages (including the helicopters) and additional manpower, the new design would lose around 2 knots of speed but could provide a longer range by 20 per cent. As the design progressed, the designers realized that the ship had to be longer and thinner to accommodate all the requirements. It now seemed that the increased length would result in the ship doing just about half a knot less than the *Leander*. Finally, during the detailed design phase, which commenced in 1976, it turned out that the new ships would be about 8 m longer than the original *Leander*. It was predicted with confidence (and later proved) that there would be no loss of maximum speed; in fact, the ship would go faster! This was because the designers had hit upon the right hull-form that resulted in a lower wave-making resistance, thereby decreasing the total resistance of the ship at higher speeds. The keel of *Godavari*, the first ship of the class, was laid in 1977 and the ship commissioned in 1983. The two other ships *Ganga* and *Gomati* were commissioned in 1985 and 1988, respectively. The *Godavari* class truly heralded the coming of age of the Indian warship-building capability, also attracting international attention. The *Godavari*-class vessels were featured on the cover of *Time* magazine in 1989, with the caption "Super India-The Next Military Power".

The Smart Corvette

Another successful venture of DND was the Project 25, *Khukri*-class corvette. The task of designing the corvette was assigned to the DND in 1976. The team developed a new hull form which amounted to packing a much heavier weapon load on board than the *Leander* could accommodate, but at less than half the former's displacement, together with the ability to launch a helicopter from such a small platform! This exceptional design was validated in 1978, and four ships of the *Khukri* class (*Khukri*, *Kuthar*, *Kirpan* and *Khanjar*) were produced between 1989 and 1991.

With the passage of time came the need to keep pace with new technologies in the weapon-sensor suite as well as some systems onboard. Thus came Project 25A, the *Kora* class, again with four ships (*Kora*, *Kirch*, *Kulish* and *Karmuk*) delivered between 1998 and 2003.

The Amphibians—Landing Ship Tank (Large)

The Landing Ship Tank-Large (LST [L]) was one of DND's precious projects. The main purpose of these ships was to deliver men and material on shore in support of amphibious assaults. A single ship could transport up to 500 troops, 10 main battle tanks and eleven 3-ton vehicles. Apart from this, the capability of these ships to project power ashore was greatly enhanced by the Seaking and Dhruv helicopters. The ships were also armed with guns

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and rocket launchers required to "soften up" a hostile beach before the tanks went in and the Landing Craft Assault (LCA) charged in with assault troops. Five ships of this class, namely *Magar*, *Gharial*, *Shardul*, *Airavat* and *Kesari* were delivered between the years 1987 and 2009.

Cadets Training Ship

INS *Tir* was the first dedicated Cadets Training Ship to be designed by the DND. It was designated to be a senior ship of the First Training Squadron. To fulfil its role, the ship was required to be fitted with the latest navigational and communication equipment. It was also to have the capability of operating helicopters from its deck. To save on cost/time-consuming military specifications (mil specs), the Navy had decided to build the ship to commercial standards. Typical deployment was to accommodate up to 120 cadets and 20 instructors apart from some other staff. Construction of the *Tir* commenced at MDL in 1982 and the ship was commissioned in 1986.

Embarking on the Ambitious* Delhi*-class Destroyer

With the confidence gained from the success of the *Godavari* program, the Indian Navy was now poised to embark upon a very ambitious design of a large destroyer. At the outset, several conceptual studies were undertaken concurrently with a search for weapons and propulsion packages. A major decision to go in for gas turbine propulsion was taken after an intense debate. These conceptual studies eventually pointed to a multi-mission command platform with a top speed of over 30 knots.

The design was intended to be an improvement over all previous designs and imbibe useful features of ships of both Western and Eastern origin, based on the Indian Navy's first-hand experience of operating these ships for several years. This culminated in the design of a successful *Delhi* class which would catapult India to the league of a select few nations that have the capacity to design and construct such complex warships. The weapons package for Project 15 was totally new, as was its propulsion aggregate.

The professional judgement and knowledge of the designers were stretched to the limits to determine the dimensions, weight, stability and structural parameters of this class of warships. Long hours and weeks and months were spent on deliberating and debating various issues. Further, the requirement of thicker scantlings and a rugged structure to meet the harsh environmental conditions wasn't making things any easier for the designer.

The design was undertaken at SSPA Sweden[60] in late 1985 and the greatest point of satisfaction came when the results were found to be positive. However, since that was the first time that the design of a ship with the size and complexity of a major vessel was undertaken by DND, it was decided to repeat model tests at the Krylov Institute in the Soviet Union for further validation. This was done in 1986 and the design proved to be effective

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again.[61] Subsequently, the contract for three ships under P-15 (the *Delhi*-class destroyers) was signed with MDL. Unfortunately, due to the break-up of the Soviet Union and the ensuing confusion in finalizing the weapon package, the construction of these ships was delayed. INS *Delhi* was finally commissioned in 1997, INS *Mysore* in 1999 and INS *Mumbai* in 2001.

Legends in the Making: The Brahmaputra*-class Frigates*

While MDL had matured as warship builders over the years, GRSE and GSL were still building vessels less effective in terms of combat capability and complexity of design, like SDBs, LCUs and OPVs for the ICG. Therefore, it was considered essential to offload some important projects to these yards as well. Only then would they come up to speed and help the Navy in acquiring adequate force levels quickly and prevent resort to imports. To start with, therefore, GRSE was nominated for building three frigates of Project 16A (*Brahmaputra* class). These ships were to be built as follow-on vessels of the P-16 (*Godavari* class) frigates with many changes in the weapon-sensor suite as also in the Operations Room.

To fully leverage GRSE's capacity, while minimizing the inherent difficulties in absorbing new, more complex designs, the proposal for construction of these frigates also included the transfer of technical knowhow, design specifications and lead-yard services from MDL (which had made the P-16 vessels).

The majority of the weapon fire-control systems, sound navigation and ranging (sonar), electronic warfare (EW), navigational and communication suites were supplied by PSUs like BEL, ECIL, HAL and Keltron. The propulsion turbines, turbo alternators, diesel alternators and steam auxiliaries were also manufactured indigenously by BHEL, HAL and a number of private sector firms. Indian industry had come into its own and displayed the capability in building state-of-the-art equipment not only conforming to stringent defence standards but also capable of withstanding the extremely hostile marine environment.

The outcome was a healthy project with almost 70 per cent indigenous content, and GRSE evolved to handle the construction of warships of the frigate category. The process of creating a second production line for bigger warships had begun in right earnest.

Shivalik*-class Stealth Frigates (Project 17)*

In the mid-1990s, the Navy decided to progress towards indigenous attempts at pure stealth forms. The DGND therefore embarked upon the first-ever effort in designing stealth frigates. Thus, was born the concept for Project 17—the *Shivalik* class. The principal design-governing factor of this project being stealth, a major part of the endeavour was directed towards achieving this breakthrough in technology. To explain stealth, the

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phenomenon that reveals the identity of an object is called its signature. A ship has many signatures that are critical against homing torpedoes and missiles; for instance, the radar cross-section (RCS), the infra-red signature (IR), the noise signature, the extra-low-frequency emissions (ELFE), etc. Therefore, the design had to be such as to make the ship as detection-free as possible. During the course of this effort, DND (SSG) acquired the requisite technologies and imbibed the know-how for creating stealth designs, a specialized domain within warship designing. Implementation of stealth specifications for P-17 ships was an onerous task requiring the development of noise isolation equipment, interaction with equipment suppliers to ensure adherence to stipulated specifications, the development of RCS materials and a host of other such activities.[62]

The unique hull form of the P-17 design catches the eye from its exteriors to the innards. The nerve centre of the ship's fighting capability is another triumph in indigenous effort: the ATM-based Integrated Shipborne Data Network (AISDN), which was supplied and integrated by BEL. This is the backbone network that allows all electronic information from the ship's systems and sensors—such as engines, navigation equipment, radars, weaponry, radio sets and control systems—to be transmitted digitally all over the ship on a common data bus. Taking feed from AISDN is another network—the Computer-aided Action Information Organisation (CAIO)—which brings to the captain a complete picture (plot) of the battlefield. The ship's machinery (propulsion, power generation and other systems) is controlled through an Integrated Machinery Controlled System (IMCS) that links all the engines and other auxiliary machinery, via an optic fibre cable layout, to various control points.

The P-17 is the first design in the Indian Navy with a Total Atmospheric Control System (TACS), which filters all the air going into the ship at all times, including the air being used by the engines. This removes all risk-prone elements including radioactive, chemical and biological impurities, thus protecting the crew and the systems.

The *Shivalik* not only wears sleek lines on the outside. The stealth frigate has also been designed to provide a conducive environment for its crew to achieve higher peaks of efficiency through a good mix of ergonomics and comfort. These ships were the first to be outfitted with standardized modular living quarters. The platform is also gender-sensitized with cabins designed for women officers, the main feature being attached washrooms and additional wardrobes. All subsequent designs will have similar modular quarters.

The construction of the lead ship, *Shivalik*, commenced in 2000 and it was commissioned in the year 2010. With a sleek form, low signatures in all fields, and armed with cutting-edge weapon-sensor suites, these frigates now form the front-end of the fleet, drawing positive appraisal from all quarters. The second ship of the class, *Satpura*, was commissioned in 2011; and the

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third ship, *Sahyadri*, in 2012. Although made in Mumbai, these ships now form part of the Eastern Fleet at Visakhapatnam.

Nilgiri-*class Stealth Frigates (Project 17A)*

Follow-on series to the Project 17 (*Shivalik*-class) frigates is the Project 17A Frigates, known as the *Nilgiri*-class, designed and developed indigenously by the Warship Design Bureau (WDB) of the Indian Navy. These guided-missile frigates incorporate enhanced stealth features, advanced weapons and sensors, and next-generation Integrated Platform Management Systems (IPMS). Each ship measures 149 metres in length, displaces around 6,670 tons, and is powered by a Combined Diesel or Gas (CODOG) propulsion system comprising a diesel engine and gas turbine driving Controllable Pitch Propellers (CPPs), allowing a top speed of 28 knots. The weapon suite includes supersonic surface-to-surface missiles, a medium-range surface-to-air missile system, a 76 millimetre main gun, and a combination of 30 and 12.7 millimetre close-in weapon systems.[63]

A total of seven frigates are being constructed under Project 17A—four by Mazagon Dock Shipbuilders Limited (MDL) and three by Garden Reach Shipbuilders & Engineers (GRSE). *Nilgiri* and *Udaygiri* were constructed at MDL, *Taragiri* and *Mahendragiri* are being built at MDL, and *Himgiri*, *Dunagiri* and *Vindhyagiri* at GRSE. INS *Nilgiri*, the first of its class, was commissioned on 15 January 2025, followed by INS *Udaygiri* and INS *Himgiri*, which were commissioned on 26 August 2025.[64] The subsequent ships include *Taragiri*, launched in 2022, *Mahendragiri*, and *Himgiri*, a reincarnation of the erstwhile INS *Himgiri*, a *Leander*-class frigate decommissioned in 2005 after 30 years of service.

Project 17A has an indigenous content (IC) of more than 75 per cent, by project cost, orders for which have been placed with Indian firms, including MSMEs, boosting domestic industry, creating employment, and strengthening the defence manufacturing ecosystem. These multi-mission frigates are designed for "blue water" operations, capable of addressing both conventional and asymmetric threats across India's maritime zones of interest. The contract was signed on 20 February 2015, start of production (of first ship) was on 16 February 2017, and the last ship (*Vindhyagiri*) is expected to be delivered in August 2026. The program, running from 2019 to 2030, is India's largest ongoing surface combatant shipbuilding initiative, showcasing the country's ability to design and construct highly sophisticated warships indigenously. Building upon this success, the Navy has already begun conceptualizing the Project 17B program—a next-generation class of stealth frigates with an estimated value of INR70,000 crore.[65] The seven ships of Project 17B would be built in 4:3 ratio between L1 and L2 shipyards, selected on competitive basis from Category A shipyards (MDL, GRSE, L&T and CSL). Project 17B will carry forward India's vision

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of a technologically advanced, self-reliant, and globally competitive naval shipbuilding capability.

After* Delhi*, the* Kolkata*-class Destroyers

As a follow-on to the highly successful Project 15 (*Delhi* class) destroyers, Project 15A had a number of design changes. The underwater hull form was retained (same as the *Delhi*) to ensure proven hydrodynamic performance. However, a bow mounted sonar was introduced to enhance sonar acoustic performance. As a major improvement over P-15 ships, the above-water region of P-15A ships has been specially designed with enhanced stealth features obtained through styling of the hull-geometry, and use of radar transparent deck fittings.

Like the P-17 (*Shivalik* class), the habitability infrastructure onboard P-15A ships has once again been designed with a modular concept to ensure improved crew comfort, operational efficiency and optimized space utilization.

This class will be truly contemporary with a multifunctional conformal array radar which, apart from its surveillance function, will also feed target data to the weapons. The ships are also fitted with Vertical Launch modules capable of launching SAMs and SSMs. With their enhanced stealth features and land-attack capabilities, the P-15A (*Kolkata* class) destroyers have added a new dimension in naval warfare for the Indian Navy.

Visakhapatnam*-class Destroyers (Project 15B)*

Building upon the legacy of P-15 and P-15A, Project 15B was inducted by the Indian Navy. The *Visakhapatnam*-class destroyers represent the pinnacle of India's indigenous guided-missile destroyer development. The *Delhi*-class destroyers (1997–2001) marked India's first fully indigenous large surface combatants, while the *Kolkata*-class (2003–16) introduced advanced stealth features, modern sensors, and the BrahMos supersonic cruise missile system. The *Visakhapatnam*-class are 7,400-tonne stealth destroyers, integrating cutting-edge radar-absorbent shaping, sophisticated sensors, and advanced weapon systems.[66] These multi-role platforms are armed with surface-to-air missiles, anti-ship missiles, and torpedoes, enabling them to undertake a wide range of maritime operations in both offensive and defensive roles.

As part of P-15B, INS *Visakhapatnam*, the first of *Visakhapatnam*-class stealth destroyer, was commissioned on 21 November 2021. Later, INS *Imphal* was commissioned in December 2023.[67] Among them, INS *Surat*, laid down on 7 November 2019 and launched on 17 May 2022, was delivered to the Indian Navy in just 31 months, making it the fastest-built indigenous destroyer in India's naval history. With a length of 164 metres and powered by a Combined Gas and Gas (COGAG) propulsion system comprising four gas turbines, *Surat* achieved speeds in excess of 30 knots

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(56 km/h) during sea trials.[68] It is also poised to become the Indian Navy's first AI-enabled warship, incorporating indigenously developed artificial intelligence solutions to significantly enhance situational awareness and operational efficiency.

Kamorta-*class Corvettes*

Long after the P-25 corvettes came into being, a new project, designated Project 28 (P-28) for four ASW corvettes, was taken up by DND. These ships are largely indigenous in content. Built at GRSE, Kolkata, the first ship was christened as *Kamorta* after the first of the *Petya* class inducted from the Soviet Union in the late 1960s. These vessels feature low noise Combined Diesel and Diesel (CODAD) propulsion aggregate with very low radiated noise underwater. Advanced stealth features make them less susceptible to detection not only against submarines, but also aircraft and surface ships.

The platform marks the Navy's increasing efforts towards achieving stealth signatures with the design featuring a full beam superstructure with contemporary X-form[69]and sloped surfaces to reduce Radar Cross Section (RCS). The ship's hull form is highly efficient with excellent seakeeping and manoeuvrability characteristics. The ship is also fitted with a sophisticated stabilizer system, designed and fabricated indigenously. The propulsion as well as the power generation systems, and the damage control system are together enveloped by a state-of-the-art Integrated Platform Management System (IPMS), for achieving a superior state of control and integration. The ship's design also features an Integrated Bridge System (IBS). Almost 90 per cent of the ship is indigenous, the most prominent being the hull that has been built with special grade high-tensile indigenously developed steel. Other unique features include employment of Carbon Fibre Reinforced Plastic (CFRP) for the construction of the superstructure (in the third and fourth ships of the class), an indigenous rocket launcher for ASW, an indigenous surveillance radar for surface and air surveillance, and Rail-less Helicopter Traversing System.

Building upon the success of Project 28, the Government of India approved the Next Generation Corvette (NGC) Project or P-28A in 2022, designed by Warship Design Bureau of Indian Navy at an estimated cost of INR36,000 crore.[70] The project aims to build eight multi-role corvettes capable of performing anti-submarine, anti-surface, and limited anti-air warfare roles constructed by GRSE using modular design and stealth technologies, marking the next major leap in India's indigenous corvette development. It involves Integrated Mast and Modular Mission Payload Bays and weapons like BrahMos-NG or other surface-to-surface missiles, VL-SRSAM (Vertical Launch Short Range Surface-to-Air Missile) for air defence, lightweight torpedoes and rocket launchers for ASW and advanced sonar suite and combat management system. These corvettes will be able

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to switch between ASW (Anti-Submarine Warfare), ASuW (Anti-Surface Warfare) and AAW (Anti-Air Warfare) depending on operational needs.[71]

The Game Changer: Indigenous Aircraft Carrier (IAC)

As far back as 1979, the Navy had thought of building a Helicopter Carrier at home. Accordingly, DND first prepared a concept design for a Helicopter Carrier. Subsequent decisions of a Sea Control Ship, scaled down to an Air Defence Ship due to funding constraints of the early 1990s, and finally a full-fledged aircraft carrier with a ski jump was approved by the GoI in late 2002. Throughout those stages, DND was engaged in preparing and adjusting the design of the (intended) vessel. Finally, a functional design of the approved carrier was created between 2002 and 2004. This was followed by a much more laborious task of coming up with a detailed design. India is now part of an elite group of seven countries in the world that make and operate their own aircraft carriers. This makes the IAC the most prestigious project that the Indian Navy has taken up so far.

Fig. 23.2: Indian Naval Fleet, Led by Aircraft Carriers



Source: Naval History Division, Indian Navy

INS *Vikrant* has been built with state-of-the-art automation features and is the largest ship ever built in the maritime history of India. The ship was constructed at Cochin Shipyard Ltd (CSL). The production of IAC commenced in 2005 and the ship's keel was laid in 2009. Finally, commissioning of the carrier happened on 2 September 2022. The ship has a large amount of indigenous equipment and machinery from BEL, BHEL, GRSE, Keltron, Kirloskar, Larsen & Toubro, Wartsila India, etc. as well as over 100 MSMEs.[72]

The 262-metre-long carrier has a full displacement of close to 45,000 tons, which is much larger and advanced than its predecessor. The ship is powered by four gas turbines totaling 88 MW power and has a maximum speed of 28 knots. Built at an overall cost of close to INR20,000 crore, the project has been progressed in three phases of contract between MoD

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and CSL. It has an overall indigenous content of 76 per cent. *Vikrant* has been built with high degree of automation for machinery operation, ship navigation and survivability, and has been designed to accommodate an assortment of fixed wing and rotary aircraft. The ship would be capable of operating air wing consisting of 30 aircraft comprising MiG-29K fighter jets, Kamov-31, MH-60R multi-role helicopters, in addition to indigenously manufactured Advanced Light Helicopters (ALH) and Light Combat Aircraft (LCA) (Navy). Using a novel aircraft-operation mode known as STOBAR (Short Take-Off but Arrested Landing), the IAC is equipped with a ski-jump for launching aircraft, and a set of "arrester wires" for their recovery onboard.[73]

While commissioning the first aircraft carrier, Prime Minister Narendra Modi said:

> *Vikrant* is not just a warship. This is a testament to the hard work, talent, influence and commitment of India in the 21st century. If the goals are distant, the journeys are long, the ocean and the challenges are endless – then India's answer is *Vikrant*. The incomparable Amrit of Azadi ka Amrit Mahotsav is *Vikrant*. *Vikrant* is a unique reflection of India becoming self-reliant.[74]

An upgradation of the IAC is the Indigenous Aircraft Carrier-2 (IAC-2) which is at the proposal stage. The IAC-2 represents the next major leap in India's naval aviation capability. The aircraft carrier is planned as a 65,000-ton, CATOBAR-configured carrier equipped with advanced Electromagnetic Aircraft Launch System (EMALS) technology.[75] The IAC-2 is also expected to embark up to 55–60 aircraft, including new-generation fighters like Rafale M and airborne early warning (AEW) aircraft. Once completed, the IAC-2 will place India among the few nations capable of operating large, next-generation aircraft carriers with global reach and strategic deterrence capability.

In order to achieve India's vision of a powerful carrier battle group, the Indian Navy has sanctioned the Fleet Support Ship (FSS) Project, formally approved in August 2023 and valued at around INR19,000 crore.[76] The project marks one of India's largest indigenous naval shipbuilding contracts with Hindustan Shipyard Limited (HSL), Visakhapatnam, constructing five 45,000-ton Fleet Support Ships to serve as the logistical backbone of the Indian Navy's carrier battle groups. Designed in collaboration with the Directorate of Naval Design, these ships will be capable of Replenishment At Sea (RAS), enabling sustained blue-water operations.

Conclusion

To harness the major characteristics of a builder's navy, the most basic yet important requirement is to imbibe the art of shipbuilding. From there, a

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maritime nation must graduate to involving itself with the complex science of warship building. It is to the credit of our predecessors in the whites, who, at the time of Independence, set the bold aim of becoming self-sufficient as a builder's navy instead of a buyer's navy in their first mission statement of the Indian Navy. At the risk of repetition, it must be emphasized with a sense of pride that, despite having missed the Industrial Revolution and despite having lost touch with the sea since the thirteenth century CE, the nation, and particularly the Indian Navy, has successfully pursued the revival of the art and science of warship building. Today, not only are contemporary destroyers in series production, but the Indian Navy is also building the largest and one of the most complicated naval platforms—the aircraft carrier.

The Navy has been infusing the requisite thrust as well as funding from its own budget to upgrade certain infrastructure in these shipyards so that they not only remain contemporary in the techniques of shipbuilding but also speed up the pace of production. It would not be overstating that Indian warship building (and by inference, the shipbuilding yards) have truly come of age. Disadvantaged by a gap in direct involvement in matters maritime as discussed earlier, the Indian shipbuilding industry did well to start at the bottom and slowly work its way to the very top. From making small SDBs to having an aircraft carrier in the pipeline, the country's warship-building machinery has truly earned its spurs and stands shoulder to shoulder with the best in the world.

There are only a few countries in the developing world which can boast of an indigenous capability to both design and construct warships. Despite having lost out on the Industrial Revolution (having been under colonial rule during the period), India has evolved a very robust design bureau within the Navy, symbolizing both self-reliance and future thought that caters to these intricate exercises. The many milestones the Navy has crossed over the past decades in this context make for the difference between a confident "Builder's Navy" and a "Buyer's (or Borrower's) Navy".

Notes

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22. Tewari, *Through the Labyrinth of History*, p. 71.
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55. *Statistics of India's Ship Building and Ship Repairing Industry,* pp. iii –v.
56. Ibid., p. v.
57. "N D V Visakhapatnam", Indian Navy, https://indiannavy.gov.in/content/n-d-v-visakhapatnam, accessed on 4 November 2025.
58. One of the major changes was in the propulsion, with the conversion from Furnace Fuel Oil (FFO) to a Steam Atomized Dieso-Burning System. This, however, was installed only in *Vindhyagiri*.
59. The first Director General Naval Design (DGND), circa 1976. He was a legend of the Indian warship-building program and would go on to be conferred with a Padma Shri.
60. SSPA Sweden AB is a renowned shipbuilding company that provides concept development and assists in design validation.
61. It was further confirmed during the sea trials and subsequent operations that the ship took to the sea extremely well.
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68. Ibid.
69. 'X' form is a naval design term that denotes "sloped" exposed surfaces of superstructure of a ship that has an "X" form cross-section. This form ensures RCS—which is the primary objective—but also affords greater flexibility to the designer for compartment layout due to greater availability of covered space.
70. "Indigenously Built ASW Corvette '*Kavaratti*' to Be Commissioned at Visakhapatnam", Press Information Bureau, Ministry of Defence, GoI, 21 October 2020, https://www.pib.gov.in/PressReleasePage.aspx?PRID=1666543, accessed on 3 November 2025.
71. Ibid.
72. "The Glorious History of India's Aircraft Carriers", Press Information Bureau, Ministry of Defence, GoI, 6 September 2022, https://www.pib.gov.in/FeaturesDeatils.aspx?NoteId=151135, accessed on 3 November 2025.
73. Ibid.
74. Ibid.
75. Ibid.
76. "Big Boost to 'Aatmanirbharta' in Defence: MoD Inks Rs 19,000 Crore Contract with HSL for Five Fleet Support Ships for Indian Navy", Press Information Bureau, Ministry of Defence, GoI, 25 August 2023, https://www.pib.gov.in/PressReleasePage.aspx?PRID=1952073, accessed on 3 November 2025.

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Chapter 24

Submarine Arm

Background

The submarine came into its own during World War I. Its lethal and devastating impact and near-invincibility was reinforced during and after World War II. In post-World War II years, nuclear propulsion and teeth gave it virtually limitless range and calamitous destructive power. However, it made a late entry into India's naval fleet, possibly because the submarine was earlier considered an "offensive" weapon platform and hence could not have a place in the arsenal of a country that had pledged to abide by the principles of peace.

There are occasional references in ancient history to the attempts by humans to seek stealth and surprise by operating from submerged or semi-submerged vessels during wars at sea. The very early protagonists of the submarine were not so much inspired by the desire to descend below the surface of the sea to explore its depths as to devise a method of rendering a warship invisible to the enemy so that it could carry out surreptitious attacks and escape at will. The earliest reference to attempts at waging underwater warfare is found in the writings of Aristotle who recorded that Alexander the Great used diving bells to enable his men to descend below the surface of the sea during the siege of Tyre in 332 BCE. He also ordered his divers to impede or destroy the defensive barriers (still in use and known as boom defences) the city was likely to build to prevent the movement of submerged vessels. In fact, according to legend, Alexander himself made a descent into the sea in a device which kept its occupants dry and admitted light. However, it is believed that nearly a century before Alexander's experiments, the Athenians had used divers to clear the entrance to the Syracuse harbour during its siege from 415 to 413 BCE.

Over the following two millennia the potential and tactical advantages of operating below the surface of the sea continued to be appreciated by many military thinkers and several attempts were made during this period to develop an underwater platform that could be used against enemy shipping and war vessels far more effectively than surface ships, both for offensive and defensive operations. In the 16th century, during the Renaissance, Leonardo da Vinci, is said to have designed a vessel which could dive, remain submerged for some time and surface unaided and surreptitiously plant bombs or mines on enemy vessels, but the design of this submarine was kept secret because he felt that humans would misuse it.[1]

Some sections of this chapter have been reproduced from Rear Admiral Satyindra Singh, *Blueprint to Bluewater: The Indian Navy 1951–65*, Lancer, Delhi, 1991.

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The turn of the century was thus a watershed in the history of submarines, for the fundamental principles of the construction and operation of submersibles had taken concrete shape and been demonstrated to the world by this time. It continues to be valid even today. Internal combustion engines, both gasoline and diesel, had proved to be the most efficient and practical power plants; electric propulsion, as an alternative or in tandem with diesel or gasoline engines, had proved a success; the invention of the periscope had increased the feasibility of underwater navigation and improved the potential of the submarine for surveillance and for carrying out attacks while remaining submerged; and the torpedo, the primary weapon of the submarine, had been perfected and had proved its deadly capability. The manually propelled and operated one-man submersibles had been replaced by the larger and more versatile, long-range and long-endurance submarine. These would soon become a major component of naval strategy, both for offence and defence. A new chapter had begun in the history of naval warfare.

The emergence of German U-boats during the World Wars marked a pivotal transformation in naval warfare and the evolution of the submarine as an underwater craft. Germany's first U-boat, U-1, was launched in 1906, embodying the nation's early ambition to master undersea operations. By the outbreak of World War I, Germany had developed a formidable fleet of U-boats equipped with torpedoes and capable of extended submerged endurance, which it used to wage unrestricted submarine warfare against Allied shipping. The U-boats' devastating attacks on merchant convoys—most infamously the sinking of the RMS *Lusitania* in 1915—demonstrated the strategic potential of submarines to cripple enemy supply lines and challenge surface fleets. Although countermeasures such as convoys, sonar (ASDIC), and depth charges eventually curtailed their dominance, U-boats had already proven the submarine's worth as a decisive weapon of maritime strategy. During World War II, under Admiral Karl Dönitz, Germany refined its tactics with coordinated "wolf pack" attacks in the Battle of the Atlantic, using advanced Type VII and Type IX submarines that featured improved range, firepower, and submerged performance. The later Type XXI "Elektroboot", the world's first true submarine designed for underwater endurance rather than surface travel, revolutionized submarine design and became the model for post-war development in both Allied and Soviet navies. These technological and tactical innovations established the submarine as an independent and indispensable arm of modern naval forces. The German U-boat legacy thus not only reshaped naval strategy during the two World Wars but also laid the foundations for the nuclear-powered and ballistic missile submarines that would dominate maritime defence strategy in the decades that followed.

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Anti-Submarine Training during World War II

During the early 1940s, though the Royal Indian Navy (RIN) had no submarines, it had to perforce conduct courses in Torpedo Warfare and Anti-Submarine Operations for the growing number of ships that were being fitted with a Sonar system, derived from the Anti-Submarine Detection Investigation Committee (ASDIC), but their training was conducted without any target submarines to practice on. There was thus no expertise in the RIN in the operational or maintenance aspects of submarines and RIN personnel, whenever planning anti-submarine operations, had to rely on information made available by the Royal Navy. As recorded by Commander A Brian Goord, a Royal Naval Reserve officer {later Royal Indian Navy (RIN)} who had done his long anti-submarine course at Osprey, the first RIN officer to qualify in Anti-Submarine Warfare (ASW) during World War II was Lieutenant Commander Joe Jefford, then serving as the Commander of the Yard at the Naval Dockyard at Bombay and supervising the embryo ASW school in a small building in the same Dockyard. Jefford later rose to the rank of Vice Admiral and became Pakistan's first Naval Chief in August 1947.

Commander Goord had himself been recognized for having developed a target, which came to be known as the Goord Target, which was used to simulate a submerged submarine for training in anti-submarine operations. Training in ASW continued during the remaining years of the War but the main problem confronted by the training staff, Goord recalls, was that, "There was no practice target, other than passing merchant ships, which were often detected miles away owing to the freak temperature layers in the Arabian Sea and were hence of not much use for carrying out dummy attacks. It was, therefore, decided to use a submarine target simulator bearing the name of Johnson, after its inventor. This was a small electric torpedo which ejected a stream of bubbles which gave off an echo. The snag was that it had a habit of getting lost—permanently. We had a perfectly good method of blowing bubbles, using the diving pump and hoses. All that was needed was to devise an 'otter' which would run at a suitable depth and spread a curtain of fine bubbles on which to ping. Thus was born the 'Goldfish', which, towed behind the motor cutter, with the crew toiling at the pump, provided an excellent target which lacked only doppler effect in realism."[2]

The "Goldfish" was used extensively by the Royal and Dominion Navies, and brought forth a complimentary letter from their Lordships and a small financial reward. It was later improved and simplified by Martin Nott (Commodore M.H. St L. Nott, the first Chief of Staff of the RIN after Independence), who used a small power compressor (or air bottle) instead of the diving pump. The new ASW School was set up in November, 1940, in Castle Barracks, Bombay. An Attack Teacher (training equipment

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used for anti-submarine warfare) arrived from Britain, was installed and demonstrated to VIPs, including the Duke of Gloucester. It became an integral part of ASW training and was brought into constant use. The courses for officers and ratings were stepped up and a Reserve Officers Long Course rolled out. One of the officers in this course was Lieutenant (later Admiral, Chief of the Naval Staff) Ramdas Katari, then a Royal Indian Navy Volunteer Reserve (RINVR) officer.

The Attack Teacher was not the real deal though. It was good for practice but could not take the place of practical exercises at sea. In the words of Rear Admiral Satyindra Singh, "These were carried out in various small vessels, using even smaller ones as targets. In some ways this was more realistic than using the 'Goldfish', but every attack had to be aborted before running down the target vessel. The conflict of purpose in carrying out an effective attack and avoidance of actually hitting the target was hair-raising but, somehow, a major accident never occurred."[3] In early 1942, Royal Navy (RN) and the RIN Anti-Submarine School, Machhlimar, were combined at Versova in Bombay. The new Machhlimar school started functioning in March 1943 and continued training officers and ratings during the remaining period of the War.[4]

From Concept to Command: The Birth of the Submarine Arm and the Quest for Underwater Mastery

The story of the evolution of the Indian Navy's submarine arm, from its embryonic stage to its coming of age as the sword arm of the Silent Service, is the story of the determined efforts made by the naval planners against all odds, spreading over several decades, to make the authorities realize that a submarine arm was and is one of the most essential components of any modem navy and finally succeeding, despite several canards and red herrings from different directions, in the early 1960s.

One of the later planners was Commodore B.K. Dang, who was the first senior officer from the Indian Navy to formally familiarize himself with all operational and training aspects of submarines. He was also directly involved in planning the various phases of the development of the new arm, assessment of requirements in the context of India's needs, training of personnel, performance levels, weapons and equipment outfit, spares, establishment of logistic facilities, bases for maintenance support and operational training and the deployment of submarines in war and peace.

While the importance of acquiring a submarine for the RIN, both for offensive operational training and for conducting exercises in anti-submarine warfare, had been fully appreciated, the question of acquiring submarines or developing a submarine arm was never taken up, for the threat perceptions of the Navy's erstwhile foreign masters did not warrant the inclusion of such a potent weapon platform. With the advent of Independence in August 1947,

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free India's fledgling Navy started looking afresh to its national maritime needs, distinct from the basically secondary supportive role assigned to it until then by the RN.[5] That role had undoubtedly enlarged the size of the Indian Navy considerably during World War II, but chiefly in such roles as escorts of merchant shipping, patrolling of coastal areas and the addition of amphibious craft for the recapture of South-East Asian territories from the Japanese.

By this time it had been established that submarines held the upper hand against the much larger resources of ships and aircraft required for anti-submarine defence of shipping, and through the two World Wars it had been clearly proved that the cost–benefit went decisively to the submarine. In fact, under Karl Dönitz, the German submarine admiral, the impact of the devastation caused by the German submarines in World War II was brought to a point of such effectiveness that it was virtually determining the course of the war in the Atlantic till early 1943. As Dönitz said, "While ships and aircraft exercised control of the surface of sea areas, it was the submarines operating below the surface that neutralized this control." This was uppermost in the minds of the Indian naval planners during the years of the Navy's post-war development for the establishment of the submarine arm. As mentioned earlier, during World War II the ships and craft of the RIN frigates, corvettes, sloops, minesweepers and patrol boats had all been fitted with sonar equipment, anti-submarine mortars and depth charges but there was no submarine with which to train. Hence, live training in anti-submarine warfare could only be imparted in fits and starts whenever a British or Australian submarine visited India or when the Indian Naval Squadron or Flotilla took part in the annual Joint Exercises (JET).

Between 1939 and 1945 a large number of Indian officers and sailors in the RIN had served on board the RIN convoy escorts and ships to which anti-submarine roles had been assigned in theatres of operations around the globe. These RIN personnel had not only been impressed by the efficacy of the new two-element weapon platform—the submarine as the most effective weapons delivery device—but some of them had also specialized in the discipline of Torpedo (T) and Anti-Submarine Warfare (ASW). A few of these T or ASW specialists held senior positions in the Service and were adequately qualified in terms of expertise and experience to advise their senior officers on the acquisition of submarines for the independent Indian Navy. They all felt that the Navy would be far more effective and it would be in its best interests if a submarine arm were to be added to the smallest wing, though seniormost at that time, of the country's defence forces. Some of the operational staff officers at Naval Headquarters had put up proposals to the then Commander-in-Chief of the RIN, who was later redesignated as the Chief of the Naval Staff, and his Chief of Staff, to initiate the development

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of a submarine wing of the Indian Navy and as early as 1948, the assessed requirement of the Indian Navy was no less than 16 submarines[6].

The First Proposal

Within a fortnight of the historic transfer of power and the resultant partition of the Royal Indian Navy into two navies for India and Pakistan on 15 August 1947, Naval Headquarters put up a proposal to the government for the acquisition of four submarines for the Indian Navy. The proposal, which was prepared by Commodore M.H. St L. Nott, a former British RIN officer who was the Chief of Staff at Naval Headquarters at that time, as an officer of a new cadre designated as the RN (Special List), stated, "So long as India remains within the British Commonwealth of Nations, her task will be very much lightened by the assistance she will receive from the Royal and other Dominion Navies. But even in these circumstances, she will be expected and indeed she will wish to contribute to the general Naval Defence of the Commonwealth in accordance with her status as the principal sovereign state in the Indian Ocean. The immediate task before us, therefore, is to build up, in the shortest time, a balanced naval task force, officered and manned by Indians, which is capable of exerting, when the need arises, a definite influence in Eastern waters. The minimum force which would be likely to achieve this object would be two light fleet carriers, three cruisers, eight destroyers, four submarines and such smaller ships as are necessary as tenders to training establishments and for auxiliary purposes." At that time the estimated cost of a submarine was GBP500,000 or INR6,666,000.[7]

A year later the requirements of the Navy were reassessed and the number of submarines required was raised to 16, to be acquired from 1952 onwards at the rate of two per year. In justification of the enhanced requirement proposed, Naval Headquarters stated, "The submarine is a powerful naval weapon which can be used both offensively and defensively. As a weapon of offence, submarines can attack enemy warships but they are more frequently employed for attack on enemy merchant shipping and military convoys thus straining the enemy's seaborne trade and supplies. Defensively they would form a serious threat to any enemy attempting to operate in our seas. Furthermore, submarines are necessary for anti-submarine training of personnel in destroyers and other light craft. They are economical compared with the result they may achieve."[8]

Later, the number of submarines required was reduced to four, which was the requirement projected earlier. These submarines were now to be acquired in a phased programme, two in 1957 and two in 1958, as manning of submarines would require highly skilled and trained personnel which, particularly with the development of naval aviation, would not be available to the Navy in its early years. The proposal also included the setting up of a submarine training facility. With the introduction of submarines in

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the Royal Indian Navy, it was necessary to build a school specially for the instruction of officers and ratings (sailors) in the art of submarine warfare. Later the site for the school was decided to be on the coast at one of the major naval bases.[9]

At this time, the two seniormost appointments in the Navy and some other senior appointments were held by officers of the RN who were on deputation to the Indian Navy (in fact it was nearly 11 years after Independence, i.e., in April 1958 that the Navy was headed by an Indian officer for the first time). The senior British naval officers who were on deputation to Indian Navy and who were at the helm of affairs during the late 1940s and early 1950s were, however, of the view that submarines were far too sophisticated vessels with equally sophisticated weapon systems for Indian naval personnel to operate, and that it was a little too early for Independent India's navy to venture into the field of submarines, torpedoes and mines. They also felt that submarines were yet to be rendered failsafe and were likely to cause accidents leading to loss of life if handled by persons without adequate experience which, they felt, Indian naval personnel lacked; and if this happened, it would not only demoralize naval personnel but also affect the Navy's image and the standing of the Government of India with the general public. At that time the Royal Australian Navy and the Royal Canadian Navy were of about the same size as the pre-Independence Royal Indian Navy and were yet to acquire a submarine arm. They, however, had obtained a few submarines from the Royal Navy on loan which, while carrying a few officer and sailor trainees of the host country's navy, were basically manned and operated by Royal Naval personnel. The British Naval Chief of the Indian Navy felt that India could at best follow the example of Australia and Canada before regular submarine arm was set up. Since, however, India had by now become independent, the proposal to acquire submarines operated by foreigners did not find favour with the Indian authorities and so had to be shelved. It was felt that the British wanted the Indian Navy to continue to be confined to the coastal defence role while the Royal Navy could continue to be assigned the blue water responsibilities in the Indian Ocean, the defence of India's vast coastline, and the task of assisting the Royal Navy in perpetuating its big-brother role in the region.

The proposal was revived when the first Indian Naval Chief, Vice Admiral R.D. Katari, took over in April 1958. By now, once again, it had been appreciated that the Indian Navy needed submarines not only for the offensive role of attacking enemy vessels at sea, defending the vast coastal waters washing the shores of the Indian peninsula, and operating as escorts to India's fleets and capital ships, but also for providing adequate practice to shipboard personnel in conducting anti-submarine operations. Nearly all ships of the naval fleet had by now been fitted with sonars and these ships and maritime aircraft needed to take part in anti-submarine exercises frequently

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in order to hone their skills. For this purpose, it was most essential that ships of the fleet have adequate and frequent opportunities in the South-East Asian tropical operating conditions to exercise with its own live underwater targets, that is, submarines. These exercises would be independent of the annual joint exercises (JET), held with ships of the Commonwealth nations after the south-west monsoon which only provided limited opportunities with limited scope for creating real-life conditions that prevail during the circadian, seasonal or annual cycle; besides these exercises, the only other opportunity to participate in anti-submarine exercises that came the Navy's way was when submarines of Commonwealth navies called at Indian ports during goodwill visits or while transiting the waters contiguous to India's shores. Obviously, this was quite unsatisfactory and the level of the Naval personnel's training in anti-submarine operations continued to be low though it was felt that it could not be allowed to continue to be so.[10]

Budget Constraints

Besides this limitation, it was generally felt that the budgetary allocation made annually to the Navy, compared to the allocations made to the other two services, was inadequate. However, despite the lack of adequate appreciation of the importance of sea power, especially in the Indian peninsular context, a paper proposing the acquisition of three submarines for the Navy which would not only be deployed for operations in the seas around the subcontinent but would also be available as live targets for anti-submarine training of naval personnel, was put up to the government by Naval Headquarters in 1959. This failed to elicit a positive response and despite protracted discussions wherein the advantages of acquiring the new weapon platform were repeatedly stressed, the Navy could not make any headway for several years.

It was also stressed that every modern navy operated submarines, that it would take several years to train submarine personnel and hence, pending the availability of funds and the official approval for acquiring submarines, Indian naval personnel opting for the submarine arm could be trained abroad and could man submarines when they were acquired so as to minimize the lead time required to make them operational. Meanwhile frigates, sloops and corvettes of the fleet continued to carry out anti-submarine exercises but the need for a submarine for use as a live target was being increasingly felt during the 1950s and the inefficacy of occasional submarine training while exercising once or twice a year with foreign submarines continued to be highlighted in the reports submitted to the government. Further, while the acquisition of the frigates INS *Talwar* and *Trishul* of Type 12; INS *Brahamaputra*, *Beas* and *Betwa* of Type 41; and INS *Khukri*, *Kirpan* and *Kuthar* of Type 14 during the 1950s had actually been planned around their anti-submarine capability, the requirement of submarines for their sea

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training was still to be accepted by the government. The ships of Type 12 were remarkably versatile with surface armament, air defence as well as anti-submarine capability, combined in a hull of very successful design with long endurance and efficient fuel consumption. The ships of Type 14 had mainly been designed for anti-aircraft and surface operations and hence had a lower level of underwater capability though they had good endurance. In the event these ships did not perform very well, it was mainly because of problems posed by their machinery that were of a design the Navy was yet to become familiar with. The ships of Type 14 were slightly smaller frigates with only anti-submarine capability. These were in their own right fairly effective anti-submarine ships but could only serve as adjuncts to a bigger force with the other important capabilities and, in the absence of a submarine to practise with, their value for the Indian fleet was greatly lowered.[11]

Need for Submarines Stressed

The proposal to establish a submarine arm continued to be in a state of limbo, ostensibly owing to lack of finances. However, it suddenly acquired urgency with the arrival of the new frigates with anti-submarine capability, mainly because it had been reported in 1958 that a neighbouring country was considering the acquisition of submarines for its navy. In a proposal on the subject submitted during that year, Naval Headquarters stated that there was an urgent need for augmenting the facilities available in the Navy for the anti-submarine training of surface ships with live submarine targets and unless this could be achieved, the efficiency of the Navy in anti-submarine warfare would remain low. It added that the acquisition of modern ships fitted with the latest anti-submarine equipment did not by itself constitute an efficient anti-submarine force, among other things, it required a high degree of sustained and continuous training with live submarines under realistic conditions.

Stressing the importance of the operational role of submarines, the proposal stated, "A submarine is an integral part of a balanced maritime force. In a local or global war in which India may be forced to take part, submarines can be employed to great advantage in achieving control over the waters which affect the defence of the country. They can be employed in patrols off enemy-controlled waters, and in strike against hostile surface ships on the high seas and in harbours. A submarine arm is one of the most effective means of blockading the enemy's seaborne trade. It can also operate its submarines in co-operation with the surface fleet as radar pickets and aircraft control ships for providing valuable early information. The technique of employing submarines for hunting enemy submarines is being developed and from recent knowledge gained from other countries, is likely to assume an indispensable role in any future war. In addition to all these, the very fact that we possess submarines, will impose a considerable submarine effort

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on the enemy and thus indirectly curtail his offensive power. The major maritime powers of the world are expending a considerable effort on the build-up of their submarine arm and upon research in submarine design and performance and also the weapons she can carry. The latest improvements in submarines have been in the sphere of aquabatics, i.e., the shape and form of a submarine, and the means of propulsion including nuclear propulsion. These improvements have given a new capacity to submarines to remain, to all intents, permanently submerged and to proceed at very high speeds when submerged. These, taken together with improvement with their weapons, will have the effect of making submarines a most potent weapon. Recent trends in naval warfare clearly indicate that the operational importance of submarines will continue to increase. In order to develop a fully integrated maritime force, the Indian Navy should make an early start in establishing a submarine arm of its own. The important thing is to acquire the technique of operating submarines as early as possible and for that purpose a start with conventional or old submarines will provide an adequate answer."[12]

The Projected Requirements

It was proposed to start with a flotilla of at least four submarines, each of approximately 1,000 tons displacement and a crew of 50. Technical, logistic support in terms of docking facilities, battery and periscope repairs and maintenance and submarine refitting would be provided by the Naval Dockyard at Bombay. The other facilities required would be a shore base or a depot ship with machine shops, torpedo preparation shops, electrical workshop and spare gear storage, a fully equipped training establishment for both operational and technical training, facilities for "degaussing" and "wiping" (removing induced and permanent magnetism) and a salvage organization complete with salvage tugs, diving gear, divers and resuscitation equipment. It was also proposed to requisition the services of foreign submarine experts in an advisory capacity for the planning and establishment of the submarine arm, as the Indian Navy at that time did not have officers with adequate submarine experience. These experts would gradually be replaced by Indian officers as and when they acquired sufficient experience. The capital outlay in the establishment of the submarine branch with four new submarines at that time was estimated at INR16 crore with a recurring cost of maintenance of INR2 crore.[13]

By November I960, the Indian Navy had acquired two cruisers and an aircraft carrier was on the way. Besides these, there were eight new frigates fitted with sophisticated submarine detecting devices and anti-submarine weapons lethal enough to achieve a kill. The six destroyers of the fleet had also been fitted with anti-submarine equipment and one of their principal roles was the detection and destruction of submarines. Since submarines used diverse tactics to get into a favourable position to fire torpedoes and to

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avoid detection by anti-submarine ships and these tactics involved change of depth, speed and courage or the use of decoy devices or a combination of two or more of these, it was realized that only officers with submarine experience, born of service in submarines, would know what tactics a submarine was likely to adopt under a given set of conditions. Since the training imparted at the Navy's Torpedo and Anti-Submarine School and Tactical School at Cochin was based on theoretical knowledge, practical knowledge acquired through service in submarines was considered of utmost importance. For this purpose, the Navy now proposed the establishment of a new trained cadre of 38 officers and 65 sailors to be trained over four years. The first batch of four officers and 12 sailors were to be trained at the Royal Navy's submarine school in 1961 for period of one year.[14]

Submarine Still a Vessel "Non Grata"

However, the impression that a submarine was only an "offensive" platform persisted and the feeling at the highest level was that its acquisition would run counter to India's national policy of non-violence and non-interference in the affairs of other countries. Hence government approval even for training submarine personnel abroad continued to elude the Navy. It is believed that even Jawaharlal Nehru, the then Prime Minister of India, and some other national leaders were of the view that a submarine only had an offensive role and hence should not be acquired for India which was wedded to peace and had no ambition outside its national territorial limits and the sea area of its responsibility.[15] This attitude was perhaps analogous to Britain's dismissal of submarine warfare as "underhand, unfair and un-English" and the French branding it as a "dishonest form of warfare" around the turn of the century.

It is interesting to note that even K.M. Panikkar, the distinguished historian-diplomat, had appreciated the importance of the submarine, especially its impact on naval strategy and its edge over larger surface vessels. Writing as early as in 1945 on the significance of India's position in the Indian Ocean, he said that the 19th century concept of the untenability of effectively holding a regional sea against a superior fleet did not hold good anymore. He felt that an inferior navy with lighter craft, supported by submarines and aircraft suitably deployed, could now ensure the safety of considerable stretches of sea and there was thus no reason why an efficient and well balanced Indian Navy should not be able to secure control of the Bay of Bengal and the vital stretches of the Arabian Sea, whenever required.[16]

Training of Submarine Personnel Approved

Eventually in 1962, that is 15 years after Independence, approval was obtained for the training of one Captain and eight junior officers in submarine operations, technology, maintenance and tactics at the Royal Navy's submarine training school, HMS *Dolphin*, at Gosport off

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Portsmouth, England. The senior officer of the group, the Captain, was to undergo a condensed course but was also, in addition, to acquire the necessary expertise in the organization of a submarine arm, setting up the necessary infrastructure and logistic support, development of the maintenance facilities in the base and the dockyard, the operational set-up, the tactical doctrines adopted by submarine arms and fleets operating with or against submarines, development of training facilities, including simulators and escape towers, and submarine rescue operations. The other officers were to be trained in submarine operations and maintenance for manning the submarines that would be acquired in later years. Strangely enough, the government continued to impress on Naval Headquarters that it had only agreed to allow naval personnel to undergo submarine training in order to enable them to improve the Indian Navy's anti-submarine capabilities and it did not in any way commit the government to acquire submarines for the Navy at any time.

Training with the Royal Navy

The first batch of five officers comprised Captain (later Commodore) B.K. Dang, who was to later establish the nucleus of the submarine arm, Lieutenant Commander K.S. Subramanian and Lieutenants M.N. Vasudeva, R.J. Millan and A. Auditto, all of the Executive Branch. They had been carefully selected from a large number of intrepid volunteers who had decided to venture into the new element below the surface of the sea. These officers sailed for the UK in February 1962 for training at *Dolphin*; Captain Dang for a special, condensed, acquaintance course of six months' duration, and the others for one year's training in submarines. They were to study the infrastructure organization, operational know-how and maintenance and back-up facilities required for setting up the submarine arm of the Navy.[17]

Having faced certain problems during the establishment of the Fleet Air Arm for the Indian Navy, Naval Headquarters was also wary of similar problems cropping up while acquiring submarines from Britain. But since the Royal Navy had offered to impart submarine training to Indian naval personnel, it was decided to depute a suitable senior naval officer to the UK to acquire the necessary organizational expertise. Hence the choice of Captain B.K. Dang for the task, as it was felt at Naval Headquarters that with the up-to-date experience gained by him as the first Commanding Officer of the British-built *Talwar* during intensive anti-submarine exercises held with British ships and submarines after its commissioning in the UK, he had been equipped with the necessary expertise to sift and imbibe the minimum possible quantum of information during his attachment and crash course in submarine operation and technology. It had by that time been decided that the overall planning, initial training of personnel in foreign countries, acquisition of ships and maintenance expertise and equipment assessment of

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qualitative and quantitative requirements in regards to the establishment of the submarine arm, operational and training establishments and exercises, installation of an escape training, towers, etc., was to be entrusted to and programmed by Indian Naval personnel and no foreign expertise would be sought for the purpose. Captain Dang had joined the Navy in March 1943 as a Lieutenant in the RINVR. An ex-Dufferin officer, he specialized in the Torpedo Anti-Submarine (TAS) discipline at Machhlimar in Versova, Bombay, in the same year. Completion of the course in 1944 exposed him to the major anti-submarine commitments of the Royal Indian Navy in India's waters—the defence of its fleet and merchant mapping against underwater predators—though the service was considered to be only an adjunct to the Royal Navy at that time. The criteria for the selection of the first batch of officers for submarine teaming were extremely rigid. Besides being in medical category S_1A^1 (that is, in top physical condition for service ashore and at sea) the officers were required to possess the other faculties most essential in a submariner—ability to firstly, live within extremely confined spaces in, occasionally, high carbon dioxide environment. Secondly, withstand extended periods of submersion and absence of daylight and natural orientation. Thirdly, withstand long spells of loneliness and, fourthly, amenability to hot-bunking, that is, time-sharing of bunks peculiar to submarines because of constraints of living spaces. All these officers sailed through these tests with flying colours.[18]

Submarine training at the *Dolphin* for inductees mainly comprised three months' theoretical and formal training followed by a long spell of nine months at sea on board submarines based at Gosport. Along with the officers from India, there were trainees from the Royal Navy, Canadian Navy, Australian Navy, Norwegian Navy and Pakistan Navy. It goes to the credit of the British Admiralty that there was no discrimination so far as the foreign trainees were concerned, and they were allowed access to all sensitive areas and classified documents and by the time they passed out, they had acquired as much expertise as their Royal Naval course-mates. The Indian Naval sailors who were deputed to the *Dolphin* for submarine training performed as well as their British counterparts.

Rear Admiral M.N. Vasudeva, who was in the first batch of trainees from India and who was the first officer of the Indian Navy's submarine arm to rise to flag rank, reminisces, "Besides officer trainees, we had several senior sailors from different navies in our group. I remember one of them, M. Singh, who was an Engine-Room Artificer in our Navy. Though he was undergoing training and had seen submarines for the first time in his life when he came to *Dolphin*, he was in great demand in every submarine even before he had completed his training. Whenever the submarines or submarine equipment ashore had problems, they sought his assistance, and he went and solved them. Our capabilities were thus soon known to the British and so we were

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respected and trusted and assigned tasks that were more complex and called for higher expertise than those assigned by the Royal Navy to even their own submarine personnel in their own submarines."[19]

The second batch of four officers, Lieutenant Commander (later Captain) M.N.R. Samant and Lieutenants V.S. Shekhawat (later Admiral), S.K. Singh (later Commander) and P.K. Ramanathan (later Commander), of whom the first two were from the Executive Branch and the other two from the Engineering Branch, proceeded to the UK in July 1963. The third batch of officers consisted of Lieutenant S. Nagrani (later Commander) and J.M.S. Sodhi (later Rear Admiral) of the Executive Branch and Lieutenant Inderjit Singh (later Commodore) of the Electrical Branch and the fourth batch had Lieutenants L. Talwar (later Commander) and K.R. Menon (later Rear Admiral) of the Executive Branch and Lieutenant D.N. Thukral (later Commodore) and Sub Lieutenant S.L. Batla (later Lieutenant Commander) of the special Duties List of the Electrical Branch. By 1965, 15 officers and 20 sailors had completed submarine training in the UK and returned to India.

In April 1962, Captain Dang joined the *Dolphin*, the submarine training school and base of the 1st Submarine Squadron and the Headquarters of the Flag Officer, Submarines of the Royal Navy. It was an unusual experience for him, rubbing shoulders with young lieutenants as well as senior submarine officers of the British and NATO navies and starting his training from the grass-roots level. He underwent a curtailed lieutenant's course including escape from a 100-foot escape tower—an experience considered most essential, physically and psychologically, for a submariner to get over any initial hesitations which they may have because of the claustrophobic effect of being shut in a small vessel under the sea with no access to sunlight or fresh air. It also provided the necessary confidence to motivate others into joining the submarine arm. A month of basic submarine acquaintance was followed by a month of squadron staff duty, study of the squadron system, with occasional seagoing spells, and base maintenance facilities for the weapons and equipment. He underwent training onboard the old submarines of the A and T classes which were in the British fleet service during World War II and had been GUPPYED (equipped with Greater Underwater Propulsive Power) since. He then visited some of the British shipyards, such as Samuel White and Camel Lairds, to familiarize himself with the various problems faced by them in the construction of submarine hulls, their maintenance and docking, maintenance of their main machinery, auxiliaries, batteries, torpedoes, detection equipment, sonars, radars, fire control systems and other equipment. This was followed by a month of tactical exercises with a squadron of the Oberon and Porpoise classes of submarines in an operational role in the Northern waters off Faslane. Thereafter, he

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returned to the *Dolphin* and studied the organization of the Flag Officer, Submarines, including the interaction with the material division of ship construction and other Admiralty departments at Bath concerned with the major problems of construction, refit and maintenance.[20]

Criteria for Submarines for the Indian Navy

This exposure helped Captain Dang in crystallizing the more important aspects of setting up a submarine arm in his mind and collecting material for the first detailed assessment of requirements. In the paper he prepared on his return to India, he proposed that the submarine arm of the Indian Navy should be started with a minimum of three submarines, though four had been a customary division of a squadron of naval ships, because one of anything is nothing, two may be meaningful and three is a basic organizational unit, which, in the case of submarines, was particularly apt. One submarine could then be in major maintenance at any one time, one in transit and one in the assumed patrol area at one week's passage time or 1,500 miles from base, two weeks on patrol and one week's return accounting for the submarines' six weeks normal operating cycle, sufficient to reach any area across the Bay of Bengal or the Arabian Sea.

The second requirement was that the submarines should have a sufficiently wide radius of operation and what the Indian Navy needed were patrol submarines capable of long reach and considerable endurance. It is the basic geographical position of the Indian peninsula at the top of the Indian Ocean with its two arms, the Bay of Bengal and the Arabian Sea each ending with extremely narrow waterways in the Malacca Strait to the east and the Bab-el-Mandeb and the Strait of Hormuz to the west, which were the deciding factors with regards to the minimum endurance of India's submarines.

The third very important and vital requirement was that the design of the submarine must be rugged and could incorporate high safety factors, adequate safety margin in its buoyancy characteristic, a fail-safe quality in its machinery, duplication of critical equipment such as gyros, valves, etc., mainly because the Indian Navy was setting up an arm with an inherent hazardous quality of service and any disaster or tragedy in the earlier stages of such a venture would probably mean the avoidable abandonment of such an important enterprise.

And, finally, the fourth requirement, an obvious one, was that the submarines that were going to be acquired, whether new or old, must be within the economic repair life of the hull. Warships generally have an economic repair hull life of about 20 years for smaller vessels such as destroyers and submarines and 30 years for the capital ships, that is, aircraft carriers and cruisers. And so, if a submarine was over 20 years old or was approaching this age, it would be very uneconomical even if the price tag attached to it was low enough. The two disadvantages of a new

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submarine would be the time taken to build it and the higher price tag but the advantages would outweigh the disadvantages. One was, of course, prepared to accept a submarine already built, but it had to be one that had a reasonably long economic repair life left.

Besides these important factors, another aspect of considerable importance was the methodology to be adopted for training the crew, both immediately and in continuity for the submarine arm to be formed. It was realized at this stage that the establishment of hull training facilities in India would mean considerable investment in equipment and would lengthen the lead time for acquisition further. What was visualized, therefore, was the use of the submarines themselves as floating classrooms for which they should have sufficient space to carry not only their crews but also a training class of about 50 per cent to 100 per cent of the crew strength. This was an important requirement as submarines have extremely cramped accommodation and the hot-bunking system which entails provision of bunks for only two-thirds of the strength of the crew. Some larger submarines, such as the old American Fleet class boats, the British A, Porpoise and Oberon classes and the Soviet F class had, however, the necessary space for carrying additional personnel for on-the-job training.[21]

Types of Submarines Considered

Though the American fleet class boats had two to three years less remaining hull life than the British boats, they were known to be in better condition and had very rugged hulls and machinery which would have possibly added five years to the economic life after a refit. The 450-ton German-built Baltic class submarines were far too small for India's purpose. The French Daphne class had a new design but was rather small and its endurance was limited to about 1,000 nautical miles which did not fulfil the Indian Navy's purpose. There were also Italian boats and some Dutch boats as well, but their basic characteristics were not compatible. Meanwhile, if it was not the papers, proposals, monographs, presentations and pleadings of the Naval Headquarters, it was the Chinese incursion into Indian territory in 1962 during which some Chinese submarines were reported to have been operating in the Bay of Bengal challenging the "might" of the Indian Navy that tilted the balance in favour of the submarines' acquisition.[22] The Navy lost no time to once again put up a proposal in November 1962 highlighting the areas of weaknesses at sea, and the possible loss of face if the Chinese submarines had chosen to display their prowess either by attacking India's naval and merchant ships, or by blocking the approaches to the harbours with mines. This paper proposed the acquisition of three submarines with an operational radius of 1,500 nautical miles—one on patrol, one undergoing maintenance and resting the crew, and one in transit to or present in the patrol area.

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In May 1963, another detailed proposal justifying the formation of a submarine arm in the Indian Navy was put up to the government. It reiterated that the advent of the modern submarine had already revolutionized the trends of maritime warfare, that submarines were now capable of operating deep inside an opponent's area of maritime control without the support of air or surface forces, and that the technological advances made had enabled modern submarines to operate without being detected and with vastly increased endurance, giving it a striking capability matched by no other naval craft. It further pointed out that despite the great strides made in improving the capabilities and sophistication of anti-submarine detection equipment as also in the lethality of weapons used to seek and destroy submarines while still submerged, the fact had been established that the submarine had an edge over the anti-submarine forces and that a dangerous situation could be created at sea by submarines of even a weaker hostile maritime power. The appearance of a true submarine had already shaken the major naval powers of the world out of their static orbit of conventional weapons, conventional propulsion and conventional weapon platforms, and it was now an accepted fact that submarines had become prime weapons of offence as well as defence.

In addition, another important aspect highlighted was an environmental factor that had not received adequate recognition in the past. The relatively shallow depths and other conditions prevailing in the waters contiguous to India's shores enhanced a submarine's covert qualities and subverted any efforts made even by a modern and well-equipped fleet to neutralize it. The hydrographic structure of the Indian Ocean—thermal conditions, temperature and density gradients and relatively shallow depths of water—attenuated the low-frequency sonar emissions of even advanced anti-submarine ships and aircraft, thus defeating submarine hunting and killing operations far more effectively than in any other sea area and increasing the survival potential and effectiveness of the Indian Navy's submarines well beyond the usual estimates made by naval planners and strategists.

Another argument put forward was that India had already established some control of the surface and the air with its relatively austere fleet and the recent acquisition of the aircraft carrier, *Vikrant*, but complete command of the surface would only be possible if it could operate below the surface as well. For local air and sub-surface superiority, however modest, coupled with India's peninsular position at the focal point of the Indian Ocean and its easy access to the ocean's choke points would enable the Indian Navy to deny the surface in the contiguous sea areas to an extra-regional flotilla, even if it were moderately superior in its weapons capabilities and endurance.

The proposal also stressed that at that point of time, newly established maritime states, even around the Indian Ocean such as Indonesia, had accorded adequate importance to the establishment of a submarine arm

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and hence, if the Indian Navy was to grow into a balanced naval force, the establishment of a submarine arm would be an inescapable necessity. As early as 1948, the Defence Committee of the Cabinet had accepted the proposal in principle but due to various factors the sub-surface wing was yet to come into being. It was also pointed out that "killer" submarines were acknowledged as the best weapons in anti-submarine warfare. These submarines were employed as barriers in submarine transit areas and since they could now communicate with patrol aircraft, they were in the best position to destroy enemy submarines. Since the Indian Navy had large ocean tracts to guard and these were dominated by narrow and restricted focal areas of entrance such as the Malacca Strait, Gulf of Aden, etc., the killer submarine would be most effective in such areas.[23]

Submarines could also be used for offensive mine-laying. While the offensive capability of the surface forces against naval forces of the enemy would be dependent on chance encounters at sea, submarines would have the capability of mining enemy harbours and thus deterring the enemy from aggressive intentions. Besides, the possession of submarines would act as a deterrent to any hostile action around India's island territories in the Bay of Bengal and Arabian Sea. The proposal also highlighted the need for setting up suitable repair and refit facilities and an operational base for submarines in a fully protected harbour. For this purpose, Marmagao was considered most suitable because it met all the requirements and was close enough to the Torpedo and Anti-Submarine School at Cochin. The types of submarines which were available at that time for acquisition to the Indian Navy were the British A, T and Porpoise/Oberon classes, the American Fleet class, the Russian W and Z classes and the French Narval class, all of which were conventional submarines. The total expenditure on a squadron of four new submarines, a submarine base, and a submarine service of about 30 officers and 400 sailors was estimated at INR30 crore; and if the submarines were second-hand with four to six years' remaining life, the total outlay would be in the region of INR8–9 crore and in this case, from out of the existing old boats, the American Fleet class boats were considered most suitable for Indian conditions.[24]

Submarine Acquisition Approved

The government finally acquiesced, and the recommendations of Naval Headquarters were accepted. It was a nautical milestone in the history of the Navy. But the type of submarines to be acquired had not yet been decided upon and what was available was a mixed bag with varying operational range, diving, speed and manoeuvrability characteristics, weapon systems, sensors and balance of operational life. There were the British A and T classes which were already 20 years old, had developed metallic rheumatism and arthritis and were on the verge of being consigned to the breaker's yard.

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There was the modern British Porpoise class which displaced about 2,400 tons and which was later modified and built as the Oberon class from 1965, the latter passing muster. Then there was the American Fleet class of 2,400 tons which had several sub-classes and had already been in service for 16 to 18 years but, because of its rugged construction and modernization, had about five years' operational life left, and could fill the gap while negotiations were initiated for the acquisition of more modern newly built submarines; and there was the German Baltic class of about 350 tons, which had originally been built for the Norwegian Navy but was considered too small in size and its limitations precluded its consideration for acquisition. After careful scrutiny of all parameters, including the financial commitments and foreign exchange availability, the British Porpoise class submarine was considered to be ideally suited for acquisition for the Navy, and negotiations began. The British, however, were not prepared to part with a Porpoise class submarine but offered to build an Oberon class submarine for the Indian Navy and, since the Oberon would take some time to be available, they also offered an A class submarine for use until the former was ready. But this class was far too close to superannuation for India's purposes and hence was not accepted. Meanwhile the government agreed to buy a new Oberon class submarine from the UK if it was specially built for the Indian Navy to suit Indian conditions, and if deferred credit terms for INR5 crore were made available by the UK (INR3 crore for the submarine and INR2 crore for the spares), but the British government was not willing to offer any such credit. The Indian government was also not prepared to spare the funds for the purpose and thus the proposal was virtually aborted.[25]

Lord Louis Mountbatten reminisced in 1965, "I have a specially soft spot in my heart for the Indian Navy, having done so very much for it from the time I was the Supreme Allied Commander and had most of the (Royal Indian) Navy serving under me from 1943 to 1946 until I was Viceroy and the Governor General, when I took a great personal part in the division and reconstitution of the Navy. Ever since then I have been instrumental in getting almost all the requirements of the Indian Navy by the British Government, including, the two cruisers, the aircraft carrier, the destroyers, the organisation…for building the frigates at Bombay, etc. I had even managed to get more favourable terms for the construction of a British submarine but alas it all took so long that this particular transaction fell through."[26] Lord Mountbatten later said that the British denial of deferred credit amounting to only INR5 crore virtually brought to an end the flow of British ships and equipment to India, and acquisition of naval hardware from other sources snowballed soon. The British had also offered the use of an old A class submarine from the Royal Australian Navy on temporary loan, to be used only for anti-submarine training; but for obvious reasons this offer was promptly rejected.

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The "watershed" decision to acquire the F class submarines from the Soviet Union was preceded by interesting exchanges between the Chief of the Naval Staff, Admiral B.S. Soman, and the British First Sea Lord, Admiral Sir David Luce. With the developments following the 1962 Chinese incursion into India and the consequent reassessment of the requirement of ships, aircraft and submarines, and the need for the defence of Andaman and Nicobar Islands on which India had no presence of any military significance, it was decided to acquire a sizeable package from Britain to refurbish and strengthen the existing fleet and to primarily establish a naval presence in the eastern waters. After the preliminary exchange of letters, both official between the Government of India and the Admiralty, and semi-official between Admiral Soman and Sir David Luce, all that Britain offered to the Indian Navy consisted of two or three Battle class destroyers which were with the Royal Australian Navy and already 30 years old, one or two T class submarines which were also with the Australian Navy and 20 years old, and some Seacat missiles, whose capabilities and lethality was limited, and associated low-level equipment. Such an offer was made presumably because of the hangover of having been the mightiest maritime country in the world for centuries, and the instinctive desire to supply lower-level ships and equipment to navies of former "dominions".

Another possible reason was that Britain did not look upon the Chinese attack the way India did. As the then British Naval Attaché at New Delhi, Captain F.W. Watson, said to the Director of Naval Plans at Naval Headquarters, Captain Dang, the Chinese had never thought of demolishing India and had not even attacked India—what had actually happened was that the continued provocative statements made by Indian leaders and some erratic action at the frontier positions on the disputed McMahon Line as well as in Ladakh had made them react with a view to, as he put it, keep Indians on their toes! The Indian naval authorities were, therefore, advised not to take the Chinese attack too seriously and to radically curtail their shopping list for the Navy. Thus the demi-official letter from Admiral Soman to Sir David Luce, which once and for all detached the Indian Navy from the Royal Navy's apron strings, read, "Thank you for your letter and the offer of assistance which you have made. I must, however, state clearly that this level of response does not meet the urgency or size of the requirements as we see it in the situation after the Chinese attack of 1962. We see our requirements clearly as more urgent and much more for modern ships and equipment in sufficient quantity. I must, therefore, point out that should you not be able to do any more than this, something must give way somewhere soon." That "something" obviously was the traditional bond between the British Admiralty and India's Navy for the supply of British ships, equipment and technology, and the India's almost total dependence on the British sources

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of supply.[27] The later proposal of 1963, which was a long-term naval development plan based primarily on the rapidly changing scenario after the 1962 Chinese incursion, envisaged the major change resulting from British insularity as that of looking elsewhere for naval hardware.

Delegations to the USSR

In May 1964, an Inter-Service Defence Delegation headed by the then Defence Minister, Y.B. Chavan, and with the Deputy Chief of the Naval Staff, Commodore (later Admiral) S.M. Nanda, as the Senior Service representative, visited the USA for the main purpose of acquiring two or three Fleet class submarines and a few destroyers—the requirements having been based on the threat from the Chinese Navy in the Bay of Bengal, as perceived at that time. The US government's assessment of the Chinese naval threat was also different from India's and they did not consider it necessary for India's Navy to acquire any naval hardware from them, though they had supplied some weapons and equipment to the Army and Air Force. On the contrary, they advised the delegation to go back to its traditional suppliers of ships and equipment, the British government. It was in a scenario like this that it was decided to approach the Soviet Union for the supply of submarines.

The Soviet Union had earlier supplied some W class submarines to the United Arab Republic and Indonesia. It was, however, reported that these boats were not operating effectively, and the submarine bases had been over-staffed by Soviet personnel at the senior levels in Alexandria. In Indonesia, the situation was reported to be worse—only one out of every five submarines was operational. But the F class submarine of 2,300 tons being offered by the Russians to India now was found to be similar in specifications to the more modern British Porpoise/Oberon class and the older American Fleet class and hence it was decided to make a bid for three submarines of the F class. The acquisition of naval vessels and weapon systems from a source other than the UK for the first time in the history of the Indian Navy was a watershed in its development from a fledgling marine wing to a major naval force. It was, however, also going to pose some new problems to the Navy.[28] Until this time all ships and craft had been acquired from the UK, all spares ashore or afloat were of British origin and there was adequate flexibility of commonality in the use of these spares in different types of ships. The maintenance facilities and dockyard personnel had, over the years, been attuned to only British ships and equipment. The personnel were familiar with the Royal Navy's philosophy and routine for operation and maintenance, and the language in which all operational and technical publications were printed and training conducted, English, was a language Indian naval personnel were well-versed in.

These problems were certainly daunting but since the Soviet offer was the best, the Navy decided to go in for the F class submarine, notwithstanding

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the problems it would have to face in order to restructure its operational and maintenance doctrines, the logistic support philosophy and the language barrier. Accordingly, another Inter-Service Defence Delegation, headed by Y.B. Chavan, and, among others, with Rear Admiral S.M. Nanda, who was still the Deputy Chief, Captain Dang, Director of Weapon, Policy and Tactics and Captain C.L. Bhandari (later Rear Admiral), the technical member, visited the Soviet Union in August-September 1964. General J.N. Chaudhuri, the then Chief of the Army Staff, and Lieutenant Colonel G.S. Sandhu were also in this delegation for the first time.

The Inter-Service Defence Delegation received a very warm welcome at Moscow. This was the first time that a naval team was included in the delegation, only the Indian Air Force having had earlier dealings with Russia for procuring MiG aircraft. The naval team's primary concern was the acquisition of naval equipment centering around the requirement for submarines. At the first meeting with the State Committee for Foreign Economic Relations in Moscow, the naval members were shown the drawings and specifications of the equipment offered to the Indian Navy by the Soviet government. The General Engineering Division of the Committee was handling the deal, and arranged visits to Leningrad and Sevastopol where the ships were shown with demonstrations, and detailed discussions took place. The naval team was then taken by hydroplane off Leningrad harbour, where they boarded an F class submarine. A quick "walk-round" of the submarine covering its entire length from stem to stern followed while the team observed the layout of torpedo tubes, reload arrangements, accommodation standards and the provision for increasing the bunk strength, the machinery design, fire control system, battery compartments and other equipment fitted on board. A new feature of the submarine was that it had three shafts, the outer two being used either for propulsion at high speed or charging the batteries and the inner one, which was bigger, was used for slow, silent long-distance cruising. The "walk-round" was followed by the submarine diving to a depth of 50 feet for a few minutes, and a verbal briefing on various other aspects of the submarine's capabilities. Though the operational standards of the submarine had yet to be assessed, three-screw-propulsion seemed rather cumbersome, arrangements for spare parts support had not been examined, sophisticated electronic equipment was minimal, and the quality of electrical-cum-mechanical torpedoes had not been established. The naval team nevertheless felt that the submarine was generally suitable for operation in Indian waters. Besides, it had a rugged structure, and material of high quality had been used for its construction. It would fit the bill.[29]

When the naval team later visited Sevastopol, they were shown several types of ships that the Soviet government was prepared to supply to India. These ships included a submarine "mother" ship of the Don class, which was described as such because it had been designed to provide accommodation

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for stand-by submarine crews, logistic and other support, and repair and maintenance facilities at sea. The acquisition of a ship of this type was considered worthwhile. It followed the Russian philosophy of submarine operations that were dependent upon mobile floating logistics support since they perforce operated over long distances on the high seas for extended periods without touching shore bases.[30] Some minor limitations were later revealed, but by and large it was felt that a ship of this type was an essential requirement for the submarine arm. Some of the other long-term requirements related to the submarine arm, such as a submarine rescue vessel and support ships of other types, were not discussed at this stage, but the shore support requirements were studied in great detail for the development of a submarine base on the east coast.

The Russian government offered to build three F class submarines for the Indian Navy, with the delivery to commence two to three years hence at intervals of one year. When the delegation returned from the USSR it saw two developments. The First Sea Lord of the British Royal Navy, Admiral Sir David Luce, had written to Admiral Soman saying that he was sending a special team of officers comprising an Admiral, a Captain and a civilian technician from the Admiralty, to point out the changes that British co-operation with the Indian Navy would undergo if India went ahead with the acquisition of naval hardware from the Soviet Union.[31] Most of these changes were related to the question of security, and the First Sea Lord stated that if India went to the Soviet Union for naval equipment, the security of British equipment in the Indian Navy would be jeopardized and the British government would thereafter have to curtail release of classified information and equipment to the Indian Navy. The reply was a polite acknowledgement pointing out that India was protecting its security interests, but hoped to continue to maintain good relations with Britain in keeping with the tradition of friendship and co-operation between the Royal Navy and the Indian Navy.[32]

In the event, the government refused to spare any finances for the Navy because the budgetary allocation for acquisitions from abroad had been utilized by the Army and the Air Force. Thus, the Navy "got nothing more than a bit of window-shopping" out of the Inter-Service Defence Delegation's 1964 visit to the USSR. However, in the exercise of assessing the requirements, it did help in formulating the basis, subsequently further matured by detailed study at Naval Headquarters, for the acquisition programme that was adopted in 1965. Y.B. Chavan led another Inter-Service Defence Delegation, this time to the UK, towards the end of 1964. The delegation made another attempt to seek deferred credit for building an Oberon class submarine in the UK but was once again unsuccessful in its bid. The project virtually reached an impasse as the Government of India too continued to be unwilling to make budgetary provision for the submarine.

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Soviet Offer of Type 641 Accepted

From the Soviet point of view, Indian Navy needed to be strengthened, particularly because of the Chinese incursion into Indian territory in 1962 and later, and also because Chinese criticism of the Soviet policy in Soviet East Asia and the Indian Ocean was changing the politico-military scenario and altering the geopolitical compulsions in the region. Hence, another Inter-Service Defence Delegation headed by G.L. Sheth, Additional Secretary, with a naval team comprising the Deputy Chief of the Naval Staff, Rear Admiral (later Admiral and Chief of the Naval Staff) S.N. Kohli, and Captain (later Commodore) B.K. Dang, Director of Weapon Policy and Tactics at Naval Headquarters, Captain (later Rear Admiral) C.L. Bhandari, Captain (later Rear Admiral) K.R. Ramnath and Shri Paramanandan, Director of Naval Design, visited Moscow in August 1965. The Soviet Union readily agreed to not only supply three (later to be increased to four) F class submarines with the first to be delivered by the end of 1967, five Petya class patrol vessels, two small landing ships and four patrol craft, but also offered deferred credit for rupee payment spread over a period of 10 years at a low interest rate of 2 per cent per annum. The price of each submarine was at that time estimated at INR2.5 crore. The USSR also offered to train two submarine crews at their naval base in Vladivostok.[33]

An interesting feature of the negotiations with the USSR was that they did not have any fixed prices for what they offered—they could readily bring them down to suit their overall strategic needs and purposes. For example, while the British asked for INR5 crore for the Oberon class submarine including the outfit of spares, the Russians offered the F class for only INR2.5 crore each. The surface vessels offered by them were cheaper than any other source in the world. As Commodore Dang recalls, "The price of the Petya class, which the Navy was planning to acquire, had been considerably reduced after some hard bargaining by Shri Sheth, leader of the Delegation, during a meeting with the State Committee for Foreign Economic Relations at Moscow which was headed by General Sedorovich. When Shri Sheth asked for some further reduction, the General threw his head back in anguish and exclaimed, 'Oh God! You want it cheaper than that?' To which Mr Sheth replied, 'General, I thought there was no God in the Soviet Union.' The General had a sense of humour and since he was fully empowered to adopt a price to suit Soviet national requirements, he promptly reduced the price further."[34]

The New Environment

Until this time, as already stated, the Indian Navy had been in close contact with the Royal Navy and everything in the Indian Navy was of British origin. The acquisition of submarines from the Soviet Union posed several

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challenges to the pioneers of the submarine arm, not the least of which was the fact that sophisticated and exacting training was conducted in a new language using a new script. These pioneers who had been carefully selected, however, faced the challenges creditably and imbibed all the finer aspects of the art of submarining despite the hostile weather conditions prevailing in their training environment both in the North Pacific and Baltic regions, in raging blizzards, ice-bound waters and sub-zero temperatures which sometimes went down to 35°C below the freezing point. Added to the inimical environment were the arduous and uncomfortable living conditions on board a submarine which was totally different from what average human beings, especially those from tropical regions, are accustomed to—claustrophobic living spaces, hot-bunking, strict rationing of water, absence of cooked meals, inhalation of air containing hazardous pollutants and a high level of carbon dioxide, total ban on smoking especially while submerged, lack of recreational and other amenities, confinement in an enclosed space for hours, days or weeks together at sea with no communication with the outside world one is familiar with. The high risks associated with submarining demands a high level of dedication and motivation which India's submarine pioneers displayed in ample measure and, with inspired leadership and a cheerful approach to adversity, overcame many a seemingly insurmountable problem. The importance attached by the Navy to the progress of submarine training was underscored by the visit of the Chief of the Naval Staff, Admiral A.K. Chatterji to Vladivostok in June 1967.[35]

First Submarine Squadron Commissioned

Twenty years after the proposal for acquiring submarines had been submitted, the day of the inception of Indian Navy's submarine arm had arrived on 8 December 1967. The cold day dawned with the mercury at 15°C below zero. It was the memorable moment as the Commissioning Warrant was read out by the Commanding Officer, Commander K.S. Subramanian, and the Indian colours were hoisted on a submarine for the first time in history and the Indian Navy finally entered the submarine era with the commissioning of INS *Kalvari* (the name of a species of greyshark) at Riga in the Soviet Union. After a brief period of training with the Soviet Navy, *Kalvari* departed for home waters. It was an arduous passage, with the Suez Canal being closed because of the Arab–Israeli war and the passage from Riga to Visakhapatnam a long haul of nearly 19,000 miles through some of the heaviest seas that the crew would ever see in their lives. In *Kalvari*'s case, it was a grim reminder to its crew of the seriousness of the profession that they had chosen. By a cruel coincidence, three submarine losses were to shock the world in the three months while India's first submarine was in transit to its home port. The first was the USS *Scorpion* lost in the Atlantic, second was French submarine *Eurydice* in the Mediterranean, and the third

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was a Soviet Golf class submarine. It was as if the Indian crew were being forewarned by a higher power that they had chosen a profession which brooked no mediocrity; danger was clear and ever present. *Kalvari* entered its home port of Visakhapatnam for the first time on 6 July 1968. It was received with great fanfare, with Chief of the Naval Staff, A.K. Chatterjee, present to receive the new addition to the Navy. Then Flag Officer East Coast, Rear Admiral K.R. Nair, received the distinction of becoming Indian Navy's first Submarine Operating Authority (SOA).[36]

The remaining three submarines were commissioned in the next two years: *Khanderi* (the name of a wide snouted sawfish) commanded by Commander M.N. Vasudeva on 6 December 1968, *Karanj* (the name of a species of whale-shark) commanded by Commander M.N.R. Samant on 4 September 1969, and *Kursura* (the name of a long-snouted shark) commanded by Commander Arun Auditto on 8 December 1969. After commissioning, each submarine did a three-month combat work up in the Baltic before departing for India. Since the Suez Canal was closed, the maiden voyages were around the Cape of Good Hope. The first two submarines were escorted by Indian Naval Ships, the latter two came on their own. The first four submarines arrived between July 1968 and May 1970 and were based in Visakhapatnam. These four submarines formed the 1st Submarine Squadron of the Indian Navy—designated the 8th Submarine Squadron—and transformed the Service into a three-dimensional wing of the defence forces. At this time Pakistan, Indonesia and Japan were the only other Asian countries that possessed submarines.

Submarine Afloat Support—INS *Amba*

A submarine tender depot ship appropriately named INS *Amba* commanded by Captain (later Vice Admiral and Vice Chief of the Naval Staff) M.R. Schunker joined the Indian Navy on 28 December 1968, designed to provide logistic and technical support to submarines. Its well-equipped workshop also prepared and supplied torpedoes to submarines operating away from their bases. Besides, the ship also provided comfortable accommodation to crew away from the bases and a training ground for the submarine attach group. In the 1971 war, *Amba* was deployed to patrol off the Lakshadweep Islands, across the sea lane between East and West Pakistan. INS *Amba* carried out its role of submarine tender very effectively on the east coast before it moved to Bombay to provide support to the Vela class submarine, the first of which arrived on the west coast at end 1973. From early 1974 onwards, *Amba* was commanded by a CO who had commissioned a submarine in Russia. He was well aware of what submariners expected from their depot ship. In the late 1980s major modifications were carried out in the submarine to support the new technology of Sindhughosh class. So, in the late 1990s *Amba*'s role was enhanced. The ship's deck was strengthened

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to undertake helicopter operations and a few compartments were modified to train sailors on damage control onboard ship. INS *Amba* was also equipped to provide support to sailors for deep dives to keep them up to date. INS *Amba* hauled down its ensign on 15 July 2006, having served the Indian Navy with distinction for 38 years.[37]

By the middle of the 1960s it had become abundantly clear to the Indian authorities that in the scenario of continuing superpower build-up in the Indian Ocean, rising tensions in the Gulf, the growing strategic importance of the ocean, and the immense potential of the living and mineral resources off the tropical belt and continental shelf in this ocean, future wars, even if limited, were most likely to be fought in this region, and the success of the Navy, if it was embroiled in war with another nation, would largely be decided by the superiority, both in numbers and sophistication, of its underwater weapon platforms. The nation had by now become aware of the viability of a strong submarine force as a vital element of the maritime force and the most effective deterrent to any intrusion into its waters. This was in keeping with the assertion of Prime Minister Jawaharlal Nehru that "to be secure on land, we must be supreme at sea" and Shivaji's naval doctrine, "*Jalamev Yasya Balmev Tasya*" (he who rules the sea is all powerful).

The submarines also played a crucial role in the 1971 war, *Kursura* and *Karanj* operated in the Arabian Sea, *Khanderi* operated in the Bay of Bengal, *Kalvari* remained in Visakhapatnam to continue training of fresh inductees for the next lot of four submarines. In 1971, an agreement was signed for four improved Russian submarines of the same class. These submarines, designated the Vela class, were modernized versions of the *Kalvari* class, with more capable equipment, sensors and weapons. The improvements were the result of experience gained by the Indian Navy in operating the submarines in Indian tropical conditions. Thus between August 1973 and December 1974, the next four submarines known as *Vela* class—INS *Vela* (named after a type of Indian fish belonging to the stingray family), INS *Vagir* (the name of a sand shark), INS *Vagli* (named after the Bat Ray fish found in Indian waters) and INS *Vaghsheer* (named after the long-tailed shark)—joined the Indian Navy. By the end of the 1974, the submarine arm consisted of the 8th Submarine Squadron at Visakhapatnam and the newly formed 9th Submarine Squadron at Bombay. It was decided to base the four new submarines in Bombay and create the minimum essential support, maintenance, and repair facilities. Until their shore facilities were set up, they were supported by the submarine depot ship *Amba*, which had been moved from Visakhapatnam to Bombay. After arrival, these submarines participated in anti-submarine exercises, evaluations and operational patrols as the earlier submarines had done. They were saved however from having to expend precious motoring hours in transits between the east and west coasts, which had been unavoidable for the earlier four submarines

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based in Visakhapatnam. From the outset, the tight delivery schedule of the submarines created problems. By 1969, personnel shortages began to cause concern. Several measures were taken to remedy these shortages.[38] Analysis indicated that a major cause of the shortage in intake was the large number of rejections in the psychological tests and the general lack of confidence in the procedures for selection. It was decided:

(a) To do away with psychological and mechanical response test; only the recompression chamber (RCC) test was to continue.
(b) Sailors rejected in the earlier psychological tests were to be retested for suitability in the RCC test at Submarine Headquarters.
(c) The incentives and benefits of service in submarine were to be widely disseminated and followed up by liaison visits of submarine officers to ships and establishments.
(d) To make service in the Submarine Cadre attractive, special benefits were sanctioned. These were submarine allowance, submarine pay, submarine rations, special submarine clothing and hard-lying money at full rates.
(e) The government sanctioned a special scale of rations for sailors serving on board submarines. This included special items of pre-cooked foods for issue when submerged, as normal cooking would not be possible.
(f) Large scale trials of ready-to-eat meals, manufactured at the Defence Food Research Laboratory, Mysore, and the Accelerated Freeze Dried Unit, Delhi, were undertaken on board *Kalvari*. The trials were found to be quite satisfactory. After effecting further improvements, the DFRL Mysore commenced bulk production. These meals, however, never became popular.
(g) The government authorized an emergency ration scale for personnel on board submarines, comprising boiled sweets/milk toffees, fruit bar, mango flakes, pumpkin halwa, refined seedless dates and sweet biscuits.
(h) To overcome the limited facilities and space on board submarines, an experimental Catering Unit was established ashore to issue cleaned, chopped and ready to cook provisions to submarines prior to their sailing.

The early 1980s thus saw efforts to modernize the submarine arm being linked to the process of force development. The Directorate of Naval Plans at Naval Headquarters chose to look at both Western as well as Soviet technology for new submarines. As a result of this policy, agreements were reached at approximately the same time with Germany and the Soviet Union for new classes of boats that were to be inducted into the Indian Navy in the ensuing decades. The contract with the German submarine building conglomerate envisaged the procurement of four modern submarines of HDW Type 209/1500 class, popularly referred to as SSKs. Two of these

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were to be built in German yards while the latter two were to be constructed in Bombay by Mazagon Dock Shipbuilders Limited (MDL) which had already established itself as a builder of warships and was eager to take on the challenges of constructing submarines. The contract with the German company was signed in December 1981 and the first batch of trainees left for Germany in the early part of the following year under the overall charge of Captain D.N. Thakral.

The personnel deputed were broadly of three categories, the submarine overseeing team, the designers, the maintenance and the operating crew. Once again Indian Naval personnel distinguished themselves in a foreign land by their sheer professionalism and devotion to duty. They mastered the new technology that the SSKs represented and were able to ensure that Indian requirements in both training and constructions were met. The first submarine of this class INS *Shishumar* was commissioned at Kiel, Federal Republic of Germany, on 22 September 1986 under the command of Commander P.M. Bhate. It arrived in India on 15 February 1987. This heralded the entry of the submarine arm into the modern era. *Shishumar* was followed two months later by its sister ship INS *Shankush* under the command of Commander O.P. Sharma.

MDL, Bombay, created history with the commissioning of INS *Shalki* on 7 February 1992, the first ever Indian-built submarine under the command of Commander K.N. Sushil. By building INS *Shalki* and its sister ship INS *Shankul*, commissioned on 28 May 1994 in Bombay, India catapulted itself into the niché club of nations that construct their own submarines.[39]

The Induction of Russian 877 EKM (Kilo Class) Submarines

In the late 1970s, the Russian Navy was requested to suggest replacements for the eight Foxtrot class submarines that had been inducted in earlier years, around the same time as discussions were on for constructing SSK submarines in India. The Russian response in 1978 was that the EKM design was on the drawing board and that India should make up its mind quickly so that its requirements could be bulked. The Navy was hesitant to do so, seeing in the Russian offer, perhaps rightly, that it was to compete with the Swedish and German SSK evaluations then in progress. In February 1981, the Russian Navy offered the 877 EKM submarines. The Navy asked for its team to inspect the 877 EKM but was asked to wait. By this time, the decision had already been taken to collaborate with HDW of Germany for the indigenous construction of submarines and final negotiations were in progress. The German HDW SSK agreement was signed in December 1981. In 1983, an Indian team visited and evaluated the 877 EKM and found that its design and performance was comparable to that of the SSK. In 1984, an agreement was signed for six submarines. The seventh submarine was contracted in 1987 and the eighth submarine in 1988. These eight

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877 EKM *Sindhughosh*-class submarines (NATO classification Kilo class) were commissioned between 1986 and 2000. The first four submarines of the *Sindhughosh* class—INS *Sindhughosh* (named after the basking shark), INS *Sindhudhvaj* (meaning flag bearer at sea), *Sindhuraj* (meaning king of the sea), INS *Sindhuvir* (meaning brave and victorious at sea)—arrived by 1988 and constituted the 11th Submarine Squadron based at Visakhapatnam. Concurrently, the first two submarines of the *Shishumar* class, INS *Sindhuratna* and INS *Sindhukesari* formed the 10th Submarine Squadron at Bombay. The third and fourth indigenously built submarines of the *Shishumar* class joined the squadron in 1992 and 1994. And the next four Sindhu class submarines INS *Sindukirti* (meaning pearl of the sea), INS *Sindhuvijay* (meaning conqueror of the sea), INS *Sindhurakshak* (meaning protector of the sea) and INS *Sindhushastra* (meaning weapon of the sea) arrived by 2000 and were based in Mumbai. These formed the 12th Submarine Squadron.[40] They were a generation ahead of the earlier Foxtrot class and at par with the German HDW 1500 submarines. Commander (later Captain) K.R. Ajrekar underwent training in Russia and on return to India became Commanding Officer of the *Sindhughosh*. Recalling the qualities of the EKM submarine that he commanded, he said:

> The tear-drop hull configuration, being hydro-dynamically the best underwater, the underwater management of the EKM is excellent. The EKM has auto diving control you can steer the submarine automatically even from the fire control computer. The hydroplanes are located in the midship portion where there is no interference with the sonar. The submarine hull is covered with rubber tiles that absorb the acoustic energy of enemy sonar transmissions. The radiated noise of the submarine was very low. The sonar could pick up at very long ranges. Never before had I picked up those kinds of ranges. In fact, we thought that we would pick up these ranges only in Arctic waters or the Baltic Sea. However, within a month of our arrival in India, extensive sonar trials were carried out and the ranges obtained were just slightly less than what we had obtained in the Baltic. The sonar is excellent, the underwater telephone facility is excellent, and the intercept sonar is very good. In addition, there is mine hunting sonar which is very useful.[41]

Nuclear Propulsion for Submarines

However modern and sophisticated the conventional diesel electric submarine is, it still suffers from a fundamental limitation. It has to expose itself by raising a snorkel tube to suck in air to run the diesel engines. Nuclear submarines are free from this limitation and as a result are true submarines with virtually no need to show any part of their structure above the water. Because of their limitless endurance these submarines can remain at sea for prolonged periods, the duration of their patrol being limited only

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Fig. 24.1: An Indian Navy *Sindhughosh*-Class Submarine



Source: Naval History Division, Indian Navy

by the endurance of the crew. The Indian government had been considering the acquisition of nuclear submarine in order to train personnel in this very important area of propulsion technology.

Nuclear propulsion in India was first mooted in 1967 when a naval officer and a BARC scientist prepared a feasibility report. A more detailed report was prepared in 1971 as the Committee of Secretaries felt that R&D on nuclear propulsion technology was inescapable if India was not to be left too far behind by the end of the century, when atomic energy would be a major source for both propulsion and energy requirements. A small nucleus of engineers was located in BARC as early as 1978. Seeing the advent of nuclear propulsion in submarines of other navies, a study was undertaken by BARC to study a nuclear propulsion package for naval ships and submarines.

It was in this context that the former President, R. Venkataraman, stated in his book *My Presidential Years* that:

> On 14 September, Admiral Roy, Chief of the Eastern Naval Command conveyed to me the pleasant news that the Government had finally decided to take the first nuclear propelled submarine from the Soviet Union on lease, as purchase would entail acceptance of NPT conditions. The idea of acquiring a nuclear-propelled submarine was floated by me as Defence Minister and after months of bargaining the Soviets agreed. A training programme was arranged for Indian sailors. I had visited the trainees in Leningrad and Riga. I was also happy that the lease amount charged by the Soviet Union was fairly reasonable. The nuclear propelled submarine had the advantage of remaining under water which was not possible for the conventional submarines. It was also proposed at that time that a second nuclear propelled submarine would be built in India. The Atomic Energy were confident of producing an atomic power pack for the submarine.[42]

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An agreement was concluded with the Soviet Union and a team of officers under the supervision of Vice Admiral M.K. Roy was formed to steer the project. After a rigorous selection procedure, the first batch of the nuclear submarine crews, under the command of Captain S. Daniel, commenced their training in the USSR. The training was, perhaps, the most thorough and taxing course that any of the Indian submariners, most of whom had over a decade of submarining behind them, had ever undergone. They absorbed the new technology with professional aplomb and on completion had the pleasure of hearing the inspecting Soviet Admiral say that he would be pleased to see such standards in his own navy.[43]

The offer by the Soviet authorities of a nuclear-powered submarine fleet for the Indian Navy was made by Marshal Ogarkov during his visit to India in April 1981. The Soviet Navy offered to arrange a two years' training programme for Indian naval personnel, lease one nuclear submarine for five years for practical training and to render technical assistance for creating maintenance facilities in India for nuclear powered submarines. He added that the sale, as also assistance for designing and constructing nuclear-powered submarines could be taken up later. After a few delays that invariably dog such ventures, the Indian Navy's first nuclear submarine INS *Chakra* was commissioned on 5 January 1988 under the command of Captain R.N. Ganesh. He had been the junior-most officer on board INS *Kalvari* during its commissioning about 20 years earlier. It was a golden moment for the Navy and the crew of the mighty *Chakra* when the Indian Naval Ensign fluttered proudly onboard the first nuclear submarine. The Soviet Naval Ensign which had been hauled down was graciously presented by the C-in-C of the Soviet Pacific Fleet, Admiral Khvatov, to the Indian Ambassador to USSR, T.N. Kaul, who presided over the commissioning ceremony. The ambassador in turn generously gifted it to the submarine.

Lease of Russian Nuclear Submarine

INS *Chakra* completed the long underwater passage from Vladivostok to Visakhapatnam under the command of Captain (later Vice Admiral) R.N. Ganesh and arrived at its home port on 3 February 1988 for a three-year lease (1988–1991). Except when transiting through shallow waters in the South China Sea, the Singapore Straits and the Straits of Malacca, its passage was submerged. Throughout its passage, the submarine was tracked by Australian and American Maritime Reconnaissance (ASW) aircraft. The frigate INS *Dunagiri* rendezvoused with it in the South China Sea to escort *Chakra* homeward. On arrival, INS *Chakra* was boarded by Prime Minister Rajiv Gandhi, the Chief of the Naval Staff Admiral J.G. Nadkarni and the Flag Officer Commanding-in-Chief, Eastern Naval Command, Vice Admiral S.C. Chopra. In his welcome address, the Prime Minister emphasized that INS *Chakra* carried no nuclear weapon and that she was on lease to enable

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the Indian Navy to master skills involved in operating and maintaining nuclear propelled submarines. The next three years that INS *Chakra* was with the Indian Navy were years of exciting discovery. The Indian Navy was able to better understand nuclear submarine culture and the practical aspects of handling nuclear power plants afloat, the tactical benefits of underwater launched anti-ship missiles, anti-submarine operations against nuclear submarines, and very low frequency communications with submarines at Sea. The *Chakra* was a submariner's dream come true with deadly firepower, tremendous sustained speed and unlimited endurance. Special facilities had been set up in record time due to the tireless zeal of the project team under the supervision of Commodore A.V.R Narayana Rao. The operation of a nuclear-powered plant was a new skill which was acquired by submarine technical officers with confidence.

The demise of the Soviet Union coincided with the need for refuelling *Chakra* which was almost at the end of its lease agreement. It was decided to return the submarine and it departed from Visakhapatnam on 16 December 1990. INS *Chakra* transited back to Russia on completion of the lease, arriving at Vladivostok on 5 January 1991 and re-joining service to become the first vessel under the three naval flags, Soviet, Indian, and Russian. There was speculation in the public domain whether the lease should have been renewed. Admiral L. Ramdas, Chief of Naval Staff at the time the lease was terminated, said that "the Indian Navy had learned all it could on that type of boat and, moreover, because other than the lease amount, it costs INR150 crore annually for onshore support, and that the whole programme was becoming uneconomical."[44]

The return of *Chakra* to Russia in 1991 meant that there was no platform for gaining practical experience and giving insightful course correction to the Indian nuclear submarine building program. A proposal was thus mooted to induct at least two nuclear submarines into the Navy so that India could train a nuclear submarine crew for manning Indian built submarines. The aim of this proposal was to fully prepare the Indian Navy for the development, operation, and maintenance of nuclear submarines. Due to the delays in the indigenous programs, the skills involved in operating and maintaining a nuclear-propelled submarine were gradually lost in the Indian Navy. The Indian government decided to lease another nuclear attack submarine from Russia. India and Russia reached an agreement for the lease of an Akula-class SSN.[45] Towards this, a crew headed by Captain Michael T. Moraes was selected, which got together for the first time in INS *Satavahana* in October 2004 for a three-month course to learn the Russian language and the basics of nuclear engineering.

Deputed for further training to Russia in October 2005, the crew completed the rigorous and gruelling SSN course and returned to India in January 2007. Following delays in the construction of the submarine,

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the crew reassembled at Visakhapatnam under the leadership of Captain P. Ashokan and left for Russia in August 2010, this time to Bolshoi Kamen, for five months of On-the-Job Training (OJT) and Acceptance Trials. The OJT commenced with the ubiquitous system-tracing, wherein every individual had to be cleared, system by system, before being finally cleared for sea. The Sea Phase commenced after two months of Harbour Phase, but belying earlier optimism, this phase (planned for forty-eight days over three months), stretched on for a year. The prolonged period was gainfully used to make detailed Acceptance Trial Protocols, formulate SOPs, improve the poor translation of English documentation, streamline spares and take many other preparatory steps towards commissioning. After a tough acceptance process, typical of any new commissioning, INS *Chakra* (second avatar) was commissioned on 23 January 2012.

INS *Chakra* commenced its passage to India on 22 February 2012 and entered Visakhapatnam harbour on 31 March 2012. Then Chief of Naval Staff, Admiral Nirmal K. Verma, and the Flag Officer Commanding-in-Chief (FOC-in-C) East, Vice Admiral Anil Chopra, embarked the submarine at sea, off Visakhapatnam, prior to entering the harbour. On 4 April 2012, INS *Chakra* was formally inducted into the Indian Navy by then Defence Minister, A.K. Antony. Over the next nine years, the submarine served the Navy with distinction and was the torchbearer of nuclear submarine operations for future indigenous boats. The experience of INS *Chakra* was a vital catalyst for a massive upgrade to the shore infrastructure and maintenance capability, formulation and practice of new operational concepts, and India's designers benefitted immensely from the various technologies used in the boat. It inculcated in the Indian Navy an abiding culture of nuclear and radiation safety.[46] The boat spawned and nurtured a generation of nuclear submariners, who have since shaped the destiny of the Indian Navy's nuclear arm with the values bequeathed by this boat. The submarine was returned to Russia in 2021 after the lease of 11 years.

INS *Arihant*—India Commissions First Indigenous Nuclear Submarine

India began its nuclear journey with the first nuclear test at Pokhran in 1974. Even prior to this in 1968, Admiral A.K. Chatterji had laid out plans which would have led to India having its first SSN sail out in the early 1990s. However, finances marred prospects. It was only in 1988 that India leased the first INS *Chakra* from Russia that led to significant learning in terms of submarine operation. The Indian Navy's Advanced Technology Vessel Project (ATVP) to design and construct a nuclear submarine took shape in the 1990s. The then Defence Minister, George Fernandes, had confirmed the project in 1998. The initial intent of the project was to design nuclear-powered fast-attack submarines, though following nuclear tests conducted by India in 1998 at the Pokhran Test Range and the Indian pledge of "no

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first use", the project was realigned towards the design of a ballistic missile submarine in order to complete India's nuclear triad.

According to 1996 Parliamentary records, India had already incurred a large expenditure to develop a nuclear submarine, and DRDO estimated an additional USD700 million plus in order to complete the project in five years. The decade saw the induction of India's first indigenously built nuclear-powered submarine, INS *Arihant,* a giant achievement for the country. The *Arihant* was built under the Advanced ATVP and has provided the Indian Navy with a much-needed platform to showcase its prowess. It was commissioned on 25 August 2016, in the presence of Admiral Sunil Lanba, then Chief of the Naval Staff.

Project-75: Six *Kalvari* Class Submarines Join the Indian Navy

The construction of the Project-75 submarines has assisted the Indian Navy (*IN*) in consolidating its position as a Builder's Navy. With the successful commissioning of the six *Kalvari* class submarines, the world's outlook towards India's manufacturing abilities changed significantly. It also provided the necessary boost and confidence building within the Indian shipbuilding yards to understand that the capability to build such complex platforms existed within the country. One of the largest "Make in India" projects, Project-75 decreased India's dependence on imports, propelled indigenization and ensured self-reliance.

The journey towards this achievement can be traced as far back as the commissioning of the last of the *Shishumar*-class submarines in the early 1990s, when, faced with the need for an optimum solution to enhance the submarine capability of the *IN*, a decision was made to proceed with the French Scorpène-class submarines. The Cabinet Committee on Security (CCS) followed this up by giving its approval for the construction of six Scorpène-class submarines at M/s MDL, Mumbai, under Project-75, with M/s DCNS (now M/s Naval Group, France) as the main collaborator and several contracts were signed to ensure seamless execution. In October 2005, a contract was signed between the Government of India and M/s MDL for the construction of six Scorpène-class submarines. This was followed by the signing of a contract between M/s MDL and M/s DCNS in October 2005 for the supply of Combat Systems, transfer of design and build technology, associated services and so on. In order to procure Exocet SM 39 missiles and associated infrastructure, another contract was signed between the Government of India and MBDA Systems. For the technical arrangements a contract was signed between the defence ministries of India and France on 6 October 2005. This contract was significant in facilitating unhindered and uninterrupted grant of export licenses, supply of equipment and transfer of design and technology under Project-75 to M/s MDL. Construction commenced on 14 December 2006, after a year of

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preparation during which an office was set up to operate the project as an individual directorate at NHQ.[47] The project was complex, as other than acquiring the submarines, they had to be constructed in India. This involved multifaceted challenges such as building infrastructure to manufacture submarines, absorb technology, and carrying out trials and acceptance protocols. The submarines were designed incorporating state-of-the-art technology; advanced stealth features and equipped with both long-range guided torpedoes as well as anti-ship missiles. These modern submarines were to be constructed with advanced sonar systems and acoustic silencing features which permitted outstanding operational capabilities. An advanced Permanent Magnetic Synchronous motor (PERMASYN) would propel the submarine both on surface and underwater, thus enhancing the submarine's endurance and consequently, the various manoeuvring capabilities.

Fig. 24.2: A Replica of INS *Vaghsheer* Being Presented to Prime Minister Narendra Modi by Admiral Dinesh K. Tripathi, Chief of the Naval Staff, during the commissioning ceremony of INS *Vaghsheer*



Source: Naval History Division, Indian Navy

The selection and training of the crews was another important aspect that was connected to these platforms and the Project-75 office was involved with these aspects as well. This required instructions on multifaceted disciplines as well as ensuring certain amount of cross-training to progress with smooth knowledge transfer. It involved training of crews, yard personnel and personnel from the M/s MDL, the yard that was constructing the submarine.

In 2021, the project had four out of the six submarines commissioned into the Navy. The first submarine of Project-75, INS *Kalvari* was commissioned on 14 December 2017 at Mumbai in the presence of Prime Minister Narendra Modi. INS *Khanderi* was commissioned on 28 September 2019 in the presence of Defence Minister Rajnath Singh. INS *Karanj* was

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commissioned on 10 March 2021 in the presence of the former Chief of the Naval Staff, Admiral V.S. Shekhawat, who incidentally was also part of the commissioning crew and later the Commanding Officer of the old *Karanj* during the 1971 Indo-Pak war. INS *Vela* was commissioned on 25 November 2021, in the presence of then Chief of Naval Staff, Admiral Karambir Singh. Subsequently, INS *Vagir* was commissioned on 23 January 2023. *Vaghsheer* was delivered in January 2025.[48] The submarine undertook an Operational Turn Around (OTR) at Fremantle in August 2023, thereby becoming the first Indian submarine to touch Australian shores, which resulted in an increase in *IN*'s footprint across the Indian Ocean Region (IOR). The last of the *Kalvari* class submarines, INS *Vaghsheer*, was commissioned on 15 January 2025 at Mumbai by Prime Minister Narendra Modi. It was an auspicious day and a watershed movement in the history of the Indian Navy as three major combatants INS *Nilgiri*, INS *Surat,* and INS *Vaghsheer* were commissioned together.

Submarine Rescue Vessel (SRV)

SRV *Nistar* was acquired from Soviet Russia, commissioned in 1971 and based at Visakhapatnam. It conducted the diving operation on the Pakistan Navy Submarine *Ghazi*, which sank outside Visakhapatnam harbour in December 1971. From 1972 onwards, *Nistar* helped train the Navy's Deep Divers and Clearance Divers. In 1975, a full-fledged medical organization was sanctioned to provide cover for submarine rescue operations. In 1977, a safe "Submarine Bottoming Area" was established off Visakhapatnam to exercise mating trials between *Nistar* and submarines.

Between 1982 and 1987, contemporary European SRVs were evaluated for their suitability. A study was carried out of the utilization, on payment, of the US Navy's air-portable Deep Submergence Rescue Vessel (DSRV) rescue system. Each of these had pros and cons in Indian conditions. The drought of the late 1980s and the ensuing shortage of resources led to the acquisition of a new SRV being postponed and the search for an interim solution.

In 1988, a vessel, which Mazagon Docks had built as a Diving Support Vessel for offshore oil exploration work, became available for acquisition. It had a dynamic thruster facility and a recompression chamber. It was taken on dry charter and fitted with the diving bell and other essential rescue equipment removed from *Nistar*. After trials, it was commissioned as INS *Nireekshak* on 8 June 1989.[49] Even though it was not a perfect SRV, the *Nireekshak* was better than the *Nistar*, which was due for decommissioning.

The success of a rescue operation of a submarine in distress (DISSUB) cannot be assured unless the submarine is technically equipped for receiving such aid, and its crew has practised the same. Accordingly, in 1997 the *IN* had entered a tie-up with the US Navy for the utilization of the US Navy Submarine Rescue System to facilitate rescue from a DISSUB. All *IN*

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submarines were inspected and certified for fitness and compatibility with the US Flyaway Kit, infrastructure augmentation at seaport/airport were undertaken and SOPs drawn up for a live submarine rescue. INDIAEX 2012 was a maiden rescue exercise, with the US Navy to develop and demonstrate submarine rescue procedures.

Deep Submergence Rescue Vessel (DSRV) Acquisition Programme

As the major submarine operator in the northern Indian Ocean, the Indian Navy had embarked on an ambitious programme to procure a Submarine Rescue System (SRS). This would consist of a Submarine Rescue Vehicle (SRV) to locate and mark a Distressed Submarine (DISSUB), as also to provide immediate help and undertake preparatory operations for intervention by the Remotely Operated Vehicle (ROV). Preparation of chambers to decompress survivors (if required) on reaching surface were also part of the system.

It was envisaged that the entire system would be air transportable and capable of being shipped from base-to-nearest port to DISSUB site in quick time, using loads of footprint of standard ISO containers by road/rail/air and, thereafter, being mounted on a pre-identified Vessel of Opportunity (VOO) within 56–60 hours. Time to First Rescue (TTFR), from receipt of the news of DISSUB, was envisaged to be less than 72 hours, assuming 100m/12-hours of transit. The Indian Navy embarked on its quest in the mid-1990s but was not very successful in acquisition due to the requirement of generating competition and dealing with diverse technologies, which eventually achieved similar results but had a huge cost differential. Also, the SRS was not a core fighting capability and its operation and maintenance aspects were envisaged to be a challenge considering its bespoke nature and low production volumes. Therefore, various models, such as Government Owned–Government Operated, Government Owned–Contractor Operated, Contractor Owned–Contractor Operated etc., were under consideration, each with its pros and cons.

In terms of competing technologies, the dilemma was essentially on whether the SRV was to be free swimming (akin to a mini submarine) or tethered; whether *IN* should acquire rigid metallic compression chambers or flexible foldable metallic/ composite chambers (both these technologies were in use). Additionally, some countries were using the moon pool concept for DSRV launch and recovery, some were using an A-frame fitted in the stern, and some the side davit concept.

To have SRS capability on both east and west coasts, it was planned to induct two DSRV for basing on both coasts. Along with award of contract, the *IN* commenced the construction of two large DSRV infrastructure facilities at Mumbai and Visakhapatnam. It sought sanction for crew from the Government of India on an accretion basis and the process to take on

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lease two VOOs. The first DSRV 1 was to be delivered within twenty-four months of award of contract and the infrastructure at Mumbai was to be ready when it arrived, a tall order by any international yardstick.

However, *IN* addressed the challenge and a world class capability was created within contractual timelines. The contract also catered to the training of the first two sets of crew at the OEMs (Original Equipment Manufacturer) premises (hence at JFD in UK) and of another six sets of crew in India, in 2024.

The first DRV system was delivered in Mumbai on 10 April 2018 and the second system in Visakhapatnam on 9 January 2019. The Sea Acceptance Trials (SATs) of DSRV 1 were completed in October 2018. The Submarine Rescue Unit (West) was formally inducted into the *IN* on 11 December 2018 by the Chief of the Naval Staff, Admiral Sunil Lanba, and its operational facility was inaugurated on 11 January 2019 by the FOC-in-C (W), Vice Admiral Girish Luthra. The SATs of DSRV 2 in Visakhapatnam were completed in April 2019, and Submarine Rescue Unit (East) was inducted into the *IN*, post completion of SATs, in June 2019.

On completion of the process, the *IN*'s SRS had one of the most capable, deepest diving DRVs; the largest spread of decompression kits; and multi-aircraft mobility capability, which has been proven in exercise subsequently. The SRS is also being leveraged as the tool by the *IN* to provide submarine rescue capability to regional navies as a gesture of goodwill and prudent diplomacy. Post-acquisition of the system, the *IN* ordered two DSVs with M/s Hindustan Shipyard Limited (HSL). These ships would become the mother ships for the DSRV Systems.

On 21 April 2021, KRI *Nanggala*, an Indonesian submarine, was reported missing. Submarine Rescue Unit (SRU) (E) was at the time mobilized onboard the mother ship and set sail for the rescue mission on 23 April 2021 comprising the ROV, Side Scan Sonar (SSS) with integral generator, which was at that time laid off for deep maintenance. The Indian Air Force provided one IL 76 and C17 aircraft to air mobilize the Intervention System from Mumbai. The aircraft were en route to Indonesia when the rescue operations were called off as the debris of the DISSUB was located.

In November 2024, SRU (W) conducted the first round the clock mobilization of the DSRV System, as would be done in an actual Submarine Rescue Emergency, and achieved benchmark timings in the first attempt. Subsequently, the unit also conducted SRV dive and mating in dark hours to prove the capability to not only mobilize expeditiously but also conduct round the clock rescue operations at sea.

In October 2025, SRU(E) conducted live mating for three continuous days with Royal Singapore Navy (RSN) and Japan Maritime Self Defence Force (JMSDF) submarines during the maiden participation with the Indian Navy in the International Submarine Rescue Exercise Pacific Reach 2025.

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Maiden Rescue Seat Certification

An *IN* team was deputed to Simon's Town, South Africa, in August 2025 as part of the Rescue Seat Certification Programme for Friendly Foreign Countries (FFCs). This was the first time that *IN* was involved in Rescue Seat Certification of foreign submarines after having mastered the art in-house over a couple of decades. The maiden Rescue Seat Certification of an FFC submarine by *IN* was a major milestone in establishing *IN* as a preferred security partner in the field of Submarine Search and Rescue Cooperation in the IOR.

Operation Lakshya: First Live Transfer of Personnel from a Bottomed Submarine on 18 March 2004

Excerpt from an article by then Cdr S.N. Ghormade (later Vice Admiral), CO, INS *Nireekshak*, published in submarine journal *Periscope*:

> Indian Naval Ship *Nireekshak* was the only Submarine Rescue Vessel for undertaking Submarine Search and Rescue operations in the *IN* before the arrival of the DSRV. The ship is fitted with CK-59 Submarine Rescue Bell (SRB) capable of undertaking Dry and Wet method of escape from a sunken submarine up to a maximum of eight submariners at one time. The initial wet mating trial of the Bell was conducted in March 1992 and thereafter was just maintained in an operational state. The Kursk submarine incident in 2000 was an eye-opener for the necessity of reliable submarine rescue capability. The *Nireekshak* undertook various operations and modifications on the existing rescue bell in order to consolidate the rescue capability of the ship. A number of activities were progressed onboard the ship in 2003 towards proving the ship as a submarine rescue capable platform for the Navy.
>
> The ship conducted the deepest saturation dive up to 200m in June 2002. This enhanced the submarine rescue capability to this depth. Deep submergence trials of the SRB were conducted to a depth of 240m in March 2003 for proving the role worthiness and operational capability of the rescue bell. Wet mating trial with INS *Sindhuvijay* (Operation Sahayata) was successfully conducted in May 2003 where the Rescue Bell was mated with the submarine at a depth of 50m and vacuum was maintained for 48 minutes. This was the first ever wet mating conducted with a bottomed *Sindhughosh* class submarine.
>
> The ship attempted wet mating, including personnel transfer with INS *Vela* off Visakhapatnam (Operation Samagam) in May 2003. The trials were not successful due to bad weather. However, it was an invaluable learning experience for the ship and its diving team. The ship worked with a missionary zeal during her refit in 2003 towards achievement of transfer of personnel under pressurized conditions. The ship conducted a series of dry mating and submerged hatch mating in harbour with various

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submarines, which boosted the confidence level of submariners and the ship. The SRB lower hatch had never been opened under pressurized conditions underwater and any mistake or lapse would result in causing grave danger to the crew who would have been exposed to high ambient conditions in no time. Every aspect of the rescue operation was discussed threadbare and all emergencies rehearsed. The surface team prepared for all the eventualities and SRB crew was ready to treading into the unknown territories of a live submarine rescue. With close coordination with Commodore Commanding Submarines (COMCOS), West staff we were able to get two submarines for this action. *Sindhuraj* bottomed on the morning of 18 March 2004 for the operation. The ship was manoeuvred close to the submarine and the transponder signal from the submarine was picked up on the ship's dynamic positioning system.

The Submersible Dive Chamber (SDC) was lowered, the diver sighted the submarine and connected the SRB winch wire to the escape hatch. The SRB was then lowered for winching down. At this crucial moment, the internal lighting of the SRB failed, and the crew was stranded in complete darkness. We continued the operation with the aid of torches available in the SRB. The SRB was mated with the escape hatch of the submarine and vacuum held. After the planned tapping signals were made the SRB crew opened the lower hatch of the SRB for the first time under pressurized conditions. The diver then entered the lower chamber of the SRB and after ascertaining from the submarine that the coaming had drained, opened the submarine escape hatch for the first time under pressurized conditions.

The operation lasted for over five hours and resulted in the first ever transfer of personnel from a bottomed submarine. This feat was repeated with *Sindhushastra* on 19 March 2004 where in two personnel were transferred from the submarine from a depth of 57m. History had been created and this was a red-letter day for the *IN* and for *Nireekshak*.

INS Virbahu

Earlier submariners had planned for a submarine support base at Visakhapatnam, the foundation stone for which was laid on 6 July 1968—the day *Kalvari*, the first submarine, entered Vizag port. For nearly four years after *Kalvari*'s arrival, submarines continued to operate from makeshift arrangements in temporary barracks near the old Base Repair Organization premises.

Finally, in 1971, a spacious building was completed and the submarine base began functioning. The first officer in charge of the base in its new premises was Commander K.A. Menon, an Electrical Officer who had undergone training with a Dockyard Team in Vladivostok in Soviet Union. Subsequently, the submarine base operated under the direct command of the Chief of Staff, Eastern Naval Command, Commodore M.S. Grewal.

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The base was commissioned as a full-fledged establishment under the command of Commander K.S. Subramanyam on 9 May 1971 as INS Virbahu. To mark this important occasion, then Defence Minister Jagjivan Ram presided over the commissioning ceremony. On 22 April 1988, Commanding Officer, Virbahu was designated as Commodore Submarine (East) (COMSUB [East]). The designation was later changed to Commodore Commanding Submarines (E) (COMCOS [E]) on 16 June 1997. With the induction of the *Sindhugosh* class submarine commencing in 1986 and shifting of all *Vela* class submarines to Visakhapatnam, additional facilities had to be added to the existing facility at Virbahu.[50]

In 2001, a new nine-story EKM building was inaugurated to provide office accommodation and training facilities for the *Sindhughosh* class submarine based at Visakhapatnam. The officers of COMCOS East and Commanding Officer INS Virbahu were relocated into the new building and a part of the old building was modified into the ward room complex. Virbahu has always held a cherished place in the heart of all submariners and the reason is not difficult to see. Since the very beginning, all training, maintenance, operation, logistic matters pertaining to submarines were dealt with Virbahu. It was only when the submarine arm expanded that the training was taken over by INS *Satavahana* and Class Authority functions by Submarine Headquarters under the Flag Officer Submarine. It is but natural that the attachment has persisted and Virbahu continues to be regarded as the home of the dolphins.

INS Vajrabahu

With the commissioning of the *Vela* class submarine in 1973, it became necessary to build basic infrastructure for operating and maintaining submarines in Bombay. The first accommodation for submarine crew was a seven-storey building that housed the office of the Captain Submarine (SM) of the 9th Submarine Squadron. The Captain SM of the squadron for some time was also the Commanding Officer of submarine depot ship INS *Amba*. The appointment was subsequently bifurcated, and a full-fledged submarine base began functioning in Bombay.

When a new submarine joined the west coast, a need was felt for additional space for setting up technical, administrative and logistic support facilities. Accordingly, work on the A14 building near South Breakwater began. The foundation stone was laid by Vice Admiral K.K. Nayyar on 6 September 1985. The A14 building was inaugurated as Submarine Base Complex (SMBC) on 22 August 1987 by Admiral R.L. Tahiliani, Chief of the Naval Staff. This four-storey building contained the office of the Commodore Submarines (West), all the submarine offices, and a base workshop.

The 12th Submarine Squadron was formed in March 1990 and comprised the *Kilo*-class submarines. The 10th Submarine Squadron was

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formed in February 1992 comprising four *Shishumar*-class submarines and Vajrabahu became the mother base for submarines of both 10th and 12th Submarine squadrons. On 1 February 1996, the Submarine Base Complex was commissioned as INS Vajrabahu by Admiral V.S. Shekhawat, the Chief of the Naval Staff. Captain A.Y. Kalaskar was the first Commanding Officer of this new base. In the ensuing years, a submarine simulator, an infotech learning centre, and a water tower building were added. In January 1999, work on extending the A14 building to eight storeys was started for the purpose of shifting the in-living submarine crew from the L5 building to the four additional floors. On 27 March 2001, the in-living sailors' accommodation was inaugurated by then Vice Admiral Madhvendra Singh, Flag Officer Commanding-in-Chief, Western Naval Command.[51]

INS Vajrabahu was the first officer cum sailors' residential block in Mumbai. Later, shops for basic services and snack bar were added to the accommodation complex. A power laundrette and a state-of-the-art gymnasium for submariners were also created within the Vajrabahu complex in June 2002 and January 2004 respectively. Today, INS Vajrabahu operates and maintains a sizable part of the submarine arm backed by sophisticated infrastructure, well trained, superbly motivated submarine personnel who spare no efforts to keep submarines honed and ready for action.

INS Kattabomman

Whereas a submarine on the surface can transmit and receive wireless messages just like a ship can, submerged submarines can only receive wireless messages on Very Low Frequency (VLF). VLF transmitters require huge antennae suspended high above the ground. The initial discussions were solely with the Russians, from whom the submarines had been acquired. Inquiries with Western manufacturers indicated that better technology might be available from America. Parallel discussions were therefore pursued, both with Russia and with the US. Between 1979 and 1984, modalities were worked out for an American company in collaboration with an Indian company to assume responsibility for the detailed design, manufacture, site installation and commissioning of the VLF transmitting station. During the same period, the Defence Research and Development Organisation (DRDO) designed the antennae to be fitted in the submarine for receiving VLF transmissions. Installation of the VLF Transmitter commenced in 1987, and trials were completed in 1989. On 20 October 1990, the VLF Transmitting Station was commissioned as INS Kattabomman. INS *Sindhudhvaj* became the first submarine to be fitted with an indigenous Ku-band SATCOM system developed by M/s BEL.[52]

Command and Control of Submarine Squadrons

The Directorate of the submarine arm, Naval Headquarters, came into being on 6 January 1966 with Captain Dang as its first Director. After

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the arrival from Russia of the fourth submarine towards the end of 1969, all four submarines of the *Kalvari* class (Russian Project 641, NATO designation Foxtrot class) constituted the 8th Submarine Squadron. It was based at Visakhapatnam under INS Virbahu which was commissioned in 1971. Commanding Officer, Virbahu, functioned as Captain SM8 and Class Authority for all submarines. The next four *Vela* class improved versions of the *Kalvari* class were based in Bombay. When the fourth submarine arrived in end 1974, these four submarines, under Captain SM9, constituted the 9th Submarine Squadron. Captain SM8 at Visakhapatnam continued to function as the Class Authority for submarines.

The first submarine of the *Sindhughosh* class (Russian Project 877 EKM, NATO designation Kilo class) arrived in 1984. The first four submarines constituted the 11th Submarine Squadron and were based at Visakhapatnam to facilitate the training of EKM commissioning and replacement of crew. The first two *Shishumar* class SSK submarines arrived in Bombay from Germany in 1987 and constituted the 10th Submarine Squadron. The next four EKM submarines that arrived by 1990 were based in Bombay and constituted the 12th Submarine Squadron. The four ageing *Vela* class submarines of the 9th Submarine Squadron gradually relocated to Visakhapatnam. The last two, MDL-built SSK submarines joined the 10th Submarine Squadron in 1992 and 1994.

Until INS Vajrabahu was commissioned in Mumbai in 1996, the submarines based in Mumbai were administered locally and Submarine Headquarters in Visakhapatnam dealt with technical matters. With multiple squadrons based in Mumbai and Visakhapatnam, the Commanding Officers of Virbahu and Vajrabahu were initially designated as COMSUB East and West and later re-designated as Commodore Commanding Submarines (COMCOS) East and West respectively. Submarines were placed under the operational and administrative control of the respective Cs-in-C, who were designated as Submarine Operating Authorities. The COMCOSs were responsible to their Cs-in-C for operational readiness and providing their submarines with "Base" and "Material" support.[53]

Flag Officer Submarines (FOSM)

The constitution of FOSM was promulgated in 1986 after the arrival of the first EKM submarine from Russia and implemented in 1987 just prior to the arrival of the SSK submarines from Germany. FOSM is responsible to NHQ for all Class Authority and training functions in regard to submarines. FOSM is also the Safety Class Authority for *IN* submarines. FOSM is under the administrative control of FOC-in-C East and interacts with both FOCs-in-C on all matters related to his charter of duties. Captain/Cmde (SM) on the East Coast and CO Virbahu were separate entities.

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Repositioning of FOSM from Visakhapatnam to NHQ

By the early 1990s, it was found disadvantageous for FOSM to be physically distanced from the decision-making interaction that took place in Naval Headquarters pertaining to plans for acquisitions, maintenance, etc. In 1996, recognizing the need at NHQ for senior level advice on submarine matters, the post of ACNS (Submarines) was created. There being no other submarine qualified flag officer, FOSM was repositioned in NHQ and ACNS (Submarines) was tasked to carry out the dual function of ACNS (Submarines) and Flag Officer Submarines. The administration of the Submarine HQ at Vizag was carried out by a Commodore. However, FOSM took all policy decisions.[54]

Post of ACNS (Special Submarine Projects)

The post of Assistant Chief of Naval Staff (Special Submarine Projects) (ACNS [SSP]) was created in November 2001, placing it under the VCNS. However, it was discontinued after some time, only to be reconstituted in 2014. The ACNS (SSP) is responsible for all aspects related to the acquisition of special platforms built indigenously or from abroad and creation of related infrastructure for all special projects. The ACNS (SSP) monitors and supervises the Directorates of Nuclear Submarine Acquisition (DNuSMAQ) and the Nuclear Submarine Projects and Infrastructure (DNSPI).

Post of Inspector General Nuclear Safety (IGNS)

The post of Inspector General Nuclear Safety (IGNS) was constituted on 9 March 2007. The charter of duties of IGNS includes being responsible to the VCNS for all aspects related to nuclear and radiation safety and inspection of naval nuclear reactors, handling of fissile material and nuclear waste in the Indian Navy. The IGNS is the Competent Regulatory Authority for naval nuclear plants and infrastructure and in this respect, reports to the appropriate safety authority constituted by the GoI. The IGNS has the powers to lay down safety standards and frame rules and regulations in regard to the regulatory and safety requirement envisaged under the Atomic Energy Act, 1962. They are responsible for induction and acquisition of special projects in the Indian Navy and setting up of related shore-based berthing and support infrastructure for which he is assisted by ACNS (SSP) and the Principal Director Submarine Safety (PDSMS).[55]

Capability Addition

INDIAEX-2012

To check the practicality of the tie up, Indian Navy–US Navy rescue exercise INDIAEX-2012 was conducted in 2012. The exercise provided a valuable opportunity for validating the procedures for submarine rescue. The aim

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of INDIAEX 2012 was to exercise common and proven submarine rescue procedures and to build mutual trust on matters pertaining to submarine rescue between India and the USA using the US Navy's (USN) Submarine Rescue Diving and Recompression System (SRDRS).

The broad objectives of the exercise were to validate cross-deck compatibility of SRDRS with *IN* submarines, calculate Time to First Rescue (TTFR) in a realistic scenario, training and experience for the participants. Dedicated crew training was conducted in harbour. The exercise was conducted from 1 to 6 November 2012. Indian Navy Submarines *Sindhuvijay*, *Sindhuratna*, *Shankul*, *Shankush* and *Shalki* participated.

Change in Training Pattern

Submarine training has undergone a lot of changes over the decades. Earlier, the *IN* was operating four different types of submarines—EKM, SSK, Arihant and Chakra. Till 2009, submariners were trained at INS Satvahana with the *Sindhughosh*-class submarine being the basic boat for training. Thereafter, the submariners underwent conversion training as per class of submarines they were appointed to. This entailed a lot of time in training before the officers could be fully employed onboard submarines. In 2009, the maiden SSK Basic Submarine Course was conducted at INS Satvahana. This model proved to be very successful as it drastically reduced the training timelines for fresh trainees. With the induction of *Kalvari*-class submarines, the maiden Basic Submarine Course for *Kalvari*-class submarines was conducted in 2019. Nuclear boat training was independent of this policy, and submariners did their basic training on the nuclear boat class they were appointed to. The vastly different training requirements and operational philosophies posed a challenge in terms of training. In addition to these challenges, the *IN* also took on the mantle of providing submarine training for foreign navies, and trainees from Myanmar, South Africa, Sri Lanka, Vietnam, and Bangladesh have undergone Introductory/Basic submarine training at INS Satavahana in Visakhapatnam.

Commissioning of INS Pallava

The unit was commissioned as a dedicated training establishment on 17 March 2021 and imparts training on Basics of Nuclear and Radiation Safety and pressurized water reactor technology to Naval personnel.

Operations Undertaken by INS *Sindhudhvaj*

Some of the unclassified notable operations by INS *Sindhudhvaj* include the maiden OTR at Gangavaram port on 26 April 2011 and Operation Talash, the search for a missing IAF AN 32 aircraft off Chennai during 22 July–4 August 2016.

In June 2015, INS *Sindhudhvaj* undertook SAR operations off Puducherry for the missing aircraft CG 791. It was deployed for intercepting

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the 37.5 MHz transmissions from the Sonar Locating Beacon (SLB) of the missing aircraft. Both Periscope Depth (PD) and dived runs were carried out by the submarine for SAR operation. The submarine successfully localized one set of transmissions to a one-mile circle and passed it on to the Senior Officer Search Force (SOSF) for further analysis by MSV *Olympic Canyon*, a specialized undersea commercial operations vessel requisitioned from M/s Reliance Industries. The data recorder and SLB were successfully recovered from the position indicated by the submarine.[56]

Salvage of INS *Sindhurakshak*

In the late hours of 13 August 2013, there was an explosion, which resulted in the sinking of INS *Sindhurakshak* and the loss of life of 18 personnel. The salvage of the *Sindhurakshak,* a challenging and dangerous operation, was contracted to M/s Resolve Salvage and Fire India Pvt Ltd on 31 January 2014. The major activities during the execution of the contract included safe removal of ordnance, achieving of watertight integrity, defueling, lifting of the submarine from the seabed, self-floatation, and docking. The contract culminated on 15 July 2014 after completion of post salvage work.

Submarine Diplomacy

Myanmar—Project Jalvir

In pursuance of its vision SAGAR or Security and Growth for All in the Region and its commitment to build capacities and self-reliance in all neighbouring countries, India leased out a submarine to Myanmar in October 2020. INS *Sindhuvir* was in service of the Indian Navy since 1988. The submarine was refitted before being handed over to Myanmar Navy. The *IN* also undertook ab-initio training for Myanmar Navy personnel to operate the submarine. This was the first instance of an *IN* submarine being leased to a friendly foreign country and a significant step towards enhancing bilateral relations with Myanmar. INS *Sindhuvir* was formally handed over to Myanmar Navy on 22 October 2020 and has been named the UMS *Minye Thein Khathu*.[57]

Indian Navy's Submarine Footprint in the Indian Ocean Region

In the post COVID-19 era, the footprint of *IN* submarine operations was established across the IOR. Submarines regularly undertook OTRs in Duqm, Salalah, Colombo, Jakarta, Singapore, and even Fremantle in addition to various Indian ports, namely Paradip, Pipavav, Tuticorin, and Campbell.

INS *Arighaat*—India Commissions Second Indigenous Nuclear Submarine

The second *Arihant*-Class submarine, INS *Arighaat,* was commissioned

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into the Indian Navy on 29 August 2024 at Visakhapatnam in the presence of Defence Minister Rajnath Singh. In his address, the Defence Minister expressed confidence that *Arighaat* would further strengthen India's nuclear triad, enhance nuclear deterrence, help in establishing strategic balance and peace in the region, and play a decisive role in the security of the country. He described it as an achievement for the nation and a testament to the Prime Minister Narendra Modi-led government's unwavering resolve to achieve "Atmanirbharta" in defence.

Defence Minister Rajnath Singh commended the Indian Navy, DRDO and the industry for their hard work and synergy in achieving this capability. He termed this self-reliance as the foundation of self-power. He appreciated the fact that the country's industrial sector, especially MSMEs, had received a huge boost through this project, and more employment opportunities had been created.

Recalling former Prime Minister Atal Bihari Vajpayee's political will, which put India on a par with nuclear-weapon states, the Defence Minister said, "Today, India is surging ahead to become a developed country. It is essential for us to develop rapidly in every field, including defence, especially in today's geopolitical scenario. Along with economic prosperity, we need a strong military. Our government is working on mission mode to ensure that our soldiers possess top-quality weapons and platforms made on Indian soil."[58]

The construction of INS *Arighaat* involved the use of advanced design and manufacturing technology, detailed research and development, utilization of special materials, complex engineering and highly skilled workmanship. It has the distinction of having the indigenous systems and equipment which were conceptualized, designed, manufactured and integrated by Indian scientists, industry and naval personnel. The technological advancements undertaken indigenously on this submarine make it significantly more advanced than its predecessor *Arihant*. The presence of both INS *Arihant* and INS *Arighaat* will enhance India's capability to deter potential adversaries and safeguard its national interests.

Conclusion

The submarine arguably continues to remain the most feared weapon platform in maritime warfare. Because of its stealthy nature and the medium in which it operates (under water), the submarine has proved to be the best sea denial weapon. The *IN* submarine arm has had a glorious history thus far and in the past 75 years 25 submarines of six different classes of Russian, Western and indigenous origins, of conventional and nuclear propulsion have proudly adorned the Naval Ensign. Their crews have operated these boats with exceptional professionalism and commitment, in waters near and far, and have significantly contributed to the mandate of safeguarding the maritime

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interest of India. The arm has been at the vanguard of the *IN* operational edge ever since the first submarine INS *Kalvari* was commissioned in 1967.[59] The submarines have since evolved into an important facet of deterrence in the maritime domain. From not having a submarine arm at all (till 1967), the Navy has since built up its underwater arm to a formidable standard in a short time. Having started with the post-World War II vintage Foxtrots, the Navy rapidly graduated to the ultra-silent Kilo class and subsequently the SSKs, which remain contemporary even today, owing to timely upgradation of their weapon-sensors package. The Golden Jubilee Celebrations of the submarine arm, commemorating 50 years of the commissioning of the first submarine, were held in December 2017. A notable event was the award of the President's Colour by President Ram Nath Kovind to the submarine arm on 8 December 2017 in recognition of the yeoman service rendered by it, both in peace and war. The submarine arm of today is a force to reckon with, one that has attained confidence through professional skills in the silent service.[60]

In the coming years, *IN* will be constructing SSKs through three different programmes that includes the P-75 (three additional Scorpènes), P-75I, and P-76. Apart from this, the Indian Navy is simultaneously engaged in the indigenous development and construction of nuclear-powered submarines. This includes the construction of four Ballistic Missile Submarines (SSBN) of which two have already been delivered. Indian Navy will also be indigenously constructing few nuclear attack submarines (SSN) under the programme designated as Project-77 (P-77). These developments will surely enhance the force profile of this arm in the years to come.

Notes

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Chapter 25

Air Arm

Turbulence Before Genesis

Interest in naval aviation sparked in November 1910 when the first aircraft took off from USS *Birmingham*. By 1912, both the United States and the United Kingdom had realized the tactical potential of aircraft at sea. These developments added a third operational dimension—the air arm—to naval warfare.

The inception of the role of an air arm as an essential part of naval operations began during World War I, when warships began carrying seaplanes for reconnaissance and anti-submarine operations. The British HMS *Argus* became the first aircraft carrier in 1918, followed by HMS *Hermes* in 1919, which was the first ship to be specifically designed as an aircraft carrier. These mobile airbases set the stage for carrier-based operations worldwide. When World War II broke out, aircraft carriers quickly emerged as the dominant force at sea. Their strategic value was showcased most strikingly during the Japanese attack on Pearl Harbour, where carrier-launched aircraft crippled the US Pacific Fleet. Subsequently, the Battle of the Coral Sea, which is heralded as the first naval battle fought entirely by an aircraft carrier, with no direct contact between enemy ships, marked a landmark event that increased the might of these warships. This was followed by the Battle of Midway, where American carriers decisively altered the course of the Pacific War. By the end of the war, aircraft carriers had become the centre of attraction of modern navies.

Prior to Independence, the Indian Navy was closely intertwined with the Royal Navy and remained largely unaffected by world events. Known as the Royal Indian Navy (RIN), it functioned as a "daughter navy", inheriting much of its structure, ethos, and traditions from the Royal Navy. As Britain solely oversaw the maritime defence of India, the navies of British-occupied territories in South Asia were allotted the sole responsibility of conducting coastal defence operations. For this purpose, there existed a miniscule fleet consisting of the Indian and Pakistani Navy. During the period, the RIN never experienced direct contact with enemy ships. After Independence, when naval assets were divided, about two-thirds came to India. However, with a coastline stretching 11,098.81 km, it was soon realized that this small flotilla was inadequate, and the need to expand it into a full-fledged navy was unavoidable. Recognizing the lessons of World War II, when the British, Japanese, and US navies had demonstrated the decisive power of aircraft at

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sea, an air wing was considered an essential attribute of the future navy of India. Thus, within six months of Independence, a 10-year expansion plan for the Navy was drawn up at the Naval Headquarters.

Much before the clamour for an air arm, the growing recognition of air power at sea prompted British India to send Lieutenant Y.N. Singh of the RIN, the nation's first naval pilot, to the UK in 1941 for basic training and later to Canada, where he obtained his "Wings" in 1944 before serving in the escorts of the Royal Navy.[1]

The 10-year plan proposed two fleets for the Navy: one for the Bay of Bengal and the other for the Arabian Sea. The expansion plan was prepared in 1948. An aircraft carrier was also proposed as an important requirement, for which the plan mentioned acquisition of two light fleet carriers. The plan also proposed to set up a naval station. The need for a Fleet Air Arm was accepted by the Defence Ministers' Committee (Navy) at its meeting on 26 October 1949, and the proposal for its formation was passed by the Standing Committee for Parliament on 13 November 1950.[2] However, extreme budgetary stringency affected the Navy's plan for acquiring an air arm.

It was then that India's Viceroy and later Governor General Lord Louis Mountbatten scripted a "naval blueprint plan" for India's Navy, which included three aircraft carriers and a modest air fleet. Mountbatten successfully convinced Prime Minister Jawaharlal Nehru of the urgent need for India to acquire an aircraft carrier and develop a naval air arm, concurring with the 10–year naval expansion plan.[3]

Execution of the decadal plan took off at a brisk pace. In 1948, just one year after Independence, the Directorate of Naval Aviation was established at Naval Headquarters in New Delhi under the leadership of Captain H.C. Ranalds. He began the task of recruitment and training of air crew and technical personnel in the same year, aiming to meet the planned requirement for the Indian Navy to acquire two light fleet carriers by 1957.

The defence budget for 1949–50 provided adequate funds for the acquisition of an aircraft carrier from the UK, but no naval aircraft could be spared at this time by the Royal Navy for transfer to India as it was committed to the Korean War. India thus decided to acquire aircraft independently and form a shore-based naval aviation unit, with future expansion in mind. Plans were made to procure the first aircraft carrier by 1955, followed by another within two years. Seafury FB 11 was chosen as the primary strike aircraft, with 40 units planned for acquisition by 1950.[4] However, global crises like the Berlin Blockade and the Korean War disrupted these plans, shifting the priorities of major naval powers and creating uncertainty in the supply of ships and aircraft—temporarily stalling the early dreams of India's Naval Air Arm.

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Tiny Steps Before Flying High

During 1948, as India began laying the foundations of its Naval Air Arm, 13 young naval officers were chosen for initial flying aptitude screening. They reported to the Indian Air Force's flying training academy at Jodhpur in January 1949 for a four-week flying course on Tiger Moths. Only five were, however, awarded "Wings" and sent to Royal Naval Air Station, Lossiemouth, for operational training. Among them Lieutenant M.M. Bakshi, Lieutenant T. Chakraverti, and Lieutenant R.S. Sokhi were sent for specializing in anti-submarine operations while Lieutenant B.D. Law and Lieutenant P.N. Parashar excelled in fighter operations. These pioneering aviators became the first to bridge the sea and the sky for India's Navy, setting the course for generations of naval fliers.

Reduction in the plans was imposed in September 1950, when the government decided on development of only a Fleet Requirement Unit initially in India and later in the UK, along with the training of Naval Aviation Observers, Air Traffic Control Officers, and Aircraft Engineering Officers at the Royal Navy's aviation and technical institutions. The conversion of suitable ratings into Naval Airmen (Aircraft Handlers), Naval Airmen (Safety Equipment), Naval Airmen (Photographers), Aircraft Artificers, Electrical Artificers, Radio Electrical Artificers, aircraft maintenance personnel and aircraft stores personnel, and the setting up of a School for Aircraft Handling and Fire Fighting at Cochin was also undertaken.[5]

In June 1951, the Government of India approved the formation of the Fleet Requirement Unit (FRU), a pivotal step towards developing naval aviation. The unit was tasked with conducting maritime reconnaissance, training pilots and observers, calibrating radar and communication systems, and supporting antisubmarine operations, while providing air targets for gunnery and tracking practice. The FRU began with a modest but skilled team comprising a squadron commander, eight pilots, four observers, two engineering officers, and 31 sailors, marking the formal beginning of India's organized naval air operations.[6] The first batch of aircraft for this unit was expected to arrive from the UK in the 1950s. The Sealand Mark 1L, a twin-engine, amphibian aircraft, became the Indian Navy's first aircraft. Simple, slow, and inexpensive, it was versatile and dependable, capable enough to carry two pilots, an observer, navigation and communication equipment, and four passengers, with an endurance of over five hours. The first Sealand, *IN* 101, was officially handed over to P.V.R. Rao, India's Deputy High Commissioner in London, on 13 January 1953.

All 10 Sealand aircraft reached Cochin, ferried by Indian pilots trained in the UK. During one of these ferrying trips, Lieutenant P.N. Parashar and Lieutenant T. Chakraverti distinguished themselves by flying from Lee-on-Solent to Malta in a single-seater Seafury in just three hours and eleven minutes, setting a new speed record for the distance.[7] On 9 April 1953,

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Lieutenant B.D. Law made history by becoming the first Indian pilot to successfully land a Sealand aircraft on the waters of the Ernakulam Channel.

Around the same time, Cochin Airfield was commissioned as a Naval Air Station to operate aircraft alongside naval ships. The air station adjacent to INS Venduruthy was given to Commander George Douglas, a former Royal Navy aviator and recipient of the Distinguished Flying Cross for his wartime valour. The Naval Air Station was called INS Garuda. Commissioned on 11 May 1953, it became the Indian Navy's first Naval Air Station. The inauguration commenced with a spectacular fly-past of four Sealand aircraft led by Lieutenant Commander P.N. Parashar. As Commander P.N. Parashar, one of India's pioneering naval aviators, stated, "Cochin being surrounded by water and the need to find an aircraft which could fulfil multiple non-combat roles for the Fleet, aided by the personal flying experiences of Captain H.C. Ranald, must have influenced the choice of this aircraft."

The Cradle of Indian Naval Aviation

INS Garuda, located at Willingdon Island in Kochi, became the Navy's premier training and operational hub. The base hosts several key squadrons. Indian Naval Air Squadron (INAS) 550, equipped with Do-228 and BN-2B/T aircraft, trains pilots and observers in maritime reconnaissance and Search and Rescue (SAR) operations. INAS 336, commissioned in 1994, provides advanced, simulator-based instruction to Seaking helicopter crews through state-of-the-art Flight and Tactical Simulator (FATS). INAS 321, operating HAL Chetak helicopters, conducts SAR missions and trains air crew divers, preparing them for critical rescue and operational tasks at sea.

Complementing the air station came premier institutions such as the School for Naval Aviation (SFNA) and the Naval Institute of Aviation Technology (NIAT), which provided theoretical and technical training to both air crew and ground personnel. Another premier institution was the Aeronautical Training Institute (ATI), which focused on professional maintenance training, equipping officers and sailors with the skills necessary for aircraft upkeep and repair. Training is also provided in meteorology and oceanography.

By the mid-1950s, the Indian Navy recognized the limitations of Sealand aircraft in towing targets. Accordingly, two Firefly Mark I single-engine carrier-borne strike aircraft were ordered. The Fireflies had a remarkable career as part of the aircraft carriers of the Royal Navy, also contributing to the Korean War. They were fitted with target-towing equipment for towing drogue and sleeve targets and acquired for the Fleet Requirement Unit in February 1955.[8] By 1958, eight firefly Mk IVs, armed with 20 mm cannons and capable of carrying bombs and rockets, were acquired, transforming naval aviation from a support role into one with real offensive capability.

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At the same time, to supplement the Indian Air Force's basic training, the Navy introduced the Hindustan Trainer 2 (HT-2), an indigenous aircraft built by Hindustan Aircraft Limited (HAL). Three HT-2s were flown to Cochin by Lieutenant Commander B.D. Law and Lieutenant R.A.J. Anderson on 7 October 1956.

By 17 June 1959, the Fleet Requirement Unit had grown into a formidable force, equipped with 10 Sealand amphibians, 10 Firefly target-towing aircraft, and three HT-2 trainers. Additionally, the day marked the official commission of INAS 550 under Lieutenant P.K.K. Menon, heralding the birth of India's first fully operational naval air squadron and a defining moment in the evolution of Indian naval aviation.

India's First Aircraft Carrier

Though the plan for an aircraft carrier was deliberated and discussed for long, the government remained hesitant to commit to such an acquisition. From 1952 to 1955, successive defence ministers could not specify a date for obtaining a carrier. In April 1955, Defence Minister K.N. Katju informed the Lok Sabha that no proposal had yet been made regarding the purchase of a carrier. That was because until 1955, the British Navy was in no position to spare a light fleet carrier, nor was India's naval budget big enough to afford one. However, in 1955, Mountbatten convinced Nehru that it was high time that the Indian Navy had a carrier. Finally, after a decade, the government finalized arrangements to purchase the hulk of the RN light fleet carrier HMS *Hercules* of the Majestic class.

The Navy soon realized that jet aircraft were required to match the carrier's capabilities. However, neither did the Navy possess them nor were the pilots trained to operate them. This prompted the Navy to get Vampire jets from HAL, only to find that Garuda's runway was not long enough to operate them. Subsequently, the Navy took over the IAF storage depot at Sulur near Coimbatore, which offered an ideal runway. Three Vampire FB-52 jet fighters were procured from Hindustan Aircraft Limited (HAL), Bangalore, and an additional Vampire T-55 trainer was transferred from the Indian Air Force.[9] On 2 September 1957, the Naval Jet Flight officially came into being at Sulur, under the command of Lieutenant Commander B.D. Law, with a compact yet dedicated team of four officers and 56 sailors.

In 1960, the Naval Jet Flight at Sulur was redesignated as INAS 550 'A' Flight, while the Fleet Requirement Unit at Cochin became INAS 550 'B' Flight, together tasked with training pilots for fighter and anti-submarine squadrons destined for INS *Vikrant*. A year later, in March 1961, these units were reorganized into a single Naval Contingent at Sulur. Within months, this contingent evolved into a full-fledged Naval Air Station, INS Hansa, commissioned on 5 September 1961 under Commander T. Chakraverti. This marked a major step in the consolidation of India's naval air power and

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its growing self-reliance in aviation training. INAS 550 was later reformed to use new Alizés of the 310 Squadron and Seahawks of the 300 Squadron to provide flying practice to its pilots.[10] In 1965, the Indian Navy acquired two Dove aircraft, three Hindustan Trainer-2 (HT-2) aircraft, and one Kiran jet trainer, all built by HAL Bangalore for INAS 550.[11]

Protecting India's Space Dreams

In 1964, five naval pilots commenced operations with a Soviet MI-4 helicopter at the Thumba rocket-launching range in Kerala, which was gifted to the space centre. The helicopter was employed to conduct aerial surveillance of the sea areas off Thumba prior to rocket launches.

Indian Navy's Herculean Dream

In April 1957, HMS *Hercules* commenced an extensive refit cum modernization in Britain, scheduled for completion in 1961. *Hercules* was tropicalized for Indian conditions, provided with additional accommodation for the Fleet Commander and staff, and fitted with modern weapons, control systems, and updated electronic equipment. On March 4, 1961, HMS *Hercules* was renamed *Vikrant*, marking its commissioning into the Indian Navy. The 19,500-ton carrier represented the first aircraft carrier to be operated by an Asian nation. The real significance, however, was the first Sea Hawk fighter-bomber jet landing aboard *Vikrant's* deck by Lieutenant Commander R.H. Tahiliani (later Chief of Naval Staff) on 18 May 1961. After an intensive six-week work-up in Malta, by October 1961, and with training complete and its crew well-prepared, *Vikrant* sailed from Malta, returning the borrowed French helicopters at Toulon before setting course for India. After brief stops at Alexandria, Port Said, and Aden, the mighty carrier reached Bombay on 3 November 1961.

Vikrant*'s Homecoming*

When INS *Vikrant* finally neared home after a long and eventful voyage, it was not just the return of a ship but the homecoming of a symbol of India's growing maritime strength and national pride. On 2 November 1961, a day before its arrival, the carrier was joined at sea by INS *Beas* while INS *Rajput* also sailed alongside as an escort. Together, the three ships steamed proudly towards the Indian coast. As *Vikrant* entered home waters on 3 November 1961, it was received with a grand maritime salute, a moment that would be etched forever in India's naval history. The ceremony featured hymns recited to the God of eternity, marking the formal welcoming of INS *Vikrant*.[12] The flagship INS *Mysore* led the welcome, while the skies above came alive with aircraft from the Indian Air Force, performing a flying salute. Twelve Sea Hawks and four Alizés from *Vikrant's* own squadrons roared overhead, carrying out spectacular demonstrations of rocket firing, strafing, and bombing.

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In the evening, Prime Minister Jawaharlal Nehru, accompanied by Vice Admiral R.D. Katari, the Chief of the Naval Staff, arrived on board and welcomed the latest addition to the Indian fleet. At a reception, Nehru described the acquisition as a significant event and received the vessel with the following words, "I welcome the *Vikrant* on behalf of India and wish you success and victory that is implied in her name." The Prime Minister then went on a tour of the ship.[13]

The Sea Hawk or the White Tiger as they are popularly known, were inducted as the Indian Navy's first carrier-borne jet fighter. These aircraft formed the backbone of INS *Vikrant*'s air wing during its early operational years. But 1963 onwards, India's tropical climate began to adversely affect the aircraft. Frequent technical malfunctions were reported throughout 1966–67. The Indian Navy initiated efforts to identify a suitable successor to maintain its carrier-based strike capability. The American A-4 Skyhawk was considered the most viable replacement because of its proven carrier-operating performance along with its compact and robust design. However, political limitations and complexities in procuring US military equipment prevented the deal from progressing. That is when the Royal Navy created the Sea Harrier, specially modified for shipborne air defence and strike roles, with enhanced protection against the corrosive effects of the marine environment. The Indian Navy decided to await the development of the Sea Harrier.

INS Vikrant: *An Indomitable Force at Sea*

Within a month of its arrival in India, INS *Vikrant* was thrust into action for the Goa Liberation Operation in 1961. Patrolling the waters of the Goa coastline and maintaining constant vigilance over the Portuguese force marked the carrier's first ever action in Indian littoral waters. The aircraft carrier was put to refit during the skirmishes of the 1965 Indo-Pak war. But as soon the war began, its fighters were re-embarked. Alizés and Sea Hawks were up and on the go, taking to the skies for reconnaissance and maritime surveillance throughout. It was in the 1971 Indo-Pak war that INS *Vikrant* ascended to legendary status. Launching pre-emptive air strikes on Cox's Bazar and Chittagong, the carrier crippled the enemy and eased the birth of the new nation of Bangladesh.

Alizé and Alouettes Join Indian Navy

Twelve Alizé aircraft came along with INS *Vikrant* while two more were obtained from France in 1966–67 as the French Navy discontinued them. Alizé or Cobras as they are popularly known, are Anti-Submarine and Reconnaissance Aircraft equipped with radar, direction-finding systems, and sonobuoys[14] to detect and attack submarines with depth charges. In their anti-submarine role, the Alizé were equipped with radar to detect submarine

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periscopes and snorts as well as direction-finding systems to pick up submarine radar transmissions. They used sonobuoys to track submarines and depth charges[15] to attack them.

In 1965, the Alizé conducted anti-submarine exercises with the British submarine *Astute* off Madras, followed by another with *Onslaught* off Cochin in 1967. After India inducted its own submarines from Russia in 1968, the tempo of Alizé anti-submarine operations increased significantly. This period marked a turning point as the aircraft were used for sea trials of indigenously developed sonobuoys. From 1965 onwards, efforts also focused on testing Indian-made air-dropped mines and upgrading the Alizé's capabilities by fitting a sonobuoy recording system.[16] These indigenous sonobuoys were suited to India's hot and humid climate, reducing dependence on costly imports.

In August 1968, the two JULIE-fitted[17] Alizé arrived from France, just in time to train with INS *Kalvari*, India's first submarine from Russia. From 1966 onwards, the Alizé also enhanced their reconnaissance role through joint tactical exercises with the IAF and regular electronic surveillance missions across the region. By 1970, however, the Alizé had begun showing their age, and glitches became frequent.

By 1971, Seakings, Missile Anti-Submarine Torpedo-Carrying Helicopter MATCH Alouettes and SAR Alouettes were inducted to the Navy's air arm. Commissioned on 17 April 1971, Seaking helicopters were involved in conversion flying and maintenance courses at Naval Air Technical School (NATS). To meet the growing demand for helicopters from all the three services, MATCH Alouettes from France were chosen. The Navy's *Leander* class frigates were carefully designed to carry these multi-role anti-submarine torpedo-carrying helicopters, which were later indigenously produced by HAL. The Navy initially received three Alouettes from France, with the rest supplied by HAL. The Search and Rescue (SAR) Alouette helicopter entered service with INS *Vikrant* in 1961. The survey ship INS *Darshak,* designed to operate a helicopter, embarked an Alouette for the first time in 1970 during survey missions in the Gulf of Kutch. By March 1969, the helicopter's role had expanded beyond SAR to include logistic support operations. On 15 March 1969, these various SAR flights from *Vikrant,* Hansa*,* Garuda*,* and *Deepak* were formally brought together to form the Indian Naval Air Squadron (INAS) 321.

Post-1971 Aviation Growth

After the war ended, INS *Vikrant* underwent a three-year refit starting August 1972. Prior to its modification, the aircraft carrier undertook training of new air crews, conducted Seaking flying trials to determine the modifications required during *Vikrant's* upcoming refit for seamless helicopter operations, and undertook preliminary Harrier trials to assess the aircraft's basic compatibility with *Vikrant's* flight deck. During this period,

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Sea Hawks, Alizés, and Seakings resumed flying from it and participating in fleet exercises.

The Sea Hawks operating from shore bases faced several fatal accidents between 1972 to 1974, mainly due to recurring fire warning issues and inexperienced and new air crew. By 1974, with ample spares available and firewall replacements completed, the aircraft's serviceability improved significantly. In July 1972, British Aerospace sent its G-VTOL Harrier, capable of vertical take off and landing, to India for landing trials on board *Vikrant*, enabling *Vikrant* to operate VTOL (Vertical Take-Off and Landing) aircraft. In 1973, three new Seakings arrived, followed by another three in 1974, enabling the commissioning of the second Seaking Squadron INAS 336. Thereafter, Seaking availability and efficiency improved considerably. With a larger number of submarines also available on both coasts, the Seakings were able to coordinate their anti-submarine search and attack tactics with those of the Russian Petyas and British Leanders. To support their operation, the Seakings Flight and Tactical Simulator (FATS) was commissioned at INS Garuda on 19 July 1979 for advanced crew training.

In 1980, India acquired three upgraded Seaking Mk 42A helicopters, specially modified for operation from the *Leander*-class frigates INS *Taragiri* and INS *Vindhyagiri*, using the Recovery, Assist, Secure and Traverse (RAST) system. After the Canadian Navy, the Indian Navy became the second navy in the world to have the RAST system and the first to operate a helicopter of Seaking size and capabilities from a small ship the size of a *Leander*.[18]

By 1981, the Seakings Mk 42 had been in service for 10 years and begun to age. Replacing ASW helicopters was required not only for *Vikrant* but also for the Godavari class frigates. The requirement was met when, in March 1982, approval was accorded for 20 Anti-Submarine Warfare and Anti-ship helicopters—six for INAS 330, two for INAS 336, four for a new squadron INAS 339, two each for *Godavari* and *Gomati* and four for Maritime Reconnaissance and Strike.[19] Due to the success of these light Alouette helicopters in the 1971 war, flights were sanctioned for a number of ships. SAR Alouettes were sanctioned for the frigates *Brahmaputra, Beas,* and *Betwa*. Successors of the Seaking Mk 42B variants were also acquired in the 1980s, and they continued to serve the Navy effectively, excelling in anti-submarine warfare and search-and-rescue roles.

Maritime Reconnaissance

Maritime Reconnaissance (MR) initially had two main roles—to search vast sea areas by day and to locate and track enemy warships and merchant vessels by night, subsequently guiding air strikes and naval ships against them. But the role was later evolved into Maritime Reconnaissance and Anti-Submarine Warfare (MRASW) with the rise of submarine threats. The Indian Air Force (IAF) operated MR aircraft for naval tasks, beginning with

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Liberators[20] in 1948 and later Super Constellations[21] in 1961. Early MR performance was poor due to lack of spares, equipment, and trained crews, though later it was improved through sonar trials, torpedo and depth charge practices, and joint ASW exercises involving Seakings, Alizés, and Leanders. During the 1965 Indo–Pakistan War, MR capability proved inadequate, with only 10 flying hours achieved daily against a requirement of 80 hours. In 1966, the Navy sought control of MR operations, arguing that naval aviators were better suited for ship recognition and coordination. Ultimately, the status quo was maintained, with the IAF continuing MR duties using Liberators and Super Constellations, though repeated exercises later exposed serious issues of ship misidentification due to lack of maritime expertise.

Such weaknesses along with the pitfalls of the 1971 war highlighted a dire need for the Navy to have a Maritime Reconnaissance and Anti-Submarine Warfare (MRASW) aircraft. In fact, bringing attention to INS *Khukri,* which was sunk by a Pakistani submarine, the Indian Navy strongly emphasized the need for an MRASW aircraft capable of rapid area surveillance, submarine detection, and attack. The Navy argued that such aircraft, when integrated with ASW helicopters and ships, would form a cohesive anti-submarine weapon system, require unified command and trained naval crews for effective coordination. Consequently, in May 1973, the government accepted the Navy's reasoning and approved the acquisition of four shore-based MRASW aircraft. The aircraft selected was Soviet IL-38. Although initially reluctant, the Russian Navy eventually agreed to spare a few aircraft from its own inventory. An agreement was signed in February 1975 for the acquisition of three IL-38 MRASW aircraft, and the government decided to entrust their command, control, and operation to the Indian Navy, marking a significant milestone in the development of India's independent maritime air arm.

By 1977, India operated four-engine aircraft for shore-based MR from INS Hansa, including Super Constellations of INAS 312 and IL-38s of INAS 315. The Super Constellations provided multi-engine flying experience, while the IL-38s handled long-range anti-submarine warfare and reconnaissance duties over vast ocean areas. However, IL-38s soon proved inadequate for full coverage of the Arabian Sea, Bay of Bengal, and the Indian Ocean. At the same time, due to age and maintenance challenges, the Super Constellations were phased out. The Indian Navy thus sought a replacement capable of longer range and endurance. After extensive evaluation, the Soviet Union's Tupolev Tu-142M "Bear-F" was selected.

The Tu-142M was specially modified for long-range MRASW operations. It featured new sonobuoys, advanced ASW sensors, modern navigation and communication systems, and improved torpedo/missile capabilities. With a maximum take-off weight of 185 tons and endurance exceeding 14 hours, it became the Navy's most powerful long-range MR aircraft.

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Naval Air Arm 1975–1985

In 1977, the government approved the acquisition of eight Sea Harriers, including two trainers from Britain. The British quest for manufacturing Sea Harrier finally succeeded and took flight in 1978. These were capable of vertical/short take-off and landing operations (V/STOL). Training for Indian pilots began in Britain in 1982, and on 16 December 1983, the first three Sea Harriers arrived at Dabolim Naval Station. The first Sea Harrier landed on INS *Vikrant's* deck on 20 December 1983. Acquired in three batches, the Sea Harriers were versatile fighters equipped with air-to-air and air-to-surface missiles, rockets, guns, and bombs. Their advanced weapon-aiming systems and head-up displays gave Indian naval aviation a decisive technological leap.

The Indian Navy's helicopter operations expanded steadily from the 1960s, beginning with light Alouette III helicopters aboard INS *Vikrant*, INS *Darshak*, and INS *Deepak*. By the 1980s, the practice of embarking on helicopters had accelerated significantly. The frigates and destroyers were all designed to operate these heavier helicopters. INS *Taragiri* and INS *Vindhyagiri* carried one Seaking each, while the *Rajput*-class destroyer from Russia were equipped with one Kamov each. The *Godavari*-class frigates and *Delhi*-class destroyers operated two Seakings each, whereas smaller destroyer and other ships continued to operate lighter helicopters like the Alouette III (Chetak). These included INS *Trishul*, INS *Talwar*, INS *Brahmaputra*, INS *Beas*, INS *Betwa*, the new training vessel *Tir*, survey ships, and the *Khukri*-class corvettes.

Additionally, the induction of Russian Kamov 25 Anti-Submarine Helicopters enhanced the Navy's anti-submarine operations. With the commissioning of INS *Rajput* in March 1980, the first Kamov 25, a twin-engine Russian helicopter, entered service. In subsequent years, more advanced Kamov 28s gradually replaced the Kamov 25s.

The Coming of Dorniers

In the early 1980s, India began exploring the indigenous production of a Light Transport Aircraft (LTA) to serve multiple needs, especially that of patrolling. The vision was to have an aircraft with a common airframe and engine, adaptable through different onboard equipment for the operational role of Air Force, Navy, Vayudoot and Coast Guard. Four aircraft were evaluated—the British Islander, German Dornier, Italian Casa, and American Twin Otter. While the Dornier did not fully meet the Air Force's requirements, this maritime patrol aircraft was the preferred choice for the Navy, Coast Guard, and Vayudoot due to its endurance, versatility, and suitability for maritime operations. The Dornier 228 was thus selected for production at HAL Kanpur.

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The aircraft's production version was tested and evaluated in Germany, with the Navy planning to induct it as a replacement for the Alizé aircraft of INAS 310. In 1986, the government sanctioned the Navy's acquisition of 10 Dornier aircraft—three for observer training, four for maritime surveillance, and three as MRSOW variants equipped with radar and air-to-surface missiles.

Additionally, four more Dornier were approved, funded by the Ministry of Petroleum, for offshore surveillance around Bombay High, fitted with radar and Identification Friend or Foe (IFF) transponders similar to the Coast Guard version. However, the drought of 1986 and the resulting financial constraints delayed the release of foreign exchange needed for the import of radars and missiles. Consequently, HAL postponed deliveries but finally delivered in 1990.

When the Navy Operated Two Aircraft Carriers

INS *Vikrant* was sent for the second phase of modernization from 1987 to 1989, when the catapult and arrestor gear were removed, a ski-jump was added for Sea Harrier take-offs, and facilities installed to support the advanced Seaking helicopters with their new missiles and torpedoes. *Vikrant* was also fitted with facilities for operation and maintenance of dual role anti-submarine anti-ship Seaking Mk 42B helicopter. Other additions included Sea Eagle anti-ship missiles, the Matra air-to-air missiles, the A244S anti-submarine torpedoes, and chaff rockets.

The carrier underwent a short six-month refit in 1991 and was operational for 10 months. It underwent a 14-month refit from 1992 to 1994 and was operational flying Sea Harriers, Seakings and Chetaks until its final sea outing on 23 November 1994. In January 1995, Naval Headquarters directed that *Vikrant* be kept "Safe to Float" and that no further refit/dry docking be planned.[22] With successful refits, INS *Vikrant* continued to operate till 1994 and was eventually decommissioned in 1997.

Due to the continuous refit and maintenance issues of INS *Vikrant*, around 1989–90, the Indian Navy had two aircraft carriers at the sea for the first time.[23]

INS *Viraat*

HMS *Hermes* served in the British fleet for 27 years before making its journey to Indian waters. The majestic Centaur-class aircraft carrier, which played a significant role in the Falklands War of 1982, came in India's sights when in 1986 New Delhi decided to acquire the carrier. Following inspections and negotiations, a Memorandum of Understanding was signed on 13 March 1986. The purchase was finalized on 24 April 1986 at a cost of GBP63 million, including refit, spares, and services. Rechristened as INS

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Viraat, the aircraft carrier was commissioned into the Indian Navy on 12 May 1987 under the command of Captain Vinod Pasricha.

With a displacement of nearly 28,700 tons and length of 226.5 metres, INS *Viraat* could host over 1,350 personnel while embarking fighter jets and helicopters. *Viraat's* air wing included Sea Harriers of INAS 300 or the "White Tigers", Seaking 42B and 42C, Chetak helicopters, as well as the indigenous ALH Dhruv and Kamov-31. Powered by steam turbines that could generate 76,000 shaft horsepower, the carrier could sail at speeds up to 28 knots. Until a new graving dock was ready in Mumbai, Cochin Shipyard was designated for its docking operations. *Viraat's* first docking took place in 1991, followed by a short repair docking in 1995. Phase I Medium Refit and Dry Docking at Cochin Shipyard lasted from May 1999 to November 2000. Phase II of the modernization at Naval Dockyard Mumbai lasted till April 2001.

During the carrier's illustrious career, INS *Viraat* logged over 22,600 flying hours, spent 2,252 days at sea, and covered more than 588,000 nautical miles, which is the equivalent to circling the globe 27 times. Being the Indian Navy's second aircraft carrier, it played important roles in several major operations including Operation Jupiter (1989) in Sri Lanka as part of the IPKF mission and Operation Parakram (2001–02) after the Parliament attack. The carrier also participated in multinational exercises such as Malabar (with the US), Varuna (with France), and Naseem-Al-Bahr (with Oman), symbolizing India's growing naval diplomacy.

INS *Viraat* was a blend of British design retrofitted with Indian innovation, easing India's transformation into a blue-water navy by projecting power far beyond its shores.

New Naval Air Stations

As the Indian Navy's aviation arm expanded, the growing number of ship-borne helicopters at Bombay created the need for a dedicated base to support flight operations even when ships were docked. To strengthen air support along India's vast coastline, two new naval air stations were added to the Fleet Air Arms. INS Dega was commissioned on 21 October 1991 at Visakhapatnam, becoming a key operational hub for the Navy's Eastern Command. INS Rajali was commissioned in 1992 on the east coast at Arakkonam in Tamil Nadu. It emerged as one of India's most important long-range maritime reconnaissance bases, later home to aircraft like the IL-38, P-81, and the Tu-142MK-E.

INS Dega

The early 2000s marked significant growth at INS Dega. On 31 May 2000, the 318 Islander flight was rebased from Port Blair, initiating constant

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surveillance over the eastern seaboard's maritime assets. Later that year, on 28 September, INAS 333 (Eagles), operating Kamov 25 helicopters, relocated from Goa to Visakhapatnam, enhancing the Eastern Fleet's airborne ASW coverage. The induction of the advanced Pilotless Target Aircraft (PTA) Lakshya on 31 May 2001 further strengthened the station's capabilities.[24]

With the arrival of Kamov helicopters, second-line maintenance facilities, including a full workshop and overhaul support, were established at Dega. Over time, the station evolved from a single Chetak-operating unit into a multi-aircraft hub with comprehensive technical and ground support. Modifications to the UH3H, such as the addition of weather radar, cabin gun, and slithering equipment, further enhanced its operational significance on the east coast.

NAS Shibpur

Established in 2001 as a Forward Operating Air Base (FOAB), Naval Air Station (NAS) Shibpur in Diglipur extended surveillance reach across the North Andaman Islands. The base supported operations not only by the Indian Navy and Coast Guard but also by IAF Dornier aircraft. In 2009, the Government of India approved the commissioning of NAS Shibpur as a full-fledged air station.

INS Shikra (erstwhile NAS Kunjali)

NAS Kunjali at Mumbai, which was commissioned way back in 1954, was renamed as INS Shikra and recommissioned on 22 January 2009. INS Shikra provides maintenance and flying support to a diverse range of helicopters operating from naval ships based at Mumbai. Helicopters operating from the base include the Seaking 42B and 42C, Kamov-28, Kamov 31 and Chetak. The station also provides Air Traffic Control services to all civil and military helicopters operating in South Mumbai.[25]

INS Parundu (erstwhile Rajali II)

NAS Ramnad, called Rajali II, is the Navy's southernmost air station located in Ramanathapuram district of Tamil Nadu. The station's inception was in 1982 in the wake of ethnic disturbances in neighbouring Sri Lanka. The aim of setting up the station was to provide air surveillance over the Palk Bay area and check smuggling of contraband in the coastal areas between Rameshwaram and Nagapattinam. The Navy commissioned the forward operating base Rajali II as Naval Air Station INS Parundu at Uchipuli, Tamil Nadu, on 26 March 2009.[26] The base has been operating the Islander, Dornier and Chetak aircraft. With this commissioning, Tamil Nadu became the only state to host two active Naval Air Stations, alongside INS Rajali at Arakkonam.

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INS Baaz
Commissioned on 31 July 2012 as the Indian Navy's eighth air station at Campbell Bay, INS Baaz currently supports stage-through operations for Dornier aircraft and helicopters.

INS Kohassa
In line with the shift to "Builder's Navy", INS Kohassa was commissioned on 24 January 2019 at Diglipur, becoming the Indian Navy's ninth air station in the Andaman and Nicobar Islands. It currently supports stage-through operations for Dornier aircraft and helicopters.

Gorshkov to *Vikramaditya*

The 44,500-tonne *Admiral Gorshkov*, originally known as *Baku*, was one of three aircraft carriers of the Soviet Union's *Kiev*-class carriers. Commissioned in 1987, *Gorshkov* served in the Soviet Black Sea Fleet and later the Russian Northern Fleet until 1996. Following the disintegration of the Soviet Union, the Russian navy began downsizing its naval assets. The financial constraints led to a historic opportunity for the Indian Navy—the offer of *Gorshkov* to India, along with MiG-29K fighter jets designed specifically for carrier-borne operations. This proposal became part of the Indo-Russian Protocol on Military Technical Cooperation, signed in December 1994.

Under the Detailed Project Report (DPR) and Integrated Development Plan (IDP), the Indian Navy's evaluation revealed that about 80% of *Gorshkov's* equipment needed replacement to meet operational standards and tropical conditions. After assessments, India selected the MiG-29K aircraft for carrier operations, capable of ski-jump take-offs and arrested landings. The air wing was to include MiG-29K fighters, Kamov-31 AEW helicopters, and Kamov-28 ASW helicopters. The air wing was to be managed by INAS 303, the "Black Panthers" squadron. Lengthy negotiations over refit cost, scope, and new sensor and weapon systems followed through the mid-1990s. The ship, renamed INS *Vikramaditya*, underwent radical reconstruction at Russia's Sevmash Shipyard, Severodvinsk, under the Neva Design Bureau, St Petersburg. The transformation involved converting the vessel from an anti-submarine cruiser into a conventional aircraft carrier with a flush-deck and ski-jump for Short Take-Off but Arrested Recovery (STOBAR) operations along with arrestor wires.

The conversion cost, initially estimated between US$1.5–1.8 billion, included extensive modernization and training support. After years of technical delays and price negotiations, the carrier was renamed INS *Vikramaditya* after the legendary Indian emperor known for strength and wisdom. The aircraft carrier was commissioned on 16 November 2013, making it the Indian Navy's largest and most advanced carrier, capable of

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full-scale naval aviation operations and serving as the centrepiece of India's blue-water naval power for decades to come.

Technological Revolution in Aviation (2001–2015)

The period from 2001 to 2015 was a transformative phase in Indian Naval Aviation, with the induction of game-changing platforms and technologies that redefined maritime warfare. The arrival of the lethal MiG-29K fighters, along with Remotely Piloted Aircraft (RPA) and Airborne Early Warning (AEW) helicopters, brought a new dimension to naval air operations, enhancing both offensive and defensive capabilities at sea. The period between 2001 and 2010 also saw the consolidation of new technologies and operating philosophies commensurate with better maritime surveillance and strike capabilities. The state-of-the-art Boeing P-8I Long Range Maritime Reconnaissance Aircraft completely changed the nature of air warfare.

Kamov 31

To strengthen its airborne surveillance capability, the Navy signed a contract for four Kamov 31 helicopters in 1999 and subsequently for another five helicopters in 2001 with the Soviet Union. These helicopters operated from INAS 339/INS Hansa and the *Talwar*-class frigates. The five additional helicopters raised the total holding to 14 aircraft for operation from INS *Vikramaditya* and the *Teg*-class ships. The primary role of these helicopters is AEW and they are intended for long-range detection of air targets and ships.[27] Kamov Ka–31 features two main rotors stacked vertically, spinning in opposite directions.

Advanced Light Helicopters (ALH)

The induction of the Advanced Light Helicopter Dhruv on 28 March 2002 marked a major step in India's indigenous helicopter development. It now serves in SAR, heliborne operations, armed patrols, and carrier onboard delivery. Dhruv continues to strengthen naval operations amid growing coastal security and low-intensity maritime challenges.

MiG-29K

With the Sea Harrier fleet approaching the end of its service life, the Indian Navy sought a modern carrier-based fighter to maintain its aerial combat superiority. To fulfil this need, a contract with the Russian aircraft corporation MiG was signed on 20 January 2004 for 16 MiG-29K/KUB fighters, followed by a second contract in March 2010 for additional aircraft.

Developed by Russia's MiG Design Bureau, the MiG-29K is a variant of the MiG-29 developed for naval arm purpose, featuring folding wings, reinforced landing gear, corrosion-resistant materials, and compatibility with arrestor hooks and ski-jump take-off systems. It was extensively

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upgraded for Indian requirements with advanced radars and an advanced Flight Control System (FCS). Its glass cockpit incorporated modern LCD multi-function displays, HOTAS controls, and a Head-Up Display (HUD). The aircraft can deploy a wide range of arsenal, including air-to-air missiles, anti-ship missiles and precision-guided bombs. The aircraft also has mid-air refuelling capability and enhanced endurance for long-range strike and patrol missions.

The first MiG-29K for India flew in September 2006, with Indian Navy pilots trained in Russia and at the IAF's Adampur Air Base. The first batch of aircraft, along with a flight simulator, was delivered by May 2011, and the final aircraft from both contracts was inducted in 2021. The fighters commenced deck operations in February 2014, following the arrival of INS *Vikramaditya* in India.

Fig. 25.1: A MiG-29K Fighter of the Indian Navy



Source: Naval History Division, Indian Navy

Operated alongside long-range maritime patrol and ASW aircraft like the IL-38SD and Tu-142M, the MiG-29K/KUB fleet serves aboard INS *Vikramaditya* and is fully compatible with the Indigenous Aircraft Carrier INS *Vikrant*, ensuring continuity of India's carrier-based air power. With 45 aircraft in service, the MiG-29K provides the Indian Navy with a powerful multi-role fighter capable of air superiority, surface strike, and ground support missions—cementing its role as a formidable force multiplier and a cornerstone of India's modern naval aviation.

Short Range Surveillance Dornier (DO-228)

Keeping in view the growing need to enhance coastal surveillance, the acquisition of 11 DO 228-201 from HAL (Kanpur) was undertaken in 2005. Equipped with advanced navigation, communication, and sensor systems, these aircraft significantly enhanced the Navy's short-range surveillance and operational readiness. With a total of 29 Dorniers now in service, they play a vital role in coastal monitoring, Casualty Evacuation (CASEVAC) missions, Combat Free Fall for MARCOS, and pilot and observer training.

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Their reliability and versatility have made them indispensable assets for safeguarding India's coasts, island territories, and Offshore Development Areas (ODAs).[28] The squadrons INAS 310, INAS 311, INAS 313 and INAS 314 use Dorniers.

UH3H

Since 1958, the rotary wing arm of naval aviation evolved remarkably—from the Alouette to the Seaking 42B, Kamov 31 AEW, and the indigenous ALH Dhruv. However, the Navy still lacked dedicated troop-carrying helicopters for amphibious and expeditionary operations. This gap was addressed with the induction of INS *Jalashwa* (ex-USS *Trenton*), acquired from the US under the Foreign Military Sales (FMS) program. To support this platform, the Navy procured six UH-3H Seaking helicopters in November 2006. After overhaul and crew training in the US, the aircraft arrived in September 2007 and joined INS *Jalashwa* during its maiden voyage to India. The INAS 350 Squadron was subsequently commissioned at INS Dega, Visakhapatnam, on 12 May 2009. The squadron has pioneered advanced SAR operations in the Navy, contributing to the evacuation of PIOs from Libya, cyclone relief in Odisha and north Andhra (May 2009), and CASEVAC missions in the Red Corridor, Andhra Pradesh.

Boeing P-8I

To strengthen long-range maritime reconnaissance (LR-MRASW), the Indian Navy initiated the procurement of eight modern aircraft in 2006 to replace the aging TU-142M fleet. After evaluating technical proposals, Boeing was selected as the lowest bidder meeting all requirements. The contract for eight P-8I aircraft was signed on 1 January 2009. With an endurance of over 10 hours and the capability to carry anti-ship missiles and torpedoes, the P-8I provides the Navy with advanced surveillance and strike capabilities against surface and sub-surface threats.

Naval Aviation Infrastructure and Maintenance

NAY Kochi

Naval Aircraft Yard, Kochi, has been the oldest aircraft yard of the Indian Navy, undertaking pioneering work in maintenance of vital assets of the Naval Air Arm. A landmark initiative, Project Ashok, commissioned on 28 September 2002, in memory of Captain Ashok Sawhney, established state-of-the-art facilities including the Aero Engine Repair and Overhaul Shop (AEROS), Pegasus Engine Test Bed (PETB), and the Centre for Avionic Repair and Software Development (CARES) at a cost of INR310 crore. This enabled the overhaul of 56 Pegasus engines, ensuring the Sea Harrier "White Tigers" fleet remained operational until retirement. Another major contribution of the yard has been the operationalization of the Seaking fleet, despite the lack

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of OEM support due to sanctions. The efforts to utilize Seaking 42A spare main gear boxes for Seaking 42B and 42C, followed by herculean efforts towards the Seakings Recovery Program, added to the life of these assets.

NAY Goa

With the disintegration of the Soviet Union and reduced support for Eastern-origin aircraft, in-house maintenance became essential. NAY Goa began as a Base Maintenance Facility (BMF) and evolved into the Navy's second aircraft yard, providing comprehensive repair and overhaul capabilities. The yard facilitated major inspections of TU-142M, IL-38, Ka-25, and Ka-28 aircraft, enhancing the Air Arm's operational reach. In 2002, a Rubber Moulding Bay, towards manufacturing of flight critical seals, was set up followed by a high-precision avionics repair facility. By 2004, a Kamov 28 blade repair facility and the first major inspection of the Kamov 31 were conducted. NAY Goa was also designated to support the induction of the MiG-29K, ensuring operational readiness for the Navy's first Eastern-origin fighter aircraft.

Commissioning of Squadrons

The Indian Navy's Air Arm has developed consistently over the years, and the commissioning of new squadrons became a requirement for the arm to perform its role efficiently.

INAS 552

Post induction of the Sea Harrier aircraft in 1983, INAS 551 was divided into two squadrons: INAS 551A and INAS 551B. INAS 551B was the training squadron for the Sea Harrier aircraft. The Sea Harrier training squadron, Braves, was commissioned as INAS 552 on 7 July 2005 at INS Hansa.

INAS 318 Flight

Established at INS Rajali on 6 April 2006, this Dornier flight enhanced maritime surveillance along the south-eastern seaboard.

INAS 311

Commissioned at INS Dega on 24 March 2009, this Dornier squadron, with the motto "Determined and Vigilant", strengthened coastal security and surveillance on the eastern seaboard.

INAS 350

Operating Sikorsky UH3H helicopters, INAS 350 was commissioned on 12 May 2009 at INS Dega. These medium-lift helicopters primarily operate from INS *Jalashwa*, supporting expeditionary missions and HADR operations.

INAS 343

Commissioned on 17 January 2011 by Gujarat Governor Kamla Beniwal, the unit is the second RPA squadron of the Indian Navy and the first in the

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Western Naval Command. INAS 343 was commissioned at Porbandar and christened Frontier Formidables.

INAS 344
Named the Spirited Shadowers, the Indian Navy's third UAV squadron was commissioned on 11 April 2012, marking a significant milestone in the evolution of naval aviation along the eastern seaboard.

INAS 303
An Intensive Flying and Trials Unit (IFTU) for the MiG-29K fleet was established in November 2009, with the first four aircraft inducted at INS Hansa on 19 February 2010. The IFTU handled training and testing until its elevation as the frontline shipborne fighter squadron INAS 303 "Black Panthers" on 11 May 2013.

INAS 322
The Indian Navy inducted eight ALH (N) helicopters in phases, beginning with the first accepted by the Indian Naval Delivery Acceptance Team on 28 March 2002. After extensive trials totalling over 5,000 flying hours and multiple upgrades, the Navy commissioned its first ALH squadron, INAS 322, at INS Garuda on 12 November 2013.

INAS 552
A new unit was commissioned to elevate naval reconnaissance infrastructure and the erstwhile INAS 552 training squadron at Goa was transitioned as the first naval flight-testing squadron (NFTS) on 1 July 2017. This meant that the Indian Navy now had the capability to test its flight capability in-house without having to rely on outside agencies.

INAS 313 "Sea Eagles"
The Navy's fifth Dornier squadron, INAS 313, was commissioned at the Naval Air Enclave, Meenambakkam, on 22 July 2019. Strategically located, it enhances India's surveillance and dominance over the northeastern Indian Ocean's vital sea lanes. Operating from Chennai International Airport, INAS 313 joins INS Rajali (Arakkonam) and INS Parundu (Ramnad), making Tamil Nadu the coastal state with the highest number of naval air bases.

INAS 314
Commissioned on 29 November 2019 at Porbandar, INAS 314 is the Indian Navy's sixth Dornier squadron and the first to operate the newly inducted CS Dornier aircraft. Positioned at a forward location, it serves as the vanguard of India's maritime surveillance in the North Arabian Sea. Equipped with a glass cockpit, advanced radar, ELINT and optical sensors, and networking capabilities, the squadron enhances the Navy's reach in electronic warfare, maritime surveillance, search and rescue, and target acquisition operations.

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Enhancing Maritime Domain Awareness Post-26/11: The Quest for Modernization and Indigenization

The Indian Navy bought Boeing P-8I (Poseidon Eight) aircraft, a maritime patrol and reconnaissance aircraft, becoming the first international customer after signing the nearly US$2.1-billion contract on 1 January 2009. The P-8I aircraft comes equipped with air-to-surface missiles, lightweight torpedoes, and advanced sonobuoys, making it capable of long-range Anti-Submarine Warfare (ASW), Anti-Surface Warfare (ASuW), and Intelligence, Surveillance and Reconnaissance (ISR) missions. The first delivery of the aircraft was made in May 2013, while the final one was delivered by November 2015.

The aircraft is capable of long-range patrolling due to its 10-hour endurance capacity, along with its sophisticated sensors and communication systems developed indigenously by Defence Public Sector Units (PSUs). With its ability to effectively counter both surface and underwater threats, it has become the backbone of maritime surveillance infrastructure of the Indian Navy.

After the successful induction and operation of the P-8I aircraft, the Navy decided to purchase additional aircraft under the same agreement, leading to the commissioning of the P-8I squadron, INAS 316, at INS Hansa, Goa, on 29 March 2022. The P-8I demonstrated its preparedness for combat during Exercise Kesari in 2013.[29]

In the aftermath of the 26/11 terror attacks in Mumbai, improving coastal security to enhance maritime situational awareness was prioritized. This propelled the contract for the supply of 12 Maritime Reconnaissance Information Warfare (MRIW) Dorniers with HAL in December 2016. The induction of these Dornier aircraft with the latest versions of Maritime Patrol Radars, Traffic Alert and Collision Avoidance Systems (TCAS) 100, Electro-Optical/Infra-red (EO/IR), Weather Radar and Communication systems was completed in 2019–20.[30] This also represented India's growing tilt towards indigenization and an emphasis on bridging the coastal surveillance gap that would prevent any future infiltration of terror elements from the vast coastline of India.

Further efforts were made to fortify maritime surveillance and to upgrade the apparatus to efficiently guard the coastline of India. A contract was signed with HAL by the Indian Navy on 18 August 2017 for eight Chetak helicopters, along with spare Artouste III B engines, support equipment, and documentation. These helicopters, capable of advanced communication, were inducted between 2019 and 2020. In 2018, the Indian Navy inducted 12 Microlight Virus SW 80 aircraft under a 2015 contract from Pipistrel, Slovenia. The two-seater, single-engine "Garud" aircraft is employed for near-field surveillance and monitoring bird activity around naval airfields, which contributes to ensuring navigational safety, preventing bird strikes, and enhancing maritime situational awareness.

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The Indian Navy went further on the path of modernization when it leased High Altitude, Long Endurance (HALE) Drones for the first time in 2020. On 15 October 2024, India signed a US$3.5-billion deal with General Atomics Aeronautical Systems (GA-ASI), United States of America, under which Indian Navy would procure MQ-9B SeaGuardian drones, highlighting the success of unmanned aerial vehicles in surveilling the vast seas that surround our country.[31] Unmanned aerial surveillance coupled with manned patrolling allow better surveillance of the maritime domain.

The induction of the indigenously developed Dhruv Advanced Light Helicopter (ALH) Mk III in 2021, which was initiated in 1979, highlighted India's capability to achieve self-reliance in defence manufacturing. Incorporating modern features such as surveillance radar, electro-optic infrared sensors, a Gen-III NVG-compatible cockpit, and a 12.7-mm machine gun for engaging small and medium targets, the Mk III became a game-changer in India's coastal defence architecture. To meet new operational demands, the Indian Navy placed an order for ALH Dhruv Mk III helicopters in 2017.

Fig. 25.2: An ALH Dhruv in Action



Source: Naval History Division, Indian Navy

The new era also meant bidding farewell to the older platforms that had served the Indian Navy for decades. Inducted in 1977, the Ilyushin IL-38 was decommissioned after an illustrious service of nearly four decades to the nation. It was the backbone of long-range maritime reconnaissance apparatus of the Indian Navy. The first IL-38 aircraft was decommissioned in January 2022. Another critical component of the air arm, the legendary Tupolev TU-142M, nicknamed the "Albatross" as it patrolled the vast length and breadth of the Indian Ocean akin to the majestic bird, served as the main pillar of the Navy's long-range maritime reconnaissance (LRMR), anti-submarine warfare (ASW), and electronic warfare operations over three decades. It was decommissioned in March 2017 and one TU-142M was transformed into an aviation museum in Visakhapatnam in December 2017, following the arrival of the modern P-8I fleet.

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INS *Vikrant*: India's First Indigenous Aircraft Carrier

Project 71 for an indigenous aircraft carrier began in September 1985. Initially known as Sea Control Ship, the project received government approval for feasibility studies, followed by a contract with DCN of France for concept design.[32] However, due to budget and resource constraints in the early 1990s, the size was scaled down to 19,500 tons. By the late 1990s, with India's growing blue-water ambitions and strategic needs, the plan was revived and expanded to a 45,000-ton design.

In 1999, following renewed interest and sanctions post-Pokhran nuclear tests, the Indian government approved the construction of the Indigenous Aircraft Carrier (IAC) at Cochin Shipyard Limited (CSL). The carrier was designed to operate 30 aircraft, including MiG-29K fighters, Ka-31 AEW helicopters, and Dhruv ALH. It would feature a ski-jump for aircraft take-off and arrestor wires for recovery.

The aircraft carrier was powered by LM-2500 gas turbines, achieving speeds of 28 knots with a displacement of 45,000 tons. It incorporated new operational features such as the Short Take-Off but Arrested Recovery (STOBAR) system, used for both take-off and recovery.

The design work was led by the Directorate General of Naval Design (DGND), using the Integrated Hull Outfit and Painting method for modular construction.[33] It was the first Indian warship to be built to such advanced standards, with the DRDO, SAIL, and Indian Navy collaborating. By 2005, the base design and hull fabrication were under way with help from Fincantieri of Italy as a consultant. The ship was planned to have state-of-the-art modular accommodation, capable of housing 1,900 personnel, including air crew and ship staff. In comparison, the larger INS *Viraat* had a complement of 2,300 personnel.

INS *Vikrant*, the nation's first Indigenous Aircraft Carrier (IAC 1), stands as a proud statement of an aspirational and self-reliant India. It is the largest warship ever constructed in the country. Commissioned into the Indian Navy by the Prime Minister on 2 September 2022,[34] INS *Vikrant* is a symbol of indigenous potential, indigenous resources, and indigenous skills.

Building Maritime Supremacy: The Role of Indigenous Aircraft Carrier

A Naval Air Arm encapsulates the Navy's ability to employ air assets—both afloat and ashore. To safeguard national interests, pursue strategic objectives, and execute a wide range of missions, the air arm plays a significant role. Air power at sea combines speed, flexibility, extended reach, and force projection, substantially increasing the fleet's operational effectiveness. By leveraging both land-based air stations and carrier-borne aircraft, the Navy enhances its capacity for sea control, battle-space dominance, and sea denial, while maintaining continuous Maritime Domain Awareness (MDA).

At the core of this capability lies aircraft carriers, which serve as floating airbases capable of deploying combat aircraft across vast maritime

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expanses. Beyond their offensive and defensive functions, carriers operate as hubs for Command, Control, Communications, Computers, Intelligence, Information, Surveillance, and Reconnaissance (C4I2SR), ensuring seamless coordination in complex operations. When integrated into a Carrier Battle Group (CBG), carriers and their embarked air wings multiply the fleet's combat potential manifold. The CBG functions as a self-sustaining, multi-dimensional maritime force capable of long-range strike operations, amphibious support, protection of Sea Lines of Communication (SLOCs), and rapid response to emerging threats.

India's commissioning of its first indigenously built aircraft carrier, INS *Vikrant*, marks a major milestone in its pursuit of Atmanirbhar Bharat in defence manufacturing and strengthens its ability to project power across the IOR. The carrier symbolizes India's emergence among an elite group of nations capable of building such complex warships.

Aircraft carriers are also critical for power projection, mobility, manoeuvrability, trade interdiction, and when properly defended with anti-air and anti-missile systems, CBGs can reinforce India's image as a Preferred Security Partner. Moreover, they serve as a psychological counterbalance to any threat, not just to India but also the IOR region that the Indian Navy protects.

Showcasing the ability to design and build an aircraft carrier will further get India the opportunity to gain technological transfer from friendly foreign countries, who are equally keen on maintaining balance in the Indo-Pacific. Collaboration with allies on nuclear propulsion, catapult-assisted take-off systems (CATOBAR), and fighter jet development would strengthen India's defence industrial base and support the creation of an ambitious third aircraft carrier. By combining aircraft carriers with nuclear submarines and long-range missile systems positioned at strategic locations, India can enhance its deterrence posture and make any threats in the region seem more vulnerable.

The evolution of the Indian Naval Air Arm over the past decade reflects the Navy's unwavering commitment to modernization, self-reliance, and operational excellence. Despite financial and procedural challenges, it has achieved remarkable growth, strengthening its surveillance, strike, and reconnaissance capabilities through the induction of advanced aircraft and technologies. The coming years promise further consolidation, with a sharper focus on indigenization and networked warfare. Looking ahead, the next decade promises to be transformative for Indian Naval Aviation. With the induction of Rafale Marine jets, advanced multi-role helicopters, and indigenous aircraft under development, the Navy is steadily building a future-ready air fleet.

Equally important will be the focus on indigenization, as India's defence ecosystem continues to be strengthened through partnerships with domestic industries under the Atmanirbhar Bharat initiative. New technologies in artificial intelligence, network-centric warfare, and electronic intelligence

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are expected to redefine how the Naval Air Arm operates, ensuring seamless coordination between sea, air, and space-based assets. As these capabilities consolidate, Indian Naval Aviation will not only enhance the Indian Navy's combat power but also reinforce its role as a credible, modern, and self-reliant maritime force.

Notes

1. Rear Admiral Satyindra Singh, *Blueprint to Bluewater*: *Indian Navy 1951–65*, Lancer, New Delhi, 1992, p. 128.
2. Ibid, p. 130.
3. Ibid, p. 128.
4. Ibid, p. 129.
5. Ibid, p. 130.
6. Ibid, p. 133.
7. Ibid, p. 134.
8. Ibid, p. 136.
9. Ibid, p. 137.
10. Ibid, pp. 137–38.
11. Ibid, p. 138.
12. Ibid, pp. 151–52.
13. Ibid, p. 160.
14. Sonobuoys, or sonar buoys, are expendable acoustic sensors deployed from aircraft or ships to detect underwater sounds from submarines.
15. A depth charge is an anti-submarine weapon, designed to detonate underwater at a pre-set depth.
16. Vice-Admiral G.M. Hiranandani, *Transition to Triumph*: History of the *Indian Navy 1965–75*, Lancer Publishers, New Delhi, 1999, p. 267.
17. Active acoustics localization system (sonobuoy based) used by Alizé Anti-Submarine Aircraft.
18. Vice Admiral G.M. Hiranandani, *Transition to Eminence*: *The Indian Navy 1976–1990*, Lancer Publishers, New Delhi, 1999, p. 97.
19. Ibid, p. 97.
20. The Indian Air Force used B-24 Liberator heavy bombers for maritime reconnaissance and air surveillance from the late 1940s until their retirement in 1968–69.
21. The IAF's No. 6 Squadron used retired Air-India Lockheed Super Constellations for maritime reconnaissance in Goa liberation operations till the 1980s.
22. Ibid, p. 105.
23. Hiranandani, *Transition to Eminence*, p. 89.
24. Vice Admiral Anup Singh, *Blue Waters Ahoy! The Indian Navy 2001–2010*, HarperCollins, New Delhi, 2018, p. 234.
25. Ibid, p. 237.
26. Ibid, p. 237.
27. Singh, *Blue Waters Ahoy*, p. 230.
28. Singh, *Blue Waters Ahoy*, p. 231.
29. Captain M. Doraibabu and Commander Amrut Dilip Godbole, *A Decade of Transformation: Signalling Power and Partnership*, *The Indian Navy 2011–2021*, HarperCollins, New Delhi, 2022, pp.114–15.
30. Ibid, p. 116.
31. "India, U.S. Conclude $3.5 Billion Deal for 31 MQ-9B Armed UAVs," *The Hindu*, 15 October 2024, https://www.thehindu.com/news/national/india-to-procure-31-predator-long-endurance-drones-from-us/article68755738.ece, accessed on 23 November 2025.
32. Pushpindar Singh, '*Fly Navy': An Illustrated History of Indian Naval Aviation,* Society for Aerospace Studies, New Delhi, 2006, pp. 169–70.
33. Ibid, p. 169.
34. "INS Vikrant: India's First Indigenous Aircraft Carrier and a Landmark in Naval Capability", Press Information Bureau, Government of India, 24 October 2025. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2182277, accessed on 27 October 2025.

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Part IV
Maritime Cooperation—Bridges of Friendship

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Chapter 26

Look East to Act East

Engraved in History

The friendship between India and Southeast Asia is not a recent tale but a timeless continuum deeply rooted in history. Dating back to the third century CE, relations with Burma (Myanmar), Thailand, Indonesia, the Malay Peninsula, Cambodia, and Vietnam have a foundation in long-standing relations of commerce and trade, which is evident through shared culture, traditional knowledge, values, Indian epics, and religion. The synthesis of these civilizations is seen through vibrant exchanges of Sanskrit inscriptions, Indian art forms, architecture, and technology.

The foundation of trade and cultural exchanges between India and Southeast Asia was laid by the Mauryas, while the Satavahanas continued the relations. Beginning in the 3rd century BCE, Buddhism, which traces its origin from India, flourished across Southeast Asia after Emperor Ashoka first sent Buddhist monks to Thailand. The Pallava dynasty strengthened these ties, enhancing India's engagement across the Bay of Bengal and igniting the spark for the "Indianization" of the region. The Kingdom of Funan (1st-6th century CE) in Cambodia marked the beginning of the Indianized states, followed by Chen-La (6th–9th centuries CE) and the Khmer Empire under Jayavarman II (802–850 CE), who established Angkor as his capital.[1] While the Indianized kingdoms existed, the Cholas of South India were the most powerful kingdom to extend their reach, entering Malaya in the 11th century and eventually launching a naval expedition against the Srivijaya Empire in 1025 CE. By the 12th century, the Angkor Empire expanded into Thailand and Champa (Vietnam). Similarly, great maritime empires such as Srivijaya and Majapahit (7th and 14th centuries CE) emerged in the Indonesian archipelago under Indian cultural influence.[2] Powerful merchant guilds of south India like Ayyavole 500, Manigramam, Nanadesi, and Anjuvannam strengthened trade and commercial relations with Southeast Asia or "Suvarna Bhumi" (land of Gold), as it was referred to, remaining influential until about 1500 CE. Archaeological findings in Malaysia's Bujang Valley, dating back to 110 CE, reveal one of the earliest Indian-influenced civilizations in the region. In Vietnam, the Chams where people of Indian descent, who went on to form the Hindu Kingdom of Champa around 400 CE.[3]

The coming of Europeans disrupted these traditional routes. New sea lanes and connectivity emerged on colonial lines. The Dutch, French, Spanish, Portuguese, and the British "divided the region among themselves".[4]

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Despite being a historic regional player, India's post-Independence policies diminished its historic ties and influence in Southeast Asia. India's adherence to non-alignment and its reluctance to join regional security arrangements limited its engagement. During the Cold War years, India's close relations with the Soviet Union marked by the Treaty of Peace, Friendship and Cooperation of 1971 and support for Vietnam further estranged it from the Southeast Asian nations who were aligned with the United States as per South East Asia Treaty Organization of 1954. Moreover, with India's turbulent economy and subsequent famines, New Delhi chose an inward-looking policy, shielded by a closed economy that restricted trade relations with other countries.

Look East Policy

A bounce-back in India's orientation occurred with the end of the Cold War. The disintegration of the USSR and the rise of the US as a global superpower coincided with India ending its protectionist policy and introducing a new economic policy in 1991 that changed India's outlook of the world.[5] While India maintained friendly ties with the Commonwealth of Independent States, a series of cordial gestures from the United States led to a notable shift in India's geopolitical relationships.[6] The emergence of a "New World Order" saw a re-orientation of world interactions. Globalization facilitated and accelerated the movement of people, material and money. A need to forge closer relationships with the Indian Ocean Region (IOR) emerged and India adopted the Look East Policy that showcased an important element in India's transition to the new world order.

The rapid industrialization and economic transformation of some of the Southeast Asian nations led to the "Asian Miracle", attracting foreign investment and promoting export-oriented growth. Narasimha Rao, the then Prime Minister of India, saw the potential in cooperating with the region and realized that India's enhanced engagement with it could imbibe good practices and policies that promoted rapid growth of the Asian Tigers.[7] According to Ambassador (Retd) Dilip Sinha, "The presence of ASEAN made it easy for India to deal with the region as a group."[8] Prime Minister Narasimha Rao launched the Look East Policy in 1992.[9] Initially the policy focused on Southeast Asia and started with India becoming a sectoral dialogue partner of the Association of Southeast Asian Nations. In 1996, it became a Full Dialogue Partner and also member of the ASEAN Regional Forum.[10] India became a Strategic Partner of ASEAN in 2012.[11]

The Navy as a Key Driver of the Look East Policy

India's geographic projection into the Indian Ocean not only makes it strategically significant in terms of location but also highly vulnerable to maritime threats. Located in the heart of important Sea Lines of

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Communication (SLOCs), it is impossible for New Delhi to overlook the importance of safeguarding these crucial routes. Consequently, New Delhi has no option but to take keen interest in the security and stability of the SLOCs in the Indian Ocean to reach its geo-strategic goal. However, securing the SLOCs in the Indian Ocean would require sustained cooperation and good diplomatic relationships with its neighbours. This eventually led India to deepen interaction with the countries of Southeast Asia in the 1990s and the Indian Navy played a key role in this engagement.[12]

The transformation of the Indian Navy into a blue water navy gained momentum in the late 1990s. Severe resource crunch due to the national drought of 1987 followed by a financial crisis in 1991 kept the Navy operating mostly in its territorial waters.[13] The turning point was the deployment of a task force in the Arabian sea during the 1999 Kargil War.[14] The Navy further saw its evolution from a brown water force, when it undertook long range security operations in response to piracy off the coast of Somalia in the early 2000s. The financial support for the Navy's expansion came out of the rapid economic growth of India that was an offshoot of the new economic policy of 1991.[15] Cooperation from the US also gave a considerable boost, with Washington now starting to consider the Indian Navy as a potential security provider in the region. The relationship was particularly enhanced after US-Pak relations worsened following the Kargil War. The US realized that the Indian Navy was the only force capable of safeguarding the sea lines of communication between the vast region of Africa and Japan.

Nevertheless, the ambitious expansion of the Indian Navy suddenly created a sense of insecurity among its neighbours and the global community. In order to win back the confidence and dispel these confusions, the Indian Navy interacted with other navies through joint naval exercises at sea.[16] The Look East Policy of 1991 made this synergy easier and fostered closer relations with the Southeast Asian nations.[17] This not only facilitated the flow of the latest technology but also cleared the fears of nations and signalled that the Indian Navy's acquisitions and expansion were not just to project naval power but also to work along with neighbouring navies to secure energy security through protection of SLOCs.

Consequently, to secure sea lanes of communication across one of the world's busiest maritime routes, the Andaman and Nicobar Islands (ANI) was chosen to serve as the country's easternmost maritime outpost. Due to its strategic position that links the Indian Ocean and the Pacific Oceans, ANI stands as a gateway to Southeast Asia and the wider Indo-Pacific.[18] The ANI base was initially commanded by a Resident Naval Officer starting from 1964. The position was upgraded to Naval Officer-in-Charge Andaman and Nicobar (NOIC A&N) in 1971. In 1977, the position was replaced by Fortress Commander, Andaman and Nicobar Islands (FORTAN).[19] However, this position was upgraded in 2001 and as per the Kargil review

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committee recommendation an integrated command was established.[20] A Commander-in-Chief, a three-star officer, was appointed to command. The integrated command strengthened the ANI's military and logistical infrastructure and supported India's strategic outreach to ASEAN and East Asian nations, ensuring both security and sustained engagement under the Look East framework.[21]

As part of the Look East Policy the Navy then went on to initiate MILAN, a multilateral naval exercise conducted every two years with the Southeast Asian navies in the Bay of Bengal.[22] Started in 1995 at the Andaman & Nicobar Command to strengthen India's engagement with the eastern navies, MILAN initially began as a modest tactical drill and quickly evolved to accommodate weapon firings, search and rescue (SAR) operations, air defence, boarding exercises, and medical evacuation drills. The main purpose of the exercise is to enhance interoperability, exchange best practices, and foster mutual trust and cooperation among participating navies. The exercise aims at cementing friendship and building confidence in seamless operations with each other. It also serves as a diplomatic platform for senior naval officers and representatives from littoral states to interact and build long-lasting partnerships. Starting with just four nations, MILAN has now expanded, drawing participation not only from navies of Southeast Asia but also from the wider Indian Ocean Region (IOR).[23] The growing endeavour displays India's commitment to regional maritime collaboration and aligns closely with the country's Look East Policy, which later became the Act East Policy, subsequently giving way for the SAGAR initiative, that brought in the western Indian Ocean islands and rest of the Indian Ocean littorals.

MILAN, happening every two years, was initially conducted at Port Blair, under the Andaman and Nicobar Command.[24] It began with the navies of Indonesia, Singapore, Sri Lanka, and Thailand as participants and focused on interoperability, maritime safety, and regional friendship. Today the exercise stands as a testament to the Indian Navy's ever-growing influence in the region. The 2001 and 2006 editions of the exercise were cancelled due to International Fleet Review.[25] MILAN was not held in 2005 due to the 2004 Indian Ocean earthquake and tsunami, and was rescheduled to 2006. The 2006 edition saw the participation of 13 countries, eight ships, 20 officers, 802 sailors and civilian personnel, making it the largest ever congregation of navies, for the MILAN series, up until that time. Originally conceived in consonance with India's Look East Policy, Exercise MILAN, over the years, has increased in terms of participating members and scope, with evolving foreign policy initiatives such as the Act East Policy and SAGAR.[26] The introduction of Humanitarian Assistance and Disaster Relief (HADR) into the exercise was again a notable requisite as the Southeast Asian nations are most prone to natural disasters. Taking this evolution of the exercise

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into account, it was proposed that the eleventh edition of the exercise be hosted at Visakhapatnam on 18–28 March 2020. The edition was, however, postponed due to the COVID-19 pandemic and was eventually held from 25 February to 4 March 2022 in Visakhapatnam. The theme was "Camaraderie Cohesion Collaboration".

The 12th edition of the multi-nation exercise was held in Visakhapatnam under the Eastern Naval Command in 2024. Witnessing the participation of around 15 warships from various foreign navies alongside nearly 20 Indian Navy vessels and including both of India's aircraft carriers, INS *Vikrant* and INS *Vikramaditya*, the edition became the largest such exercise conducted so far. The event featured advanced operational drills, including anti-submarine warfare, air defence manoeuvres, and complex fleet operations, reflecting the Indian Navy's enhanced interoperability and readiness in a multilateral maritime environment. Speaking on the occasion, Defence Minister Rajnath Singh highlighted that, "The positive peace is the shared peace of one and all, with the cooperation of one and all. There is no Indian peace or Australian peace or Japanese peace, rather it is the shared global peace."[27]

In 2011, during her visit to India, US Secretary of State Hillary Clinton emphasized the need for India to take a more proactive role in the Asia-Pacific region, urging New Delhi to "act east" rather than merely "look east."[28] The phrase caught the attention of then External Affairs Minister Sushma Swaraj, who declared in 2014 that India was now ready to "Act East".[29] Later that year, Prime Minister Narendra Modi, during his visit to Naypyidaw, Myanmar, reaffirmed this shift, expressing that India is serious about boosting ties with the region and marking the transformation of India's Look East Policy into the more dynamic Act East Policy.[30]

Act East Policy

On November 12, 2014, Prime Minister Narendra Modi said at the first ever ASEAN-India Summit: "A new era of economic development, industrialization and trade has begun in India. Externally, India's 'Look East Policy' has become 'Act East Policy'."[31] The Act East Policy envisions developing a stable, prosperous, and interconnected Indo-Pacific region by achieving convergence of maritime security interests with regional partners and adhering to international norms. The Prime Minister stated: "The India-ASEAN partnership may be just 25 years old. But, India's ties with Southeast Asia stretch back more than two millennia."[32] Subsequently, the ASEAN-India Plan of Action (2016–2020) was adopted during the 13th ASEAN-India Foreign Ministers' Meeting held in Kuala Lumpur in August 2015, where three pillars of cooperation were declared.[33] The PM also invited ASEAN countries to participate in India's ongoing economic

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transformation and went on to recommend a special purpose vehicle to enhance the ASEAN-India economy.

The shift from Look East to Act East was a transition of India's foreign policy from limited aspirational intent to tangible efforts. The aim was to engage more proactively with Southeast Asian nations. To achieve that objective, the evolving political, economic, and security dynamics of the Indo-Pacific region are utilized. Strategic partnerships, security cooperation, and infrastructure developments are the main drivers of the policy. The policy also comprises various bilateral, regional, and multilateral mechanisms to deepen partnerships with ASEAN and promote cooperation in the Indo-Pacific. Various connectivity projects for integrating India's North-Eastern Region with Southeast Asia, which serves as a gateway to the region, is under way. The Kaladan Multi-Modal Transit Transport Project, India–Myanmar–Thailand Trilateral Highway, Rhi–Tiddim Road, and Border Haats aim to enhance trade, infrastructure, and people-to-people links.[34]

As part of the policy, New Delhi has participated in regional forums like ASEAN Regional Forum, East Asia Summit, Mekong-Ganga Cooperation, Asia Cooperation Dialogue, ASEAN Defence Ministers' Meetings Plus (ADMM+) and Indian Ocean Rim Association (IORA).[35] The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) is another grouping that acts as a bridge between South Asia and Southeast Asia.[36] With different working groups for transport, connectivity, trade and security and the BIMSTEC Bangkok Vision 2030, there is a concrete roadmap for future cooperation.[37] The Forum for India–Pacific Islands Cooperation (FIPIC) was launched in 2014 under the Act East Policy to engage with countries such as Fiji, Papua New Guinea, Samoa, and Tonga.[38] In 2019, the Indo-Pacific Oceans Initiative (IPOI) outlined India's vision for a free, open, inclusive, and rules-based maritime space.[39] The IPOI focuses on cooperation in maritime security, marine ecology, disaster risk reduction, and sustainable resource use. The IPOI supports India's broader vision for the Indo-Pacific region, and is designed to foster cooperation among like-minded countries to address common challenges while utilizing the opportunities of the maritime domain.[40] Several key countries, including Australia and Japan, have joined hands with India to operationalize its pillars. India's participation in the Quadrilateral Security Dialogue (Quad), alongside the United States, Japan, and Australia, has also gained substantive momentum. Revived in 2017, Quad has grown beyond security cooperation and now cooperates on critical technologies, infrastructure, and climate action among others. All these multilateral frameworks provide India with flexible platforms to advance regional cooperation while implementing New Delhi's own geographic priorities.

Overall, the Act East policy has strengthened partnerships with ASEAN and positioned India as a responsible maritime power. The enhanced

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cooperation with like-minded countries and India's ability to voice the concerns of small island nations have made India a responsible player in Indo-Pacific stability.

Indian Navy as an Enabler of Act East Policy

Apart from its military role, the diplomatic role of the Navy has enabled the successful channelizing of the Act East Policy through port calls, joint exercises, Humanitarian Assistance and Disaster Relief (HADR), and capacity-building initiatives. Joint Naval Exercises like SIMBEX with Singapore, INDO-THAI CORPAT with Thailand, AUSINDEX with Australia along with MILAN are some of the exercises with ASEAN and Indo-Pacific nations. Indian naval ships have frequently visited Vietnam, Indonesia, Malaysia, and the Philippines, showcasing India's presence in the South China Sea and eastern Indian Ocean. HADR and sharing of Maritime Domain Awareness also help these nations gain quick response to disasters like tsunami and cyclones, which are common in Southeast Asia. India also offers Information Fusion Centre–Indian Ocean Region (IFC-IOR) that shares maritime data with ASEAN nations.[41] Started as goodwill visits, Indian Navy's maritime engagements with the nations of Southeast Asia and the Small Island Developing States (SIDS) evolved to become an integral part of the Navy's diplomatic role. When later they came to be known as port calls, the engagements have paved the way for bilateral as well as multilateral exercises, making India a trusted partner in the region. Enhanced India-ASEAN naval cooperation has also benefited India's defence exports to this region and states have expressed interest in acquiring Indian weapon systems. While the Philippines has purchased the Indian-Russian jointly developed BrahMos, Vietnam and Indonesia are also in negotiations with New Delhi over the purchase of the anti-ship missile system.

A series of India–ASEAN Maritime Exercise (AIME) has become a platform for the Indian Navy acting as a facilitator of Act East. The first edition was held in 2018 at Port Blair, under Andaman & Nicobar Command, concentrating on interoperability, information sharing, and maritime domain awareness. For the first time in 2019, AIME–19 featured both harbour and sea phases, conducted at Changi Naval Base and in the South China Sea, respectively. The 2021 edition was held virtually due to the COVID-19 pandemic. In 2022, the AIME was hosted at Visakhapatnam under the Eastern Naval Command, covering coordinated patrols and communication drills. The most recent edition, AIME–23, occurred in the South China Sea, with anti-submarine warfare exercises, surface firing, tactical manoeuvres, air operations, and coordinated patrols.[42]

Vietnam: Naval engagements between the two nations started in the 2000s with the India–Vietnam Joint Naval Exercise. Indian Naval Ships make regular goodwill visits to Vietnamese ports. India has also supported

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capacity building through training of Vietnamese naval personnel and hydrographic surveys. India provides a high-speed patrol vessel under a defence line of credit in 2019. Regular bilateral Staff Talks also occur under ASEAN Defence Ministers' Meeting Plus. Both nations engage in PASSEX and in the 2022 edition INS *Sahyadri* and Vietnam People's Navy frigate *Ly Thai* participated. Under Operation Sadbhav, the Indian Navy also provided humanitarian assistance to those affected by Typhoon Yagi.[43]

Philippines: The Indian Navy began goodwill visits to the Philippines in the early 2000s. The two nations have participated in multilateral forums such as the ASEAN Defence Ministers' Meeting Plus (ADMM-Plus) and the Indian Ocean Naval Symposium (IONS). In 2019, Indian Navy ships INS *Sahyadri* and INS *Kiltan* made a goodwill visit to Manila. The two nations also conducted Passage Exercises (PASSEX) in 2021 between INS *Ranvijay* and INS *Kora* with the Philippine Navy's BRP *Antonio Luna*.

Indonesia: Formal naval cooperation between the nations began with the IND–INDO CORPAT. Launched in 2002, the coordinated patrol is conducted biannually to combat piracy, illegal fishing, and smuggling. The two navies have participated in PASSEX during port visits, with INS *Rana* and INS *Shivalik* from the Indian Navy and KRI *Bung Tomo* and KRI *Usman Harun* from Indonesia. Both nations time and again cooperate through white-shipping agreements, and exchange of information on maritime domain awareness. Both countries also engage multilaterally through the Indian Ocean Naval Symposium (IONS) and ADMM-Plus maritime exercises. Recently, INS *Kadmatt*—the Indian Navy's indigenously built anti-submarine warfare corvette—completed a three-day port call at Surabaya in August 2025.[44]

Singapore: Naval cooperation between India and Singapore began with the India–Singapore Training Agreement. Signed in 1993, the treaty allows training of both Singaporean Navy and Indian Navy in anti-submarine warfare and tactical exercises. The bilateral exercise SIMBEX, started in 1994, has been conducted for the longest period. Over the years, SIMBEX has evolved to encompass air defence, anti-surface and anti-submarine operations, and coordinated maritime missions. The Indian Navy's ships, including INS *Kolkata*, INS *Shivalik*, and INS *Satpura*, have regularly participated in SIMBEX and visited the Changi base while Singaporean ships often visit Visakhapatnam and Port Blair. Both navies coordinate through Indian Ocean Naval Symposium (IONS), ADMM-Plus maritime exercises, and Western Pacific Naval Symposium. Recently, INS *Sandhayak*, the first survey vessel large (SVL) with state-of-the-art hydrography, made its maiden visit to Singapore.[45]

Malaysia: The naval connection with Malaysia began with goodwill visits in the early 1990s. The Indian Navy and the Royal Malaysian Navy (RMN) have regularly conducted Passage Exercises. Indian Naval Ships

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such as *Kora*, *Shivalik*, *Kadmatt*, and *Sahyadri* have frequently visited Port Klang and Kota Kinabalu, while RMN ships have made reciprocal visits to Indian ports. Both navies also interact closely through bilateral staff talks while Malaysian naval personnel are trained at Indian naval institutions. At the multilateral level, India and Malaysia engage through the Indian Ocean Naval Symposium (IONS) and the ADMM-Plus maritime exercises.

Myanmar: Naval cooperation began in the 1990s with goodwill visits and training exchanges. The first India–Myanmar Coordinated Patrol (IMCOR) was launched in 2013 to enhance maritime security. Due to their shared maritime boundary, the focus has been on combating illegal fishing, smuggling, and poaching. Both nations host biannual coordinated patrols, with Indian ships such as INS *Saryu*, INS *Kulish*, and INS *Karmuk* visiting Yangon and Thilawa, and reciprocal visits by Myanmar Navy ships to Indian ports. Myanmar has been a consistent participant in India's Exercise MILAN. Cooperation also includes training of Myanmar naval personnel at Indian institutions, hydrographic assistance, and capacity-building support.

The Indian Navy also conducts exercises with Cambodia, notably CINBAX, which was inaugurated in December 2024. With Thailand, the Navy hosted the 13th annual edition of India–Thailand joint military exercise. The Navy makes goodwill visits to Brunei, which began in the early 2000s. Brunei often participates in India's MILAN exercise and PASSEX.

India's extended focus with East Asia and Indo-Pacific partners include naval engagements with Japan, South Korea, Australia, and New Zealand. Formal defence ties with Japan began in the early 2000s, with Japan joining the Malabar naval exercise in 2007 and later becoming a permanent member in 2015. The two navies conduct regular bilateral exercises JIMEX (Japan–India Maritime Exercise) since 2012, focusing on anti-submarine warfare, air defence, and tactical manoeuvres. Goodwill visits have kept the navies closer, while White Shipping Agreements (2018) and Logistics Exchange MoU (2018) have enhanced interoperability between them.

India's naval engagement with South Korea began in the early 2000s. India and South Korea signed an MoU on Defence Cooperation in 2005. Regular staff talks occur between the two nations. They collaborate on shipbuilding and participate in multilateral exercises such as ADMM-Plus and RIMPAC. India's naval partnership with Australia has evolved extensively under the Act East Policy and Quad framework. The AUSINDEX bilateral maritime exercise is at the centre of this cooperation. Australia is also a participant in Malabar Exercise along with the US and Japan. A Mutual Logistics Support Agreement was signed in 2020 to enhance interoperability and information sharing. Both navies collaborate on maritime domain awareness, undersea warfare, and Indo-Pacific maritime surveillance. India's naval ties with New Zealand are through multilateral exercises such as RIMPAC and ADMM-Plus. Occasional PASSEX and goodwill visits occur between the Indian Navy

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and Royal New Zealand Navy. The two sides also exchange information on maritime domain awareness and coordinate in HADR operations in the Indian Ocean region.

SAGAR

A significant part of India's seaborne trade—about 90% by volume—moves through the seas. With the increasing significance of the maritime arena, followed by evolving threats, New Delhi cannot overlook its waters. Since the vast oceans are interconnected, with action on one end impacting the consequences on the other, the waters surrounding the landmass of India become critical. Be it the choke points or the SLOCs, maritime piracy or illegal fishing, climate change or China's aggression, India must play a proactive role in preventing any disturbances in the Indo-Pacific from affecting its national interest. Thus, India's Security and Growth for All in the Region (SAGAR) vision emerged to secure India's maritime interests, ensure regional peace and prosperity, and establish India as a responsible maritime power in the IOR through cooperation, capacity-building, and shared growth.

While commissioning MCGS *Barracuda* in Mauritius, in March 2015, Prime Minister Narendra Modi articulated the vision of SAGAR for the first time and emphasized a maritime community built on shared security and prosperity.[46] He stated, "We often define regional groupings around landmass. The time has come for a strong grouping around the Indian Ocean. We will pursue this with new vigour in the years ahead."[47] Guided by the ethos of "Vasudhaiva Kutumbakam" (the world is one family), and spirited by the ancient roots of universal harmony, India seeks to build a secure maritime world where the Indian Navy positions itself as the "First Responder" and "Preferred Security Partner" in the region.

Later, during his address to the Maldivian Parliament in June 2019, Prime Minister Modi referred to SAGAR as a "blueprint for cooperation".[48] He went on to align India's vision of a free, open, inclusive, and rules-based Indo-Pacific with SAGAR and ASEAN centrality at the 2018 Shangri-La Dialogue. During India's G20 Presidency in 2023, SAGAR's inclusive philosophy resonated through India's advocacy for the Global South and the inclusion of the African Union in the G20.

SAGAR emphasizes five pillars, namely, enhancing security and capacity building, deepening economic and security cooperation, collective action for maritime threats, sustainable regional development, and maritime engagement with other countries. The goal of SAGAR is reached by strengthening and engaging more in the Indo-Pacific initiatives, such as the Indo-Pacific Oceans Initiative (IPOI), Quad cooperation, and engagement with regional forums including ASEAN, the East Asia Summit (EAS), Indian Ocean Rim Association (IORA), Indian Ocean Naval Symposium (IONS), Colombo Security Conclave, and MILAN exercises.

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Standing as an instrument to achieve vision SAGAR, in May 2024, the Navy launched Indian Ocean Symposium SAGAR (IOS SAGAR). INS *Sunayna* was deployed across the Southwest Indian Ocean, involving personnel from India and 10 other countries, namely, Comoros, Kenya, Madagascar, Maldives, Mauritius, Mozambique, Seychelles, South Africa, Sri Lanka, and Tanzania. The exercise focused on joint drills, EEZ surveillance, and exchange of best practices. IOS SAGAR demonstrates the Indian Navy's efforts to enhance cooperation with like-minded partners, positioning itself as a preferred security partner and first responder. AIKEYME (Africa-India Key Maritime Engagement), a naval exercise connecting India with African littoral states, is also part of IOS SAGAR.

As part of India's Humanitarian Assistance and Disaster Relief (HADR) in the region, the Indian Navy started Mission Sagar (2020) that gave COVID-19 assistance with medical aid and food supplies as well as post-cyclone assistance to nations across the Indo-Pacific. In 2024, under Operation Sadbhav, India extended aid to Myanmar, Laos, and Vietnam following Typhoon Yagi, coordinating naval, air, and logistical support to deliver essential relief material. In 2025, Operation Brahma involved the deployment of INS *Satpura*, *Savitri*, and *Karmuk* to assist Myanmar and Thailand in the aftermath of a major earthquake, providing food, medicines, and shelter material.

Under the SAGAR vision, the Indian Navy also has mission-based deployments for continuous presence, surveillance, and rapid response across threat-affected areas of the Indian Ocean. Some of the notable ones are deployed at the Persian Gulf and Gulf of Oman for securing sea lanes of communication, the Gulf of Aden and western Arabian Sea for anti-piracy patrol, Central Indian Ocean Region, Southern Indian Ocean and East Coast of Africa for Supporting Small Island Developing States.

Another prominent initiative of the Indian Navy that takes the vision SAGAR forward is IMAC and IFC-IOR. The IFC-IOR actively cooperates with international maritime centres in the region, viz., IFC Singapore, RMIFC Madagascar, RCOC Seychelles, MSC Oman, among others. Along with comprehensive and credible information sharing, IFC-IOR has made notable inroads in the region with increasing international participation.

MAHASAGAR

In 2023, a bi-annual virtual interaction named MAHASAGAR (Maritime Heads for Active Security and Growth for All in the Region) was launched, bringing together heads of navies and maritime agencies from Indian Ocean Region (IOR) littorals such as Bangladesh, Comoros, Kenya, Madagascar, Maldives, Mauritius, Mozambique, Seychelles, Sri Lanka, and Tanzania. The interaction was hosted virtually by the Indian Navy, led by then Chief of the Naval Staff, Admiral R. Hari Kumar.[49] The interaction aimed at fostering

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dialogue and cooperation among maritime nations, with each edition of MAHASAGAR focusing on a distinct theme. In 2023 the theme was "Collective Maritime Approach Towards Countering Common Challenges" while in 2024 the theme was "Training Cooperation to Mitigate Common Maritime Security Challenges in the IOR".

In March 2025 in Mauritius, marking a decade since SAGAR's launch, PM Modi unveiled MAHASAGAR. He stated, "Today, our vision for the Global South will be going beyond SAGAR—it will be MAHASAGAR, i.e. 'Mutual and Holistic Advancement for Security and Growth Across Regions'. It shall encompass the ideas of trade for development, capacity building for sustainable growth, and mutual security for a shared future. Under this, we will extend cooperation through technology-sharing, concessional loans and grants." While SAGAR focused on the IOR, MAHASAGAR expanded the vision globally, with particular emphasis on partnerships across the Global South. It further strengthens India's intent to be a "preferred security partner" and a driver of inclusive maritime growth worldwide. From safeguarding regional waters to shaping global maritime norms, India's journey from SAGAR to MAHASAGAR reflects its transformation into a proactive and responsible maritime power.

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Ministers' Meeting. In 2022, the year was declared the ASEAN-India Friendship Year, commemorating 30 years of dialogue relations. In 2023, India and ASEAN agreed to review the ASEAN-India Trade in Goods Agreement (AITIGA). At the 21st ASEAN-India Summit in October 2024, PM Modi unveiled a 10-point Plan under the theme "Enhancing Connectivity and Resilience." In 2025, during the ASEAN-India Foreign Ministers' Meeting, a new Plan of Action for 2026–2030 was adopted, which sets the roadmap for future cooperation.

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Chapter 27

Maritime Doctrines and Strategies

On 25 April 2004, the "Indian Maritime Doctrine" (INBR 08) was released by the Chief of the Naval Staff, Admiral Madhvendra Singh, during a Commanders' conference at Eastern Naval Command headquarters in Visakhapatnam. The document was revised in 2009 and further updated in an online publication in 2015. The doctrine was thereafter known as "Indian Maritime Doctrine—Naval Strategic Publication 1.1" and released as an updated version of the previous doctrine. Subsequently, on 2 December 2025, the Chief of the Naval Staff released a further updated "Indian Maritime Doctrine 2025", which included various aspects of evolution in concepts of modern warfare, inclusion of "No War No Peace" in the peace-war continuum and recognized multi-domain and grey-zone operations. Apart from this, the Indian Navy has released "Freedom to Use the Seas—Indian Maritime Military Strategy' (2007), which was the first ever Indian maritime strategy document in the public domain. Although these documents were published in the public domain in the recent past, certain principles always existed within the Navy for internal communication to support the systematic execution of its functioning and a fundamental understanding underpinned the growth plan and operations. However, these guidelines didn't evolve in the 21st century but the culmination of a centuries-old maritime consciousness that was shaped by geography, trade, beliefs, traditions, and invasions. To understand the evolution of India's maritime doctrine, it is imperative to learn its vast maritime history.

The Peninsular Bharat

"Geography is the handmaiden of strategy and geography has been kind to India, placing her in a favourable geo strategic position."[1] The Rig Veda calls the land of Bharata "*Bharatavarsa*", denoting the entire subcontinent and distinguishing it from the land outside it. Many of the ancient Vedic prayers also start with a reference to "*Jambudweepa*", "*Bharata Varshe*" and "*Bharata Khande*", that establish a separate geographical identity for India. The term *dweepa* means island in Sanskrit and thus refers to the massive subcontinent surrounded by *samudra* or ocean. To understand the maritime history of India, it is important to understand the vastness and importance of the Indian Ocean. India has been regarded as the centre of gravity of the

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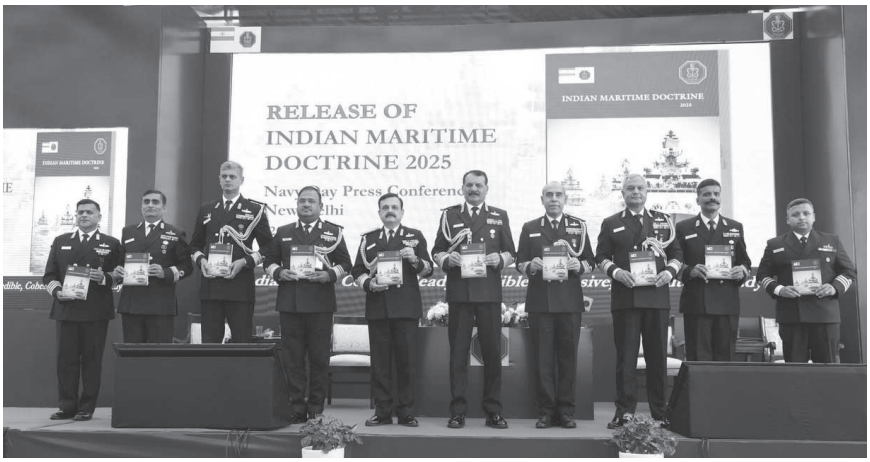
Fig. 27.1: Release of Indian Maritime Doctrine 2025



Source: Naval History Division, Indian Navy

Indian Ocean. Sardar K.M. Panikkar explains, "In spite of the vastness of its surface and the oceanic character of its current and winds, the Indian Ocean has some of the features of a land-locked sea. The Indian Ocean is walled off on three sides by land, with the southern side of Asia forming a roof over it. The continent of Africa constitutes the western wall and Burma, Malaya and the insular continuations protect the eastern side. But the vital feature which differentiates the Indian Ocean from the Pacific or the Atlantic is not the two sides but the subcontinent of India which juts out far into the sea for a thousand miles to its tapering end at Kanyakumari. It is the geographical position of India that changes the character of the Indian Ocean."[2]

India's Enduring Maritime Legacy

The earliest maritime reference is contained in the Rig Veda: "Do thou whose countenance is turned to all sides send off our adversaries, as if in a ship to the opposite shores: do thou convey us in a ship across the sea for our welfare" (Rig Veda 1, 97, 7 and 8).[3] Maritime consciousness of the peninsular Bharat is evident in Hindu mythology, which frequently refers to the ocean, the sea and rivers. It is said that "Lord Vishnu is reclining on Adi Sesha, the divine serpent, in the midst of the primordial ocean".[4] According to Hindu mythology, in the never-ending fight between *Deva*s and *Asura*s, the two sides used Adi Sesha and the sacred mountain Meru to churn the primordial ocean.[5] The rivers of the land have almost always been taken to represent goddesses. All this points to the maritime consciousness of India, as do Indian literature and art, sculpture and painting, and evidence from archaeology, suggesting the antiquity of the Indian maritime tradition.

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Maritime activity between India and several regions of Africa, West and East Asia dating as far back as the Indus Valley Civilization (3500 BCE–2500 BCE) is mentioned in the Vedas, Buddhist Jatakas, Persian literature, Indian folklore and mythology. The huge drydock unearthed at Lothal in Gujarat further confirms the existence of India's seaborne trade with countries in these regions. Megasthenes' *Indica* records Mauryan shipyards and the administration having a *Nav Parishad* or "board of admiralty that oversaw shipping". Under Emperor Ashoka a powerful fleet was maintained. The people from Andhra region engaged in trade with Arabia, Greece, Rome, Egypt, and even China, while the Cholas (985–1054 CE) built large, triple-planked ships for naval warfare. Merchant communities like the Manigramam Chettis, Namdasis, Valangais, and Elangais also played a significant role in maritime commerce. Kings Rajaraja I and Rajendra I used their Coromandel fleets to conquer Sri Lanka in 1007 CE, and to defeat the Srivijayas, spreading their influence to the Malayan Peninsula.

The arrival of the Portuguese at Kappad in Kerala marked a turning point in maritime history. Vasco da Gama's claim for sovereignty at seas led to naval clashes with the Zamorin along the Malabar coast, who then allied with Arab traders. In 1500 CE, Admiral Pedro Cabral bombarded Calicut but was repelled by 80 Zamorin ships manned by 1,500 sailors, forcing Cabral to retreat to Cochin. A series of naval battles followed, namely, the Battle of Cochin (1503), Battle of Chaul (1508), and Battle of Diu (1509), that saw the Zamorin's fleet supported by Egypt, the Sultan of Gujarat and the Arabs against the Portuguese fleet led by Francisco d'Almeida. The battle was won by the Portuguese through betrayal, ending in their dominance in the Indian Ocean. Despite Portuguese control, the Zamorin's naval forces, led by the Kunjali Marakkars, fiercely resisted them for over 90 years. Kunjali Marakkar II became famous for sinking around 50 Portuguese ships in a year. The Marakkars kept the Portuguese at bay by preventing their expansion inland for nearly a century.

The decline of the Portuguese, which began with the defeat of the Spanish Armada, was quickly exploited by the Dutch. The expansionist nature of the Dutch company who wanted to secure monopoly in trade was checked by Marthanda Varma, the king of Travancore, who led the Battle of Kulachal in 1741. Defeating the most powerful naval fleet of the time made Travancore the first Asian power to defeat any European naval force in history. Around the 18th century, Kanhoji Angre, admiral of Shivaji's Maratha navy, built a powerful fleet that dominated India's western coast. By 1706, Angre's fleet weakened British shipping and captured Colaba. He also defeated Arab pirates from Muscat and fortified his base at Gheria, where the Marathas built a dockyard and trained garrison. Despite repeated assaults by the British in 1717 and 1718, followed by the Portuguese in 1722 and Dutch in 1724, Angre's Navy overpowered them all.

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Prior to the British takeover, Indian naval forces participated in several operations like the Anglo-Sikh War of 1848, capturing Rangoon in 1852, and defeating Persian forces in 1853. The Royal Indian Navy (RIN) also supported anti-piracy operations in Chinese waters in 1860. The RIN played a considerable role in World War I by conducting marine surveys, transporting troops and supplies to Egypt, Iraq, and East Africa, engaging Turkish forces in the Suez Canal, and serving in Mesopotamia and the Red Sea. With the outbreak of World War II, funds from Britain accelerated, increasing India's naval capabilities.

However, throughout the colonial period, India's preoccupation with a continental strategy diminished new shipbuilding technologies, rendering it incapable of warfighting.[6] The study of astronomy also did not evolve into maritime applications necessary for open ocean operations.[7] Due to this neglect of maritime military power, Indian states could not take the battle against sophisticated European navies beyond littoral waters. They remained free to operate in the waters of the Indian Ocean. With sea control of these waters firmly in European hands, the domination of these colonial powers over India's maritime trade and eventually on its sovereignty was nothing but logical progression. That is why K.M. Panikkar stated, "So long as India remained a continental power, she was doomed to be enslaved; her future freedom will depend upon her control of the sea."[8] He argued that Independent India must develop naval capabilities in order to deal with the geopolitical churn the region was about to witness.

A Doctrine

The word "doctrine" originates from the Latin word "doctrina", which implies "a code of beliefs" or "a body of teachings".[9] A doctrine is defined as "a belief or system of beliefs accepted as authoritative by a group or school".[10] A doctrine thus provides a framework of beliefs and actions that guides a group or organization in their actions.

The Indian Maritime Doctrine represents the foundation upon which the Indian Navy organizes, equips, trains, and operates in order to achieve national objectives. A military organization will only succeed in attaining its objectives by functioning in groups rather than as individuals. The effectiveness of this group depends on a common comprehension of collective activities and consistent adherence to uniform procedures and practices. A doctrine, therefore, serves as the central nerve that links all facets of the military and ensures coherence in development and employment. There can be multiple doctrines within a military establishment, each addressing different domains of warfare, but the fundamental function of every doctrine is to provide a common approach to the application of force within its sphere while maintaining synergy with all other doctrines. When the doctrine is formulated to function as a guideline for the maritime domain, the maritime doctrine emerges, integrating all aspects of naval power.

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"Doctrine flows from 'concepts'. A concept is an innovative but tentative idea to solve a problem based upon inferences drawn from observed facts. Concepts when battle proven (or proven in exercises) would migrate to becoming doctrines. Military doctrines can thus be understood as sets of proven concepts and principles related to the use of military power. Maritime doctrines fulfil this function primarily in the maritime domain, at and from the sea by considering all elements that constitute a nation's maritime power. These provide a common reference point, language and purpose that guide military forces in their actions. This includes the proven concepts and principles for development and employment of military power."[11] However, it is important to understand that doctrine is not dogma and must remain flexible to changes in operating environment, evolving in response to technological advancements and political directives. Deviations from the doctrine are permitted if the circumstance demands such action is mandatory, but it must always be backed by sound judgement, professional knowledge, and experience.

Need for a Doctrine

The doctrine is curated in such a way that it emerges as a lexicon to a professional, focused, and committed force that moulds it to be deeply conscious of its roles and responsibilities. The doctrine also leads the Navy in times of peace, no war no peace, and war. The Indian Navy is a powerful instrument of the nation's foreign policy, while in times of war it is the foremost expression of the nation's maritime power. The doctrine thus enumerates all roles of the Navy—Military, Diplomatic, Benign, and Constabulary. As discussed before, the doctrine is not a dogma and essential revisions from time to time are crucial for adapting to the changing nature of modern warfare, geopolitical and technological changes, and the challenges posed to maritime security. Thus, a doctrine will serve as essential for the Indian Navy to establish a recognizable set of navigational aids that will guide and chart its development and its conduct through the turbulent waters that lie ahead.

Evolving Maritime Doctrine

Maritime doctrines have evolved over time due to India's increasing strategic role in the Indian Ocean Region, augmented by changing regional security dynamics and shift in India's primary interest from using seas to securing seas. With robust advancements in overall capabilities of India in general and the Navy in particular, further revisions of these doctrines are anticipated. With the Indian Navy transitioning from Buyer's Navy to Builder's Navy and gaining the ability to construct indigenously built vessels, India has reached a threshold capable of putting it in a position to talk and influence.

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In congruence with the evolving nature of modern warfare and the joint doctrine of Indian Armed Forces, 2017, the IMD-25 encompasses six domains of warfare—Land, Maritime, Air, Space, Cyber, and Cognitive—which are changing the character of war. In addition, there has been a marked proliferation of new concepts of warfare, which are likely to endure in the near future. Several conflict-centred terminologies such as Irregular Warfare, Hybrid Warfare, Grey Zone Operations (GZO) among others have gained prominence in the academic and strategic lexicon. These terms tend to be used interchangeably and can thus lead to doctrinal ambiguity. The IMD-25, therefore, clarifies the meaning of Irregular Warfare, Hybrid Warfare and GZO, recommending that the naval practitioner ensures that any new/other concept or term being introduced is sufficiently disambiguated.

The introduction of new technologies leading to advanced combat potential and the turbulence of political and geostrategic events commanded flexibility and responsiveness to change the very core of the Indian Navy's training, planning, and operational philosophies. It also placed in perspective the Indian Navy's approach to concepts that would strengthen its contemporary maritime outlook. By 2009, India had established its maritime footprint in the broader Indo-Pacific and was engaging with more nations and their navies to ensure "freedom of navigation" and "openness" of oceans. The period also saw the resurgence of non-traditional threats like piracy, maritime terrorism, climate change-induced disasters, etc. Changes in the geo-strategic environment also necessitated a review of India's maritime strategy.

Similarly, India's Maritime Military Strategy released in 2009, titled "Freedom to Use of Seas—Indian Maritime Military Strategy", emphasized the role of the Indian Navy to "use" Indian Ocean waters for its national interest. The underlying idea was that the IOR was only an important space for global maritime trade but not a hotly contested geopolitical landscape as it is today. The Indian Navy was viewed as a brown water Navy with a limited naval force, confined to coastal waters. But when the strategy document was revised in 2015, titled "Ensuring Secure Seas: Indian Maritime Security Strategy", the purpose was to identify "power projection" as a feature of India's naval diplomacy. It aimed to make use of the geographical advantages available to India by adopting an ocean-centric approach to its strategy, rather than a coast-centric one. The underlying idea was the Indian Navy's commitment to "secure" the waters of the Indian Ocean rather than simply "use" them. The document further enumerated the Indian Navy's areas of interest and addressed India's response to non-traditional threats emanating at and from the sea to its maritime domain, territory, and national interests. It expanded India's maritime areas of interest southwards and westwards by bringing the southwest Indian Ocean and the Red Sea within its "primary area of interest", and the western coast of Africa, the Mediterranean Sea,

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and other areas of interest within its "secondary area of interest". The IMSS-2015 emphasized the substantive augmentation of capabilities of the Indian Navy for exercising deterrence, projecting maritime power, providing maritime security, and safeguarding India's maritime interests.

While early Indian naval doctrines show a force limited to presence, surveillance, and constructive maritime engagement, India's strategic role in the IOR has increased with the changing regional security dynamics as India's primary interest has shifted from using seas to securing seas. Thus, the maritime doctrines have evolved with changing times and varying circumstances.

The Maritime Doctrine 2004

This document attempts to outline a maritime doctrine for the country, focussing largely on the strategic level and, to some extent, the operational level of military planning in order to apply maritime power in conflict, in less than conflict situations, and in peacetime. For this the makers of the doctrine elaborated the objective of the doctrine, which is explained as a set of fundamental principles by which military forces or elements guide their actions in support of national objectives. The most critical military application of doctrine is to provide a common understanding of the nature of war, leading to a common approach to war fighting. Sir Julian Corbett clearly set out the purpose of doctrine: "... not enough that a leader should have the ability to decide rightly; his subordinates must seize at once the full meaning of his decision and be able to express it with certainty in well-adjusted action."[12] The nature of the doctrine is in tune with the basic concept of national security, and the priority interests of the nation. The force level structure required by the maritime forces is articulated, as also the maritime infrastructure (military, civil and commercial) to be developed within the country. The constituents that define the scope of the maritime doctrine are tenets of nature of war, dynamic application of these tenets to meet today's circumstances and elements designed to prepare for tomorrow.[13]

The doctrine explains the Spectrum of Conflict in which the Navy operates. The document goes on to explain each concept relevant to war, be it peace, conflict, or combat, deliberating upon low intensity and high intensity operations. Internal conflict includes subversion through means of terrorism and insurgency, guerilla warfare, and civil war. "Terrorism is a favoured tool of insurgent groups in order to eliminate non sympathisers and the representatives of established authorities, and consequently to force the uncommitted sections of the population to accept and adopt their way of thinking."[14] The environment of war is also explained, arguing that the main objective of war is political in nature, not military. Intervention may be collective international action sanctioned by the United Nations or such

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as the case of Indian Peace Keeping Force (IPKF) in Sri Lanka. The four levels of war are grand strategy, which occurs at the apex level of a nation; military strategy, where military planning takes over; the operational level, where operational art is utilized; and the tactical level, which is dealt with by commanders. Full understanding and knowledge of the activities and actions at each level of war is a prerequisite to comprehending the complexity of the relationships between strategy, operations, and tactics. The salient attributes of war and the general concepts of war are discussed, giving the reader a comprehensive view on what the Indian Navy has in mind when it operates. War in the future rest upon the following three technology-driven competencies: Intelligence, Surveillance, and Reconnaissance (ISR); Advanced Command, Control, Communications, Computers, and Interoperability (Advanced C4I); Precision-Guided Munitions (PGMs) and Offensive Information Warfare (IW).

Defining the 10 principles of war, the doctrine explains that the most important aspect is the aim that is maintained throughout in the operation of war. Any circumstances that change the aim will only occur if a new situation provides an opportunity to further the aim to a greater extent. The next principle discussed is security, which is ensured by foreseeing all threats and vulnerable targets that are to be secured. The third principle is Concentration of Force, which is possible only through proper understanding of time and space of the battlefield. The fourth principle is the economy of effort, wherein judicious deployment and application of force to ensure the achievement of maximum gains is the key. Cooperation as the fifth principle points to jointness between the three services as the mantra for the future that would complement each other's combat capabilities and ensure synergistic conduct of operations. This is particularly important in India's security architecture as the nation is stepping into integrated theatre command. The sixth principle is offensive action, where maintaining an offensive posture is eminent for creating a favouring environment and destroying the enemy. Flexibility in terms of physical mobility and quick action is also essential to fight a war. Surprise also has a powerful influence on war. The devastating strike launched by the Indian Navy on Karachi on 4 December 1971 is a classic illustration of the successful application of surprise. It can be effective only if it denies the enemy the opportunity to take counter-measures. Administration and management of morale are the last two principles of war.

The doctrine considers the geo-strategic imperatives for India wherein it explains how the 21st century focus has shifted in favour of maritime forces. Such forces are centred on the concept of Carrier Battle Groups (CBGs), accompanied by ships with long-range precision-guided weapons capable of anti-ship and land attack missions.[15] Power projection has therefore shifted to the seas. Technological revolution and the induction of C4I2SR capability

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makes information the new determinant in altering the tactical balance at sea.[16] The concerns at sea today are protection of SLOCs, piracy, trafficking in drugs or arms, terrorism or transportation of Weapons of Mass Destruction (WMDs) by sea.[17] Extra-regional powers have made their way to the IOR, which has made it imminent for the Indian Navy to exercise presence that is expressed as a product of "reach" multiplied by "sustainability". In case of a favourable asymmetry littoral warfare is recommended, whereas anti-access strategies must be the choice in situations of unfavourable asymmetry. The doctrine also discusses various asymmetric threats, finally giving a solution to protect national interest.

The doctrine also discusses certain concepts of maritime power. Scouting operations can acquire operational and tactical surveillance. Surveillance information gathered is collated and analyzed to yield intelligence. Sea control is an important maritime concept explained as control of surface, sub-surface, and airspace above it. Battlespace dominance could be reached with further control of land, information environment and electromagnetic spectrum. Sea denial is possible by denial of use of a defined sea area for a defined period of time to the enemy. Defining EEZ, the doctrine mentions that the concept has no international backing. Among other concepts important to the Navy, the doctrine also mentions "blockade", which is a "belligerent operation to prevent vessels of all nations from entering or exiting specified ports or coastal areas, belonging to, or occupied by, or under the control of an enemy nation".[18] The document also deliberates on submarine and anti-submarine campaigns while highlighting amphibious operations. Manoeuvre, another significant concept, is possible if certain other principles of war are attained.

The missions of the Navy are classified into Military, Diplomatic, Benign and Constabulary, expanding its functions beyond traditional roles of fighting battles. The Navy serves as an instrument of foreign policy and aid in developing good relations with other nations while serving as the face of the nation in multilateral institutions. The constabulary role makes the Navy a trusted partner of the Coast Guard in surveillance and maintenance of sovereign interest in the EEZ. Humanitarian aid, disaster relief, Search and Rescue (SAR), pollution control, diving assistance, salvage operations, hydrography, etc., comprise its benign role. Naval forces are able to carry out these multifarious tasks due to their inherent flexibility and unique characteristics in terms of their three-dimensional nature. Characteristics of naval vessels such as mobility, versatility, sustained reach, resilience, lift capacity, poise, leverage, etc., facilitate these roles.

The Navy's full spectrum of operational tasks is discussed, mentioning that continuous surveillance is the essential input for all maritime operations. Wartime tasks focus on achieving sea control, sea denial, power projection and amphibious operations, SLOC protection and interdiction, protection

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of offshore and coastal assets, anti-submarine warfare, air-air warfare, mine warfare, land-attack strikes and special operations, all requiring tight joint and multi-domain coordination. In times of tension, naval forces provide flexible, visible instruments of statecraft deterrence, coercion, reassurance and diplomacy while in peacetime they sustain strategic deterrence, UN peacekeeping contributions, naval diplomacy, economic policing, hydrography, search and rescue as well as aid to civil authorities.

The doctrine comprehensively explains how operational planning forms the bridge between strategy and execution in naval warfare. It highlights that effective operational decision-making and planning are essential to achieve objectives efficiently while minimizing losses The chapter emphasizes continuous planning in both peace and war to address any potential maritime situation. It explains that operational plans must be focused on enemy centres of gravity (COGs), ensuring proper synchronization between military and non-military instruments. The Standard Appreciation Method allows the Indian Navy to develop logical Courses of Action. Planning must be guided by the Principles of War. The chapter also underscores the importance of joint planning as future wars will involve coordination of the Navy, Army, and Air Force. Several planning considerations are detailed—Command and Control (C2) must be robust and flexible; Information Warfare (IW) and Intelligence are vital for decision superiority; Deception enhances surprise; Protection preserves combat power; and Logistics ensures operational tempo and sustainment. The doctrine also stresses legal aspects, public information management, and termination planning as critical elements.

The document became the fountainhead for numerous subsequent publications, serving as both a reference work and an interpretative guide.

Indian Maritime Doctrine 2009 (Updated Online in 2015)

The revised version of the 2004 Maritime Doctrine has a more explanatory and concrete mention of certain concepts that needed to be understood in detail. The Maritime Doctrine in perspective explains national security concepts and elaborates in detail on national aim and interest. The role of the Navy in maintaining territorial integrity, supporting socio-economic development, and maintaining friendly relations with other nations, all the while maintaining a defence posture, is well articulated in the document. The revised edition also explains the difference between maritime strategy and doctrine. Bringing out the relations between the Navy and the Maritime Doctrine, the document explains, "The navy is the prime instrument and manifestation of the maritime power of a nation-state. The raison d'être of a navy is to safeguard the nation's use of the seas for its legitimate sovereign purposes, whilst concurrently guarding against inimical use of the sea by others. Maritime doctrine, therefore, focuses on that dimension of maritime power, which enables use of the seas by all stake holders."[19]

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Elaborating on the spectrum of conflict, concepts such as security, strategy, cooperation, competition, and confrontation are explained in order to avoid the ambiguity in the understanding of these terms. A step-by-step escalation of conflict is analyzed, where competition between two warring nations will rise to political or diplomatic confrontation if dialogue and mutual trust are absent, finally prompting the use of force. Intervention for conflict prevention, peace-making, peace enforcement, or peace building are mentioned, which is skipped in the previous doctrine. The concept of low intensity maritime conflict was changed to low intensity conflict, which is defined as violence by either party at a lower scale and tempo.[20] It is generally carried out by covertly organized forces operating in small groups, which mostly employ small arms and small quantities of explosives. Insurgency is subsumed to LIC in the revised document. DIME (Diplomatic, Informational, Military and Economic) aspect is introduced for the first time to levels of war.[21]

The concepts of war comprise a separate chapter in the revised edition, whereas they were part of the Spectrum of Conflict in the previous one. For the first time, legal underpinnings are brought up, including international laws of armed conflicts. War has been guided by laws since ancient times and taking examples from the Mahabharata and Kautilya's *Arthashastra* that gave rules, conduct, and rationale for going to war, the UN charter on the Right to Use Force is enumerated. The concept of Jus ad Bellum relates to the justification for resort to armed force. The principal justification is the right to individual or collective self-defence, which is an inherent right laid down in the UN Charter (Article 51) and the Constitution of India.[22] Response to an armed attack is given on three principles—necessity, proportionality, and distinction.[23] The UN Charter (Article 42) also authorizes the collective use of force to preserve international peace and security. The section invokes rules of conduct of armed forces that is driven on the basis of Geneva conventions and San Remo Manual.

On the Principles of War, certain principles were scrapped while a few new ones were added. Cooperation and synergy were introduced keeping in mind the importance of joint action by the three armed forces in the future to attain objectives by means of combined warfighting efforts. Cooperation is extended to synergy as it would lead to the effect of force multiplier. Asymmetry is added to surprise as the latter is not enough to ensure victory. In war, winning would depend on creation of a favourable imbalance against the opponent and its maintenance thereupon such that the opponent is unable to counter or regain rhythm in time to optimally apply his combat power. Intelligence is yet another important principle that was added. Logistics was also newly added as naval warfare is particularly dependent on it. It was the lack of immediate logistics that delayed India's response to the 2008 Mumbai terror attack, so was India's failure in gathering actionable

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intelligence. HADR operations during the 2004 tsunami could also have brought to light the importance of logistics.

India's maritime environment, which was also discussed in the previous Maritime Doctrine, is elaborated on to include maritime interests as well. Importance of the seas is elucidated along with characteristics of a maritime environment like power projection, as a global common, and the influence on climate conditions. Legal terms such as Contiguous Zone, Exclusive Economic Zone and Legal Continental Shelf gain mention, pointing to the importance of realization of maritime zones. The year 2009 was one when India claimed extension of its continental shelf beyond 200 nautical miles to the UN Commission on the Limits of Continental Shelf. Narco terrorism was added as a threat in the Indian Ocean Region, which didn't find mention in INBR 08. International Shipping Lanes (ISL) and Sea Lines of Communications (SLOC) were differentiated, with ISL referring to any sea trade route and SLOCs referring to sea routes in times of conflict or tension. Along with security of energy, the concept of energy security was added, showcasing India's growing dependence on energy. Areas of maritime interest were divided into primary and secondary, which gains mention in IMMS 2007 and IMSS 2015. The distinction clearly points to how India views not just the territorial waters and island nations but also choke points, SLOCs, and extended waters under its maritime interest.

Certain new maritime concepts are introduced in the 2009 Maritime Doctrine, which do not find mention in the 2004 Maritime Doctrine. The ability of the Navy to influence events ashore is added as part of the attributes of maritime power. The Naval force shapes the maritime environment indirectly, facilitating the well-being and growth of the people of the nation. RoE is deemed to change as per changing international rules and foreign policy. Maritime Domain Awareness (MDA) is introduced for the first time, and defined as an "all-encompassing term that involves being cognisant of the position and intentions of all actors, whether own, hostile or neutral, in the constantly evolving maritime environment in the areas of interest".[24] The key ingredients of MDA are Intelligence, Surveillance and Reconnaissance (ISR), which are used through technologies such as Synthetic Aperture Radar (SAR), Identification Friend or Foe (IFF), AIS and LRIT. Expeditionary operations and distant operations added. The requirement of maritime logistics is mentioned, stating that planning for necessary logistics capacities along with the ability to accurately forecast the needs and transfer necessary supplies enable success.

Indian Maritime Doctrine 2025 (IMD-25)

Contemporary changes in technology, the evolving character of warfare, and geopolitical shifts have necessitated the revision and contemporization of this capstone document of the Indian Navy. The Indian Maritime Doctrine

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2025 (IMD-25) was released on 2 December 2025 by the Chief of the Naval Staff as an outcome of this endeavour.

While providing a common language and shared understanding of fundamental principles and operational philosophies, IMD-25 underscores the importance of a robust, adaptable, and credible posture for India in order to foster a secure and stable maritime environment. It elucidates India's national interests, higher national directives, the maritime environment, and the Navy's roles, purpose and application of naval combat power across the full spectrum of operations. This revision incorporates evolving realities, including grey-zone operations, no-war no-peace scenarios, and disruptive technologies that are reshaping the character of warfare, and aligns with the growing impetus on jointness and integration. The Indian Maritime Doctrine 2025 lays the foundation for the Navy's strategy and operations, providing a shared understanding of the principles that guide employment across the spectrum of conflict. It clearly defines the Navy's roles, answering the central question: "Why we do what we do."

Indian Maritime Doctrine 2025 (NSP 1.1) deals specifically with the concepts and principles of employment of India's naval power, across the spectrum of conflict. It reflects on the concepts, characteristics, and context for employment of combat power *at* and *from* the sea. It is aimed at generating a common understanding among all stakeholders in the development and employment of India's maritime military power, so as to unite their actions in support of India's national interests and national security objectives. This new edition reflects the transformation in India's maritime environment over the last decade and incorporates India's broader vision of harnessing the oceans as a key pillar of Viksit Bharat 2047. This outlook is reinforced through major Government of India initiatives such as Sagarmala, PM Gati Shakti, Maritime India Vision 2030, Maritime Amrit Kaal Vision 2047, and MAHASAGAR. It also recognizes the growing maritime security challenges characterized by multi-domain threats, a diverse set of actors, and rapid advancements in technology.

This edition formalizes No-War No-Peace as a distinct category between peace and conflict, establishing it as an important facet of the conflict spectrum. It integrates an enhanced understanding of tactics employed by adversaries, including grey-zone, hybrid, and irregular warfare. The revised doctrine also acknowledges the growing importance of the space, cyber, and cognitive domains, while emphasizing the integration of uncrewed systems, autonomous platforms, and emerging technologies. Additionally, it prioritizes jointness and synergy by aligning with tri-service joint doctrines, towards ensuring interoperability across the Armed Forces.

The Indian Maritime Doctrine 2025 is intended to advance India's regional role and maritime influence while fostering a maritime-conscious nation that recognizes the centrality of maritime power to national security.

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It seeks to strengthen jointness and integration across services and guide the translation of doctrine into strategy, operational directives, tactical publications, and naval capability development.

The Difference between Doctrine and Strategy

Unlike a Doctrine, a "Maritime Strategy" is the plan by which the maritime power of a state is developed and used for attaining national objectives, within the ambit of the apex national strategy and/ or policies. A Maritime Doctrine provides the conceptual framework for devising such a maritime plan or strategy, seeking to develop and employ maritime power in pursuit of national objectives and interests. The doctrine, therefore, provides the conceptual framework to devise the strategy. The Doctrine is a "superior" document, and the Strategy must necessarily draw from it.

Freedom to Use the Seas: India's Maritime Military Strategy 2007

The military strategy introduces the idea of Grand Strategy, which is more than a military concept. It includes economic, political, psychological, and social concepts along with execution of statecraft. Joint Military Strategy is seen as a subset of the Grand Strategy, involving use of military force to attain political ends. Maritime Strategy on the other hand is synergizing all aspects of maritime activities to reach the desired end. The document provides a relationship between doctrine and strategy. Doctrine is a body of thought, and a knowledge-base which underpins the development of strategy.[25] Doctrine serves as a point of reference or guidance for framing the strategy. Strategy, on the other hand, is an overall plan to move from the present situation to a desired goal in a given scenario. It is set in the context of a given politico-military situation and within the ambit of an overall set of interests and objectives.[26]

The Maritime Military Strategy (MMS) provides a contextual framework to the joint doctrine of Indian armed forces and the maritime doctrine, on which lays the foundation for employment of the Naval forces. The MMS is built on three aspects—strategy for peace, for conflict, and force build-up. The timeframe of MMS is given to be 15 years. The objectives of MMS are to clarify the ends and means and as a foundation for planning operations while preparing for conflict in times of peace as a deterrence. Key determinates that shape MMS are the current geopolitical situation of violent peace, growing sea dependence, India's maritime geography, crucial role of Navy in supporting foreign policy, operations ashore, role of air power, MDA, maritime infrastructure of a nation, etc.[27] The evolution of MMS is influenced by the recent history of wars (1965 and 1971) and Operations other than War (OOTW).

The IMMS identifies the Indian Ocean Region (IOR) as the principal maritime theatre. The IOR constitutes an important channel for global

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trade and energy flows, hosting some of the world's busiest Sea Lines of Communication (SLOCs). For India, the uninterrupted functioning of these maritime routes is of critical national importance. The document gives particular attention to six sensitive choke points, emphasizing that disruption in these narrow passages would have disproportionate economic and strategic consequences for India. While India's ongoing foreign policy initiatives are aimed at enabling cooperative mechanisms for maritime security and shared understanding of threats in the region, competing strategic interests among littoral states and external powers heighten the possibility of conflict in the IOR. The region is also not free from non-traditional security threats like maritime terrorism that can exploit ungoverned spaces along sea routes and coastal areas. The need for surveillance, intelligence sharing, and multi-agency response is underscored as part of the strategy to counter terrorist activities at sea. The Indian Ocean Region encompasses a broad range of cultural, political, and economic contexts, from stable states to fragile littorals. This diversity affects threat perceptions and cooperative mechanisms, as states have varying capacities and priorities for maritime security. In addition, the sustained and expanding presence of extra-regional naval powers is identified as a defining feature of the regional security landscape, introducing elements of strategic competition and necessitating careful management to avoid escalation and instability. These trends necessitate calibrated engagement strategies, balancing India's interests with the realities of external power projection.

Maritime Military Strategy highlights the centrality of maritime trade in India's national economy. A substantial proportion of India's external trade is carried out by sea, making uninterrupted access to maritime routes a matter of national importance. Threats to trade need not arise only from conventional naval conflict but may also stem from non-traditional ones. India also relies heavily on imports for its energy needs. Energy security is inseparable from maritime security, as the bulk of India's oil and gas supplies transit long distances across the Indian Ocean Region before reaching Indian ports. Any disruption along these routes due to conflict, blockades, or instability at maritime choke points could have far-reaching economic consequences for the country. Geographical concentration of energy sources and the narrow maritime passages through which energy shipments must pass heighten India's strategic vulnerability. This reality necessitates a proactive naval posture oriented towards surveillance, deterrence, and the protection of energy flows.

The strategy document underlines that Maritime Domain Awareness (MDA) is a foundational requirement for effective maritime military strategy. MDA is the comprehensive understanding of all activities, entities, and conditions within the maritime domain that could impact national security, safety, economy, or the marine environment. It emphasizes that

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awareness at sea is inherently more complex than on land due to the vastness of the oceans, anonymity of maritime traffic, and the difficulty of persistent surveillance. The areas of focused interest for surveillance are divided into primary and secondary. There is a need for layered surveillance architecture incorporating surface platforms, maritime patrol aircraft, unmanned systems, coastal radar chains, and satellite communication assets. Degrees of surveillance are explained, that include surveillance in support of theatre level operations, of choke points and periodic peacetime area search over important SLOCs. Occasional surveillance would include surrounding offshore development areas and island territories and watching for piracy, terrorist activity and gunrunning. High human intelligence is required for low intensity operations that would require collation of information from TECHINT and HUMINT to get a complete picture of the maritime domain. Along with surveillance, the role of information sharing and cooperation with friendly foreign navies and maritime organizations are equally required. Given the interconnected nature of the Indian Ocean, collaborative MDA efforts contribute to collective security, confidence-building, and stability. Gaining Maritime Domain Awareness is a strategic force multiplier.

Strategy for employment of the Navy during peace points to various roles of the Navy apart from its military role: the most important role of the Navy during the time of peace is to deter war. Strategy of deterrence is well articulated, which is later discussed in maritime security strategy as well. The diplomatic role will involve good maritime cooperation by maintaining stability and influence in the immediate neighbourhood, regional and extra-regional interoperability, securing trade in IOR and technological engagements. The constabulary role would involve cooperating with the Coast Guard in littoral waters to conduct anti-piracy and anti-terrorist operations and anti-trafficking. Benign role would include HADR, evacuation operations, hydrography in IOR littorals, building maritime consciousness along with strategic communication with domestic and international audiences.

IMMS highlights the strategy for deployment in times of conflict. The conflict at sea differs fundamentally from land warfare due to the vastness of the maritime domain, mobility of forces, and the absence of fixed boundaries. Maritime conflict is therefore fluid, multi-dimensional, and often conducted far from national coastlines. Maritime conflict may not necessarily involve continuous high-intensity combat. It may include limited engagements, coercive posturing, depending on political objectives. Naval operations are planned and executed across different stages, beginning with heightened readiness and surveillance, followed by deterrent deployments, and culminating in combat operations if necessary. This necessitates joint operations involving the Navy, Army, and Air Force. Such integration

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enhances the overall effectiveness of military operations and allows exploitation of the maritime domain to influence events on land.

The document specifies that long-term development of naval forces is a critical requirement for implementing India's maritime military strategy. Force build-up is not an end in itself but a means to ensure the Navy's ability to protect national interests across peace, crisis, and conflict. It highlights that changing geopolitical conditions, expanding maritime interests, and the evolving nature of threats necessitate continuous adaptation of naval capabilities. Force development must therefore require capability-based Force Planning by developing capabilities that can address a wide spectrum of missions, including deterrence, sea control, sea denial, power projection, and maritime security operations. The focus must be to develop a balanced and composite fleet by focusing on technological advancement, modernization, and indigenization.

Ensuring Secure Seas: Indian Maritime Security Strategy 2015

"Ensuring Secure Seas: Indian Maritime Security Strategy" of 2015 was released to make it clear to the audiences that India's maritime security needs to be enhanced to meet the ever-evolving maritime challenges and support a developing blue water Navy. In achieving this, the doctrine would serve as a handbook for strategic development and deployment of the Navy in the coming years. IMSS 2015 reveals India's intent in the maritime arena to all its partners and competitors in the global stage. The first and foremost reason for India's maritime strategy are the changes in perceptions of India regarding the Indian Ocean region; a change from an inward look of considering India as the sole player of the Indian Ocean to an outward look of accepting the role and importance of other littoral states and extra-regional players in the region.

One of the major triggers for the release of IMSS 2015 was the 26/11 Mumbai terrorist attacks in 2008. Following the attack, Indian Navy was considered as the foremost "authority responsible for overall maritime security which included coastal security and offshore security".[28] A separate chapter on strategy for coastal and offshore security is added in IMSS 2015 due to the significance it has in the overall maritime security of nations. The new strategy not only reflects the importance of the Navy in countering state-sponsored terrorism but also brings out a course of action to deal with non-traditional threats emanating "at" and "from" the sea that pose security challenges to "territorial" India and its vital interests. "This necessitated some organizational changes and adapting the existing strategy to address requisite ways and means, especially mechanisms for strengthening interagency coordination."[29] Hence, the Strategy for Coastal and Offshore Security was evolved to focus on three main aspects: combating the persisting nature of threats emanating at and from the sea, strengthening

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mechanisms for inter-agency coordination and cooperation, and developing a seamless, cohesive maritime security framework. National Command Control Communication Intelligence Network (NC3IN), a data grid meant to ensure gap-less surveillance along the coastline, was also introduced.

IMSS 2015 also comes at a time when the Indian Navy is actively engaging with nations near and far while shaping the maritime environment in favour of India. The Navy's multi-vectored and expanding footprint in recent years through overseas deployments clearly indicates that the maritime force is developing the capabilities to implement national interest and objectives through its diplomatic roles.

While in the 2007 doctrine, choke points of the Indian Ocean Region are considered as the primary area of its interest, the strategy document of 2015 includes two additional choke points, namely the Mozambique Channel and Ombai-Wetar Straits. Their location at the far end of the south-western and south-eastern Indian Ocean points to the fact that New Delhi's views on the Indian Ocean now stretch far ahead than what was mentioned in previous documents.

IMSS 2015 also clarifies India's intent to be a "net security provider" in its areas of interest. The concept of "net security" is defined in the strategy document as "…the state of actual security available in an area, upon balancing prevailing threats, inherent risks and rising challenges in the maritime environment, against the ability to monitor, contain and counter all of these". India seeks a role as a "net security provider" in the region, rather than being a "net provider of security" as a regional "policeman".

IMSS 2015 again brings out the concept of strategy for deterrence which was discussed in the previous strategy document. Balanced, flexible, and future-ready forces are essential to ensure sustained deterrence. Deterrence is also possible through continuous monitoring of potential adversaries and evolving maritime situations and gaining Maritime Domain Awareness (MDA) will allow learning on what happens on, under, and above the seas at all times. It relies on intelligence, surveillance, inter-agency coordination, and data sharing with friendly nations. Presence through forward deployment in areas of maritime interest also acts as a visible deterrent. This would allow shaping of perceptions, deter adversaries, while reassuring friendly nations through naval deployments, and demonstrations of capability all facilitating deterrence. Thus, the Indian Navy's strategy for deterrence combines nuclear assurance, conventional strength, intelligence awareness, operational readiness, and strategic communication to prevent coercion and ensure peace at sea.

A separate chapter on strategy for conflict is introduced in IMSS 2015. Maritime conflict is inherently flexible and scalable, allowing force to be applied in a calibrated manner to achieve strategic effect while retaining escalation control. Maritime operations are thus not viewed as ends in

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themselves, but as instruments to bring conflict to a favourable conclusion; the principles of war being the foundational operational principles guiding maritime conflict. Escalation management is particularly focused on ensuring that use of maritime power remains aligned with political direction and does not inadvertently widen the conflict. Operational enablers include Maritime Domain Awareness (MDA), which provides the informational foundation for planning and execution. Preparedness and operational readiness are emphasized as essential enablers, ensuring that forces can transition rapidly from peace to conflict. Sustained operational tempo, supported by logistics and maintenance structures, is also identified as a decisive factor in conflict. The chapter also outlines a comprehensive range of operational actions during conflict. These include maritime manoeuvres to position forces advantageously, maritime strike against sea-based and shore-based targets, and the conduct of sea control and sea denial operations to secure or contest maritime spaces. Protection of India's Sea Lines of Communication (SLOCs) and interdiction of adversary SLOCs are identified as critical actions. The chapter also recognizes the growing importance of information warfare, encompassing information dominance, cyber operations, and influence activities in support of maritime objectives.

The IMSS 2015 highlights the Strategy for Shaping a Favourable and Positive Maritime Environment. This is required as maritime security is not achieved solely through deterrence or conflict operations, but through sustained engagement, presence, and cooperative actions that reduce the likelihood of conflict. This includes use of naval presence and deployments as instruments of strategic influence. Another aspect is maritime cooperation and engagement with friendly foreign navies and maritime forces. Activities such as port visits, bilateral and multilateral exercises, coordinated patrols, training initiatives, and technical cooperation are identified as key mechanisms for building trust, interoperability, and mutual understanding. Along with that maritime capacity building and cooperative Maritime Domain Awareness (MDA) through information sharing are identified as crucial for shaping a positive maritime environment.

Revising the IMMS 2007 document, the IMSS 2015 highlights the importance of force projection and force protection as key components of maritime capability development.

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Chapter 28

The Indian Ocean Naval Symposium

From Inception to Progression

The Indian Ocean Naval Symposium (IONS) stands as one of India's most significant diplomatic and maritime initiatives, envisioned to foster cooperation, dialogue, and mutual understanding among navies of the states, islands, and littorals that form part of the Indian Ocean Region (IOR). Envisioned and brought to life by India in 2008, the IONS sought to establish a distinct framework shaped by the Indian Ocean's unique geopolitical dynamics and consistently evolving maritime security environment.

At its core, IONS was conceived to serve as a mechanism for the naval chiefs of IOR states to meet biennially, engage in open discussions, and collectively address issues of shared maritime concerns. Through much of 2007, Integrated Headquarters, Ministry of Defence (Navy) (IHQ MoD [N]) deliberated, in earnest, the need to address regional and sub-regional vulnerabilities of the IOR through the establishment of a pan-regional mechanism to deal with issues related to the maritime domain in the IOR—primary amongst them being holistic maritime security, defined as freedom from threats arising in, from, or through the sea.[1] The chair of IONS is rotated every two years amongst members (based on consensus) in the following geographical order: South Asia, West Asia, East Africa, Southeast Asia, and Australia littorals.

Background

> States that adjoin this ocean are differentiated by their varying political ideologies, by the God they pray to, by the language they converse in, by their history and their race.[2]

After the Cold War, as the world redefined its power equations, think tanks everywhere began reassessing their nations' roles in this new world order. India, too, realized that it could play a stabilizing role in the Indian Ocean Region (IOR). In India, there was increased awareness among strategic experts that the disinformation about the Indian Navy expanding out of proportion, and the misplaced fears that its acquisitions were not overdue replacements but aspirational acquisitions to project naval power, could cause unneeded contestation among the world community.[3] India decided to bring together navies operating in the IOR to interact, train, and sail together.

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Beginning in 1991, the Indian Navy conducted joint exercises with various distinct navies, including those of Australia, the United States, the United Kingdom, and France. The Indian Navy's joint exercises were not about power projection but about building confidence and cooperation. This openness blended naturally with India's Look East Policy, launched in 1992 to strengthen relations with Southeast Asian states. By 1993, similar exercises were extended to Singapore and Oman, symbolizing India's growing outreach across both the eastern and western flanks of the Indian Ocean.

The subject of maritime security in the Indian Ocean, and now, more broadly, the Indo-Pacific, is vast and layered. It stretches from the power rivalries of the Cold War to the rise of new regional powers shaping the seas today. Over time, both traditional concerns like naval dominance and territorial control, as well as non-traditional issues such as piracy, illegal fishing, and maritime terrorism, have come to define the region's security landscape.[4] The late 1990s and early 2000s saw India's maritime position gain international recognition. The Indian Ocean Rim Association (IORA), established in 1997, stands as the only region-wide intergovernmental organization promoting dialogue and cooperation among Indian Ocean littoral states.

By the middle of the decade, as the Indian Navy considered ways to address the Indian Ocean Region's growing maritime vulnerabilities, it eventually conceived the idea of forming the Indian Ocean Naval Symposium (IONS). The Indian Navy had grown to be the largest navy in the IOR. It had in its inventory 136 ships and submarines, and over 200 aircraft at the time. That apart, the Navy had substantial experience in maritime issues owing to its geostrategic location, typified by its large peninsular configuration at the junction of the busy international shipping lanes that traverse the Indian Ocean. Several IOR littorals, such as the island states of Maldives, Sri Lanka, Seychelles and Mauritius, were already engaging with India for enhancing their own capacity and capability within the maritime domain so as to ensure the security of their own maritime-trade routes, delineation of their maritime boundaries, and the realization of jurisdictional rights within their respective maritime zones for exploration, exploitation and protection of mineral resources, hydrocarbons, etc. Beyond providing material support like ships and aircraft, the Indian Navy regularly assisted regional states in enhancing their maritime capabilities. This included EEZ surveillance, hydrographic mapping, and training for local maritime personnel. Therefore, the idea of a regional maritime forum held great promise for fostering peace and stability, with India widely acknowledged as the natural leader in the Indian Ocean.[5]

After much deliberation, the Indian Navy decided to launch the first major maritime security initiative of the 21st century in the Indian Ocean

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Region. Initially proposed as the Indian Ocean Regional Conclave of Navies (ICON),[6] it was later renamed as Indian Ocean Naval Symposium (IONS), aimed at "inclusiveness" within the region. It was a pioneering effort to bring together the navies of the Indian Ocean Region, based on the once successful Western Pacific Naval Symposium (WPNS), whose origins lie in the 1987 International Seapower Symposium (ISS) where Australia proposed to the Western Pacific Syndicate for separate naval meetings in alternate years to the ISS. The initiative was well received, and in 1988, the WPNS was inaugurated in Sydney. Its initial membership consisted of 12 participants of the ninth ISS—Australia, Brunei, China, Japan, New Zealand, South Korea, Singapore, Thailand, the US, Indonesia, Malaysia and Papua New Guinea.[7]

The littoral states in the Indian Ocean Region (IOR) are grouped into four sub-regions, as follows:

South Asia: Bangladesh, India, Maldives, Pakistan, Seychelles, Sri Lanka, and UK
West Asia: Iran, Oman, Saudi Arabia, Qatar, and UAE
East Africa: France, Kenya, Mauritius, Mozambique, South Africa, and Tanzania
Southeast Asian and Australian littorals: Australia, Indonesia, Malaysia, Myanmar, Singapore, Thailand, and Timor Leste

Admiral Sureesh Mehta, then CNS, Recalls[8]

> The IONS was an idea that we got from the WPNS. Having attended one of the WPNS meetings, I thought that we can do something similar in our own region. Also, at some stage, such a mechanism, created by us, could "shake hand" with WPNS.
>
> So when the concept was circulated on file we had positive indications from the Ministry of Defence and especially from the Ministry of External Affairs. The PMO also accorded its blessings and so the ball was set rolling. Finally, when IONS was inaugurated in February 2008, we had an overwhelming response with over two dozen Chiefs of Navies and heads of maritime forces attending.
>
> There was also a debate on the permanent seat of IONS and I thought it would be best to propose a rotational mechanism wherein the chair shifts, by sub-region, every two years. The proposal was accepted by the Conclave of Chiefs as well as our own government and the event was well received.

Beginning of IONS

The inaugural session of the IONS Seminar 2008 marked the formal birth of this organization. It was a landmark initiative jointly organized by the Indian Navy and the National Maritime Foundation (NMF) at Vigyan

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Bhavan, New Delhi, from 14 to 16 February 2008. The theme of the seminar was "Contemporary Transnational Challenges—International Maritime Connectivities". The aim was to encourage meaningful cooperation among the region's navies and to build a framework for Holistic Maritime Security. Since then, India's naval prowess has grown remarkably, positioning the country as a central maritime power in the Indian Ocean Region. The formal launch of IONS was effected through two sessions of the Conclave of Chiefs—the first held in New Delhi on 15 February and the second in Goa on 16 February 2008.

The apex-level body of IONS, the Conclave of Chiefs, meets once every two years under a rotating chairmanship. The format ensured that leadership would pass sequentially through the sub-regions, i.e., South Asia, West Asia, East Africa, and Southeast Asia/Australia, which promotes balance and representation across the Indian Ocean. Since its inception, IONS has rotated through various chairs: India (2008–09), United Arab Emirates (2010–11), South Africa (2012–13), Australia (2014–15), Bangladesh (2016–17), Iran (2018–19), France (2021–22), Thailand (2023–25) and India (2026–28). Each chairmanship has brought its own priorities and regional nuances, yet the overarching goal has remained unchanged, which is to foster trust, understanding, and cooperation among the Indian Ocean littoral states.

The Objectives

As enshrined in its core, the IONS seeks to replace the sole idea of "competitive security" with "collective security", where the navies and maritime agencies of the region work together with mutual trust. The underlying philosophy is that the ocean, which connects nations through its waters, should also unite them in purpose. Recognizing that threats at sea—whether traditional or non-traditional—do not respect borders, IONS encourages regional actors to move from isolated national responses to coordinated regional strategies.

Regular dialogue among member states strengthens regional maritime security, covering areas such as rules-based order, counter-piracy, environmental sustainability, and blue economy governance, while promoting regionally driven solutions. In keeping with its aim to enhance holistic maritime security on a regional basis, IONS was expected to do the following:[9]

- Provide a forum for navies (and the principal maritime-security agencies in such countries as did not possess a formally constituted navy).
- Periodically meet and discuss a wide range of maritime security issues facing the littoral states of the Indian Ocean and come up with a common set of regionally acceptable strategies.
- Establish and promote a variety of transnational cooperative mechanisms with the aim of strengthening all IOR states for them to be

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able to address present and anticipated challenges to holistic maritime security and stability.
- Develop interoperability in terms of doctrines, procedures, organizational and logistic systems and operational processes, so as to enable regional naval capacities for speedy and effective Humanitarian Assistance and Disaster Relief (HADR) throughout the region.

Membership

The IONS was initially envisioned as a platform exclusive to the navies and key maritime security agencies of countries with legitimate territorial presence in the Indian Ocean Region. Its geographic boundaries were defined in accordance with the International Hydrographic Organisation's (IHO) publication *Limits of Oceans and Seas*, ensuring that membership was rooted in recognized maritime demarcations. In accordance with the Charter of Business,[10] there are two categories of membership: Members and Observers.[11]

Member: A nation state with permanently held territory that abuts or lies within the Indian Ocean and which maintains a Navy or maritime agency and formally agrees to this Charter of Business, may become a member of IONS by making a formal application to the chair of IONS.

Observer: In addition to the above criteria, a navy or maritime agency which has been constituted by a nation state without permanently held territory that abuts or lies within the Indian Ocean, but with significant strategic interests in the region, could qualify as an observer if it submits an application to the Chair of IONS for consideration at the next Conclave of Chiefs, and has its application agreed through consensus when the decision is made. Applications for both categories are reviewed by the Conclave of Chiefs and the nation state is admitted into the forum by consensus. The IONS follows a rotational chairmanship among its four sub-regional categories of littoral states, ensuring that each area's distinct maritime priorities and challenges receive due attention.

The Members (25) and Observers (9)[12] of the Indian Ocean Naval Symposium (IONS) are listed in Table 28.1.

An Encouraging Start and the Functioning of IONS

The launch of the Indian Ocean Naval Symposium (IONS), an important regional initiative, was met with remarkable enthusiasm and acceptance across the Indian Ocean. At its very first gathering, 26 states were represented by the apex level of their navies, a clear signal of regional support for India's vision of maritime cooperation.

To further evaluate the success of this landmark initiative, the Indian Navy identified a few key Measures of Effectiveness (MoE).[13] Firstly, the political backing, as the Indian Prime Minister was present at the inaugural

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Table 28.1: Members and Observers of IONS

Members		*Observers*	
Australia	Iran	China	Germany
Bangladesh	Kenya	Italy	Japan
France	Malaysia	Madagascar	Netherlands
India	Maldives	Republic of Korea	Russia
Indonesia	Mauritius	Spain	
Mozambique	Myanmar		
Oman	South Africa		
Pakistan	Sri Lanka		
Qatar	Tanzania		
Saudi Arabia	Thailand		
Seychelles	Timor Leste		
Singapore	UAE		
UK			

Source: Naval History Division, Indian Navy

edition. Secondly, the participation, whether the Chiefs of the Navy would attend the event. Thirdly, to test whether states would endorse the proposed Charter of Business, the guiding document of the IONS. Encouragingly, all the attending states agreed to its principles. Fourthly, whether IONS could inspire confidence-building measures in its early years. Finally, the Indian Navy sought to ensure the forum's continuity beyond its own leadership. The rotational chairmanship model passes sequentially across sub-regions and ensures that each state's priorities are represented.

The IONS operates actively through its three working groups: Maritime Security, Information Sharing and Interoperability, and Humanitarian Assistance and Disaster Relief (HADR). The Meeting of the Indian Ocean Naval Symposium (IONS) Working Group on Humanitarian Assistance and Disaster Relief (HADR)[14] was held at the Maritime Warfare Centre, Visakhapatnam, on 27 September 2018, inaugurated by Rear Admiral Mahesh Singh, Chief Staff Officer (Operations), Eastern Naval Command. Delegates from Australia, Bangladesh, France, Indonesia, Iran, Kenya, Oman, and Thailand participated, sharing experiences and best practices from past HADR operations to enhance coordination and preparedness for joint relief efforts across the Indian Ocean Region (IOR). Furthermore, the Indian Navy hosted the IONS Working Group Meeting on Maritime Security (IWG-MARSEC) in New Delhi from 24 to 25 June 2025, bringing together delegates from 13 member states to strengthen cooperation. It was

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co-chaired by Cmde Kartik Srimal, YSM, and the discussions focused on improving information sharing, maritime domain awareness, and developing joint strategies to tackle emerging security threats.[15]

IONS Editions and Events

Since its inception in 2008, the Indian Ocean Naval Symposium (IONS) has stood as a testament to India's vision of fostering collective maritime security and cooperation across the Indian Ocean Region (IOR) through its periodic Conclaves of Chiefs and related events.[16] The very first Conclave of Chiefs, held in New Delhi, became the landmark beginning of an unprecedented initiative to bring together the navies of the region under a single forum. The discussions revolved around the regional maritime scenario, contemporary threats, and the need for synergy through cooperative mechanisms. The guiding factor was that the charter remained a "guidance" document that is operative on a navy-to-navy level. The inaugural chairmanship (2008–10) was held by India. The second edition of IONS was held in May 2010 at Abu Dhabi, with the chairmanship having been handed over to the UAE (West Asian Littoral Sub-Region).[17]

The second Conclave of Chiefs, held in the United Arab Emirates from 10 to 12 May 2010, reinforced the growing relevance of IONS by focusing on regional stability, good order at sea, and maritime capacity building, while addressing urgent concerns like piracy and maritime crime. Building on this momentum, the third Conclave of Chiefs from 11 to 14 April 2012 in South Africa further deepened regional dialogue under the theme "Regional Maritime Security Initiatives Aimed at Reducing Modern Maritime Security Threats", bringing together navies to strengthen cooperation and collective responses. Furthermore, the dynamics kept shaping up the maritime picture when the dialogue matured with the fourth Conclave of Chiefs in Australia from 10 to 12 May 2014, which underscored protecting trade and the maritime economy, marking a milestone with the adoption of the IONS Charter of Business and a new logo.

The momentum continued with the fifth Conclave of Chiefs in Bangladesh in 2016, with the theme "Fostering Partnership in the IOR: Charting a Course for Maritime Cooperative Engagement". It focused on the geostrategic and economic outlook of IOR, maritime security, and the future outlook, so as to encourage greater participation of smaller littoral states and ensure regional stability. Moreover, at the sixth edition of the conclave in 2018, chaired by Iran, Admiral Sunil Lanba led the Indian delegation, further demonstrating the IONS's inclusivity, with discussions concentrating on collective maritime prosperity and cooperation. India's 10th anniversary celebrations the same year, themed "IONS as a Catalyst for SAGAR (Security and Growth for All in the Region)", reaffirmed the forum's alignment with India's broader Indo-Pacific vision.[18]

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Under the chairmanship of France in 2021, the seventh edition of the Conclave of Chiefs at La Réunion gave prominence to information sharing, interoperability, and open dialogue, engaging regional and international institutions (the French Institute of International Relations, the European Union, the Indian Ocean Commission, IFC Singapore, RMIFC Madagascar, and Critical Maritime Routes in the Indian Ocean or CRIMARIO) to address contemporary maritime barriers. The following year, another significant milestone was achieved with the first ever IONS Maritime Exercise (IMEX-22), hosted by India in Goa and the Arabian Sea. Bringing together 16 member states, IMEX-22 embodied the transition of IONS from a consultative platform to one demonstrating tangible operational collaboration, particularly in HADR and disaster response preparedness.

The eighth edition of the Conclave of Chiefs, hosted by Thailand in 2023, held on 19-22 December was based on the theme "Blue Economy: Ways Forward for Sustainable Development of IONS Member States". The conclave deepened the discussions on sustainable maritime development, showing India's contributions to the role of maritime security in advancing the blue economy. Thailand assumed chairmanship while India became the co-chair of the Working Group on Maritime Security and HADR to further consolidate its leadership role. The newly designed IONS flag, created by India, was officially adopted, and the Republic of Korea joined as the latest Observer, bringing the IONS community to 25 members and 9 observers.

The recent Emerging Leaders Panel Discussion of IONS Working Group on Maritime Security was held at the Southern Naval Command in Kochi on 27-28 August 2025. Vice Admiral V. Srinivas, Flag Officer Commanding-in-Chief, as the chief guest, reflected on the forum's forward-looking vision and engaged with young naval officers from 18 member states on themes such as strategic importance of the Indian Ocean, emerging technologies in maritime security, and the future role of IONS in fostering collaboration and training among member countries.

Fig 28.1: Emerging Leaders Panel Discussion at IONS, 2025



Source: Naval History Division, Indian Navy

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Fig 28.2: IONS Medical Conference at Mumbai, 2025



Source: Naval History Division, Indian Navy

The Indian Ocean Naval Symposium (IONS) has proven to be a strong and significant multilateral initiative in the Indian Ocean, symbolizing India's growing strength as a maritime power and consensus builder. Over the years, IONS has succeeded in bringing together diverse littoral and island states to become part of collective engagement and address the emerging maritime concerns, ranging from piracy and illegal fishing to disaster relief. India has contributed in capacity-building and capability-enhancement, with strong outreach towards bilateral and multilateral agreements, defence cooperation, and joint naval engagements. The IONS is a robust platform for India to prove its effective and benign power in the region with diplomatic potential. With the increased presence of extra-regional navies in the IOR, in recent times, there could not be a more opportune time and forum to judiciously consolidate on the positives of the IONS mechanism. The Indian Navy has continued to play a crucial role in nurturing the IONS construct and participant littorals, all of whom have been very enthusiastic and look up to India to provide leadership and assistance in matters that are specific to a region and culturally sensitive.

Notes

1. Vice Admiral Anup Singh, *Blue Waters Ahoy! The Indian Navy 2001–2010*, HarperCollins, New Delhi, 2018, p. 153.
2. Vice Admiral Jonathan Mead, *Naval Cooperation in a Sea of Anarchy in Protecting the Ability to Trade in the Indian Ocean Maritime Economy*, Sea Power Centre, Canberra, 2014, p. 115.
3. Vice Admiral G.M. Hiranandani, *Transition to Guardianship, The Indian Navy 1990-2000,* Lancer Publishers, New Delhi, 2009, p. 27.
4. Cdr Ranendra S. Sawan, *Problems and Prospects of Maritime Security Cooperation in the Indian Ocean Region: A Case Study of the Indian Ocean Naval Symposium (IONS)–Part 1,* National Maritime Foundation, New Delhi, June 2022.
5. Singh, *Blue Waters Ahoy*, pp. 153–54.
6. Ibid, p. 154.
7. Zhang Wei, *The Western Pacific Naval Symposium and Regional Naval Cooperation*, Beijing: Peking University Institute of International and Strategic Studies, April 2021, https://

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www.iiss.pku.edu.cn/fj/PDF/ciss_cn/upload/docs/2021-04-26/doc_9931619406173.pdf, accessed on 18 October 2025.

8. Singh, *Blue Waters Ahoy*, p. 158.
9. Singh, *Blue Waters Ahoy*, p. 154.
10. The IONS Charter of Business was agreed upon by the Conclave of Chiefs and brought into effect in February 2014. See "Admiral Sunil Lanba, Chief of the Naval Staff visits Tehran, Iran for Indian Ocean Naval Symposium (IONS) – 2018", Press Information Bureau, GoI, https://www.pib.gov.in/newsite/PrintRelease.aspx?relid=178840&lang=en, accessed on 18 October 2025.
11. Singh, *Blue Waters Ahoy*, pp. 155-156.
12. Indian Ocean Naval Symposium (IONS), https://ions.global/ions-working-groups, accessed on 18 October 2025.
13. Singh, *Blue Waters Ahoy*, p. 156.
14. "IONS Working Group Meeting on HADR held at Visakhapatnam," Press Information Bureau, Government of India, 27 September 2018, https://www.pib.gov.in/newsite/printrelease.aspx?relid=183771, accessed on 18 October 2025.
15. "Indian Navy Hosts IONS Working Group Meeting on Maritime Security", Indian Defence News, 27 June 2025, https://www.indiandefensenews.in/2025/06/indian-navy-hosts-ions-working-group.html, accessed on 19 October 2025.
16. "About IONS", *Indian Ocean Naval Symposium*, https://www.ions.global/about-ions, accessed on 19 October 2025.
17. Singh, *Blue Waters Ahoy*, p. 157.
18. Launched in 2015, SAGAR (Security and Growth for All in the Region) outlined five key pillars: enhancing maritime security through cooperation, promoting blue economy and trade, strengthening capacity building and disaster management, advancing sustainable use of marine resources, and improving regional connectivity through port and infrastructure development. See "From SAGAR to MAHASAGAR: India's Strategic Evolution in the Indian Ocean Region", Indo-Pacific Studies Center, 28 April 2025, https://www.indo-pacificstudiescenter.org/commentaries/india-mahasagar-initiative, accessed on 19 October 2025.

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Chapter 29

Bilateral and Multilateral Exercises

Exercises with Foreign Navies

The Indian Navy conducts exercises with the navies of Friendly Foreign Countries (FFCs) to enhance maritime cooperation, bolster interoperability, and foster international cooperation. Over the decades, the cooperation of the Indian Navy with world navies has grown in strength and stature and their maritime relations have grown more than ever. In this pursuit of the Indian Navy to gain the trust and confidence of other navies, bilateral and multilateral exercises have played a significant role. These exercises are used to "project Indian capabilities, hone operational skills, imbibe best practices and procedures, and enable doctrinal learning".[1] The exercises also provide a benign means for benchmarking India's capabilities against international standards, and develop mutual friendship and respect. In his speech at the Indian Ocean Region Seminar during Aero India 2021, then Chief of the Naval Staff Admiral Karambir Singh noted: "Operating together at sea leads to a clearer understanding of each other. Increased operations and exercises lead to mutual trust and a meeting of minds. Our navies exercise regularly with each other, both bilaterally and multilaterally. Understanding the operating philosophy of friendly navies goes a long way in fostering mutual confidence towards collective competence. This is also achieved through training together, both ashore and afloat."

Maritime exercises have enhanced the Navy's outreach, bolstering its eminent role as an instrument of diplomacy. They serve as powerful tools of maritime engagement, tools of interoperability and synergy among diverse maritime forces, allowing navies to operate seamlessly together in pursuit of shared security. Through regular bilateral and multilateral exercises conducted in distant waters, the Navy's blue-water aspirations have taken a coherent shape. Such exercises not only strengthen collective maritime security and build lasting partnerships but also contribute to stability across the wider Indo-Pacific and Indian Ocean regions, all the while aligning with objectives of India's national interests as well as the vision of MAHASAGAR—Mutual and Holistic Advancement for Security and Growth Across Regions. It reiterates India's stand as a net security provider in the region.

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Early Naval Exercises

To maintain operational efficiency of the Indian Navy's sword-arm, it was necessary to hold regular exercises involving as many ships, aircraft, and submarines as possible. This essential factor led the Indian Navy to participate in exercises involving the Commonwealth nations. Starting in 1949, the Indian Navy participated in joint naval exercises conducted at Trincomalee, Ceylon (present-day Sri Lanka), alongside ships of the Royal Navy, the Royal Indian Navy's successor force, the Royal Pakistan Navy, and the Royal Australian Navy.[2] Trincomalee was chosen as it provided the ideal conditions and avoided the harsh situations of the western coast during the southwest monsoon. The exercise was conducted under the overall supervision of the British Commander-in-Chief, Far East Fleet. Additionally, Tactical Exercises with Royal Navy ships and submarines were frequently held in the Bay of Bengal. The exercise involved individual ship work-up; fleet integration and combined manoeuvres; two-week long fleet exercises in the Bay of Bengal, involving gunnery, air defence, anti-submarine warfare (ASW), replenishment at sea, and tactical manoeuvres.[3]

After the closure of the British East Indies Station at Trincomalee in 1958, the JET series continued in a modified four-phase format. Between 1959 and 1961, British submarines were deployed annually off Cochin for ASW exercises, particularly with newly arrived British-built frigates. Later, similar exercises continued with the submarines HMS *Ambush* (1964) and HMS *Astute* (1965) off Bombay, Madras, and Visakhapatnam.[4]

Table 29.1: Exercises Involving Indian Navy, 1950–90

Year(s)	*Exercise Name / Type*	*Partner Nation(s)*	*Location / Area*	*Remarks & Significance*
1949–1958	JET (Joint Exercises Trincomalee)	Britain, Ceylon (Sri Lanka), Pakistan, later Australia	Trincomalee, Bay of Bengal	First-ever multinational exercise India joined post-Independence. Conducted annually under British Far East Fleet. Core training in fleet manoeuvres, gunnery, and ASW.
1955–1958	Staff College & Gunnery Exercises	Royal Navy (UK)	Bay of Bengal / Pigeon Island	Indian and Royal Navy ships exercised in gunnery, air-sea coordination, and tactical manoeuvres.

(*Continued*)

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(*Continued*)

Year(s)	*Exercise Name / Type*	*Partner Nation(s)*	*Location / Area*	*Remarks & Significance*
1959–1961	JET (Post-Trincomalee Phase)	Britain, Ceylon	Off Cochin & Bay of Bengal	Conducted in multiple phases. British submarines (*Ambush*, *Astute*) participated in ASW training.
1964–1965	Submarine Exercise (Ambush & Astute)	Royal Navy (UK)	Off Bombay, Madras, Visakhapatnam	ASW training with British submarines as targets.
1972–1976	Anti-Submarine Cooperation Exercises	Soviet Navy	Arabian Sea & Bay of Bengal	Tactical coordination and submarine familiarization.
1979–1980	PASSEX (Passage Exercises)	Royal Navy (UK)	Arabian Sea	First modern *PASSEX* conducted with a visiting Royal Navy task group to enhance interoperability.
1981–1982	PASSEX	French Navy	Western Indian Ocean	Coordination during escort and replenishment-at-sea with French ships transiting to Réunion.
1982–1983	PASSEX	US Navy (7th Fleet)	Arabian Sea	Focusing on navigation, RAS (Replenishment at Sea), and communications.
1983–1986	INDO–US PASSEX	US Navy	Indian Ocean	Passage exercises during port calls at Bombay and Goa.
1984	*IN*–Soviet Navy Tactical & ASW Exercises	Soviet Union	Arabian Sea / Bay of Bengal	Routine coordination training with Soviet ships based on Indo–Soviet naval cooperation protocols.

(*Continued*)

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(*Continued*)

Year(s)	*Exercise Name / Type*	*Partner Nation(s)*	*Location / Area*	*Remarks & Significance*
1986	Indo–Indonesian Coordinated Patrols (CORPAT)	Indonesia	Andaman Sea	The first bilateral coordinated patrol (precursor to the modern CORPAT series) to strengthen maritime cooperation.
1987	Indo–French PASSEX	France	Indian Ocean	ASW and manoeuvre drills conducted.
1988	Indo–Soviet Naval Exercises	Soviet Union	Arabian Sea	Large-scale fleet-level drills including missile and ASW operations
1989–1990	Indo–US PASSEX & Search–Rescue Exercises	US Navy	Arabian Sea	Short-duration communication and manoeuvring exercises during US 7th Fleet visits.

Source: G.M. Hiranandani, *Transition to Triumph*, *Transition to Guardianship*.

Bilateral and Multilateral Exercises Post-1990s

Bilateral naval exercises are military drills conducted between the Indian Navy and the navy of another country. Multilateral naval exercises are joint maritime drills conducted among three or more navies. Multilateral exercises aim to enhance regional and global maritime security through collective training, interoperability, and coordination among multiple countries.

Table 29.2: Exercises Involving Indian Navy, 1991–2000

Month/Year	*Exercises Held With/Ships Participated/Location*
Oct/Nov 1991	Joint exercise with visiting Australian Naval Ship *Torrens* off Port Blair.
Nov 1991	INS *Kirpan* exercised with RAN ships off west coast of Australia.
Oct/Nov 1991	Joint exercises with US Navy on limited scale.
23–29 Mar 1992	INS *Ganga* (host ship) and *Kuthar* exercised with FN Ship Aviso *Detroyat*
May 1992	MALABAR 92—Indo–US exercise off the west coast.

(*Continued*)

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(*Continued*)

Month/Year	*Exercises Held With/Ships Participated/Location*
Jan 1993	Western Fleet ships exercised with Oman Navy during their visit to Iran and Oman.
Apr 1993	Eastern Fleet ships exercised with Royal Singapore Navy.
18–19 Jan 1994	MALABAR 94—Indo–US exercise off the west coast.
18–19 Feb 1994	RINEX 01/94—Russia–India Joint Naval Exercises. INS *Ganga* and *Ranvir* exercised with Russian destroyer *Admiral Vinogradov* in the Arabian Sea.
21–24 Feb 1994	First *IN*–RSN training ASW exercise. INS *Taragiri* and *Kursura* exercised with RSS *Victory* off Port Blair.
12–19 Jan 1995	Second *IN*–RSN training ASW exercise. INS *Dunagiri* and *Kursura* exercised with RSS *Valour* and *Vigilance* at Port Blair
1995	MILAN 1995—A get-together of friendly navies of the Bay of Bengal littoral was attended by naval ships from Indonesia, Singapore, Sri Lanka, and Thailand at Port Blair.
21 Nov 1995	MALABAR 95—Indo–US anti-submarine naval exercise with US nuclear submarine on passage from Abu Dhabi to Kuwait.
Nov 1995	SADAKAH 95—First Indo–UAE exercise. *IN* ships *Ranvijay* and *Kuthar* exercised with UAE ships *Das* and *Murban*.
4–12 Mar 1996	Third *IN*–RSN training ASW exercise. INS *Vindhyagiri, Arnala, Saryu* and *Sindhuraj* exercised with RSS *Vigour, Vigilance* at Port Blair.
27 Mar 1996	INS *Gomati* carried out Towed Array work-up with US nuclear submarine *Birmingham* off Kochi.
26–30 Mar 1996	MALABAR 96—Indo–US joint naval exercise off Kochi.
31 Mar 1996	Joint exercise of *IN* ships with Singapore navy RSS *Vengeance, Courageous* and *Daring*.
20 Feb–30 Mar 1997	Fourth *IN*–RSN training ASW exercise. *IN* ships *Shankul, Sujata* and *Godavari* exercised with RSS *Vigour* and *Victory* at Kochi.
14–18 Feb 1997	MILAN-97—Biennial get-together of friendly navies of Bay of Bengal littoral attended by navies of Bangladesh, Indonesia, Malaysia, Singapore, Sri Lanka, and Thailand at Port Blair.
4 Mar 1997	Italian Navy ship *Bersagliere* exercised with an Indian guided missile frigate off Mumbai.
Mar 1997	Joint naval exercises with ships of the Australia, Kenya, Singapore, US navies.
Dec 1997	Joint naval exercises with ships of French, German, US navies.

(*Continued*)

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(*Continued*)

Month/Year	*Exercises Held With/Ships Participated/Location*
13–15 Feb 1998	Joint naval exercise with Royal Singapore naval ships, off Mumbai.
Feb–Mar 1998	SURAKSHA—Multilateral SAR exercise of *IN* with navies of Italy, Sri Lanka, and Coast Guard of Mauritius.
2–13 Mar 1998	Fifth *IN*-RSN training ASW exercise. INS *Godavari, Shalki* exercised with RSS *Valour, Vigilance, Brave* and *Dauntless*, off Kochi.
Mar 1998	INS *Ganga* PASSEX with FN ships *Somme, Agousta* and Submarine *La Praya*.
2–3 Jun 1998	INS *Ganga* and *Himgiri* carried out joint exercise with the Royal Oman Navy, off Muscat.
4 Jun 1998	BARKAT 98—*IN* ships sailed from Shuwaikh and exercised with Kuwait Navy ship KN *Al-Sanbouk,* off Kuwait.
9 Jun 1998	MULAQAAT 98—*IN* ships carried out exercises with HMS *Oqbah* of Saudi Navy during PASSEX after departure from Al Jubayl, off Saudi Arabia.
9–10 Jun 1998	INS *Ganga* and *Himgiri* carried out joint exercise with Iran Navy on passage from Bandar Abbas to Mumbai, off Iran.
4–13 Mar 1999	MAITRI—the first bilateral ASW exercise with RSN. INS *Gomati, Shankush* and TU 142M exercised with RSS *Vengeance, Daring* and *Gallant*, off Kochi.
Mar 1999	MILAN WEST 99—Interaction of littoral navies of the Arabian Sea and Indian Ocean with ships from the navies of Maldives, Mauritius, Oman, Sri Lanka, and UAE, at Kochi.
Mar 1999	*IN*–FN PASSEX—INS *Sukanya* and FN *Somme,* off Mumbai.
Mar 1999	MILAN 99—Biennial get-together of friendly navies of the Bay of Bengal littoral attended by the navies of Bangladesh, Indonesia, Singapore, Sri Lanka, and Thailand, at Port Blair.
Apr 1999	BLUE CRANE—A tri-service peacekeeping exercise of 14 nations comprising the South African Development Community (SADC). INS *Sujata* was the command-and-control platform and *IN* was the only navy outside the region invited to participate.
Mar/Apr 1999	*IN* ships conducted PASSEX with FN ships visiting Indian ports in the Arabian Sea and Bay of Bengal.
24 May 1999	KAREEB—*IN* ships carried out exercises with US carrier task group.

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Month/Year	*Exercises Held With/Ships Participated/Location*
23–24 Aug 1999	*IN*–FN PASSEX—*IN* ships carried out joint exercises with three FN ships off Mumbai and Goa.
2–6 Mar 2000	*IN* ships carried out joint exercises with three FN ships, off Visakhapatnam.
28 Feb–9 Mar 2000	*IN* ships carried out joint exercises with two Russian naval ships.
19 Sep 2000	INS *Ranvijay* exercised with Singapore naval ships.
20 Sep 2000	PASSEX—*IN* ships *Delhi* and *Kora* with two Chinese PLA ships.
25 Sep 2000	INS *Delhi* and INS *Kora* carried out exercises with two Japanese naval ships, off Port Blair.
25–26 Sep 2000	*IN* ships *Rajput* and *Sindhuvir* carried out ASW exercise with RSN ships *Valiant* and *Brave*.
8 Oct 2000	*IN* ships *Delhi, Aditya* and *Kuthar* carried out exercises with two Indonesian ships.

Source: Naval History Division, Indian Navy

Table 29.3: Exercises Involving Indian Navy, 2001–2010

Month/Year	*Name of the Exercise*	*Exercises Held With/Ships Participated/Location*
Dec 2001	India–US PASSEX	USS *Antietam* and USS *O'Kane* participated. Communications and coordinated maritime operations. Took place at Arabian Sea, off the western coast of India.
15 Apr 2002	India–French Navy PASSEX	INS *Brahmaputra* and French Naval Ships *De Grasse* and *Jules Verne* participated off the coast of Mumbai.
30 Jul 2002	India–German Navy PASSEX	INS *Sharda* with German ship Mecklenburg-Vopermman off Kochi.
17 Aug 2002	India–Mauritian Coast Guard	INS *Delhi* and INS *Ranvijay* off Port Louis.
2002	India–Seychelles	INS *Aditya* and INS *Godavari* with Seychelles People's Defence Force ships off Port Victoria.

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Month/Year	*Name of the Exercise*	*Exercises Held With/Ships Participated/Location*
8–12 Jul 2003	SAREX	INS *Sukanya* and CGS *Varaha* with USS *Curts* and P-3C Orion aircraft; observers from Maldives, Sri Lanka, Madagascar, Mauritius off Chennai; Bilateral Search and Rescue Exercise to enhance SAR coordination and interoperability.
14 Nov 2003	India–China SAREX	INS *Ranjit*, INS *Kulish* along with Chinese Jiaxing and Panyang Hu participated off Shanghai, China, that focused on Search and Rescue exercise held after port visit to Shanghai; aimed at building maritime confidence.
7 Sep–1 Oct 2003	PASSEX–Persian Gulf	INS *Delhi*, INS *Mumbai*, INS *Aditya*, INS *Kulish*, INS *Talwar*, INS *Pralaya*, INS *Sindhuraj* along with IRIN ships *Bandar Abbas*, *Sabalan* off the coast of Bandar Abbas, Persian Gulf, that focused on Presence-cum-Surveillance Mission.
1–19 Mar 2004	*IN*–RSN Bilateral Exercise 2004	RSS *Vigilance*, RSS *Victory*, RSS *Brave*, RSS *Endurance*; Anti-Submarine Warfare; off Kochi.
8–24 Oct 2004	SANGAM 04 (India–USA Naval Special Forces Exercise)	Indian Marine Commandos (MARCOS) and US Navy Seals; Special Forces Exercise focused on Visit, Board, Search, and Seizure (VBSS) operations; Ganpatipule, Maharashtra.
12–23 Sep 2005	SALVEX CY-05 (India–USA)	Indian Navy Diving and Salvage Teams and US Navy Salvage Units; joint diving, salvage, and underwater demolition operations; salvaged aircraft wreck from 50 m depth off Kochi.
16–30 Sep 2005	India–Sri Lanka Special Forces Exercise	Indian Navy MARCOS and Sri Lanka Navy Special Forces; focusing on VBSS and coastal operations; hosted by Sri Lanka.
16 Apr 2007	TRILATEX (*IN*, USN, JMSDF)	INS *Mysore*, INS *Jyoti*, INS *Kuthar* with 2 USN ships, 2 JMSDF ships, shore-based aircraft; off Tokyo, Japan.

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Month/Year	*Name of the Exercise*	*Exercises Held With/Ships Participated/Location*
19–20 May 2007	WPNS SEA EXERCISE (WMSX)	INS *Viraat*, 17 ships from Australia, China, France, Japan, Malaysia, NZ, Singapore, USA; Western Pacific Naval Symposium multilateral exercise; conducted at Singapore Straits and South China Sea.
11–15 Aug 2008	Horn of Africa Patrol	3 Indian Navy ships; French Naval Ship *Courbet*, French aircraft *Atlantique;* Joint patrol to deter piracy off Somali Coast; off Somali Coast, operated from Djibouti.
Sep 2008	HABUNAG 08	Indo–USN Expeditionary Operation focusing on HADR post-tsunami scenario; Maritime Warfare Centre, Visakhapatnam.

Source: Naval History Division, Indian Navy

In addition to above, the Indian Navy undertook Passage Exercises (PASSEX) in 2009 with the Algerian Navy, Eritrean Navy, French Navy, German Navy, Hellenic Navy, Italian Navy, Iranian Navy, Israeli Navy, Japanese Navy, Libyan Navy, the Philippine Navy, Portuguese Navy, the Republic of Korea Navy, Royal Australian Navy, Royal Navy, Russian Navy, Saudi Arabian Navy, and Turkish Navy.[5]

Table 29.4: Exercises Involving Indian Navy, 2011–2025

Month/Year	*Name of the Exercise*	*Exercises Held With/Ships Participated/Location*
5–12 Jan 2011	SALVEX	India–US; INS *Nireekshak* and USS *Safeguard*; diving & salvage drills.
2012	INDIA EX	*IN*–USN submarine rescue exercise using Submarine Rescue Diving and Recompression System (SRDRS). Cross-deck compatibility of SRDRS with *IN* submarines, calculate Time to First Rescue in a realistic scenario, training and experience for the participants.
2016	ADMM Plus	INS *Airavat* arrived at Brunei; exercise on Maritime Security and Counter Terrorism was part of it.
17–20 Apr 2017	Bilateral exercise	*IN* ships *Mumbai, Trishul, Tarkash* and *Aditya* visited Souda Bay, Greece, and exercised with the Hellenic (Greek) Navy.

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Month/Year	*Name of the Exercise*	*Exercises Held With/Ships Participated/Location*
2017	Bilateral exercise	Exercise to impart asymmetric warfare and diving training to Maldives National Defence Force (MNDF).
13 Sep 2018	KAKADU exercise	Exercise Kakadu is an Australia-driven multilateral exercise, in which the *IN* started participating from 2018. Ships, submarines and aircraft undertook various surface, sub-surface, and air operations.
21–26 May 2018	India–Vietnam bilateral exercise	Maiden edition was conducted from Da Nang, Vietnam. INS *Kolkata* and *Shakti* participated in the exercise, comprising a harbour and a sea phase.
13–16 Apr 2019	India–Vietnam bilateral maritime exercise	Second edition of the bilateral maritime exercise off Cam Ranh Bay, Vietnam. The exercise was undertaken as part of the ongoing overseas deployment of ships of the Eastern Fleet to South East Asian countries.
1–3 May 2019	ADMM Plus	The exercise was titled Maritime Security Field Training Exercise, held in South China Sea. Information-sharing via the Information Fusion Centre (IFC) in Singapore—participants shared vessel-of-interest tracking; practised the Code for Unplanned Encounters at Sea (CUES).
2021	*IN*-EUNAVFOR	Joint naval exercise; to enhance interoperability and strengthen cooperation in maritime security operations, anti-piracy, and freedom of navigation in the Western Indian Ocean; INS *Trikand* participated.
2019	TIGER TRIUMPH	INS *Sandhayak* participated in Indo-US joint HADR exercise.
17–19 Nov 2019	Zair Al-Bahr	India and Qatar conducted their maiden joint naval exercise in Doha, where INS *Trikand* and P-8I took part.
12–15 Sep 2019	Samudra Laksamana	Between Indian Navy and Malaysian Navy (RMN). INS *Sahyadri* and INS *Kiltan* made a port call at Kota Kinabalu, Malaysia.

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Month/Year	*Name of the Exercise*	*Exercises Held With/Ships Participated/Location*
2019	SITMEX–Singapore, India and Thailand	SITMEX is being conducted annually since 2019, with an aim to enhance mutual interoperability and imbibing of best practices between the three navies. The maiden edition of SITMEX was hosted by *IN* off Port Blair in September 2019. RSN hosted the second edition of the exercise in November 2020. 2021 edition of the exercise was hosted by RTN in the Andaman Sea.
2019	Bongosagar	*IN* ships *Ranvijay* and BN ships *Ali Haidar* took part; interoperability, joint operational training.
27 Jan–6 Feb 2019	Cutlass Express	US Africa Command (USAFRICOM) conducted annual multinational maritime exercise by US Naval Forces, Africa, to promote national and regional maritime security in East Africa and the western Indian Ocean. The *IN* participated in the exercise for the first time in 2019. INS *Trikand* participated in the exercises that were held at Djibouti. The aim of participating is to increase law enforcement capacity, regional security, and interoperability between armed forces for the purpose of interdicting illegal, maritime activity in the western Indian Ocean region.
3 Oct 2020	Bongosagar	*IN* ships *Kiltan, Khukri,* aircraft P-8I from India and BN ships *Abu Bakr, Prottoy, MPA* from Bangladesh participated; surface warfare, seamanship evolutions.
18 Aug 2021	Bilateral maritime exercise with Vietnam	INS *Ranvijay* and INS *Kora* along and VPN *Ly Thai* participated in the third edition of the bilateral exercises in the South China Sea.
2021	Exercise Sea Dragon	A multinational anti-submarine warfare (ASW) exercise hosted by the US and participated by other Indo-Pacific allies. In 2021, India joined as a full participant for the first time, alongside Australia, Canada, Japan. The exercise took place in Guam.
26 Jul–6 Aug 2021	Ex Cutlass Express	INS *Talwar* participated in the exercise.

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Month/Year	*Name of the Exercise*	*Exercises Held With/Ships Participated/Location*
2021	Al-Mohed Al-Hind	Proposed in March 2020 but postponed because of COVID. INS *Kochi*, with its two integral Seaking 42B helicopters, arrived at Port Al-Jubail during its Persian Gulf deployment.
Aug 2021	Ex Zair-Al Bahr	The second edition of this exercise was conducted in the Persian Gulf. Exercises including surface action, anti-piracy exercises, air defence, maritime surveillance, boarding operations, and SAR exercises. In the sea phase of the exercise, INS *Trikand* and Qatari Emiri Naval Forces (QENF), missile boats of Barzan- and Damsah-class, Fast Attack Crafts of MRTP 34-class and Rafale fighter aircraft participated. The edition contributed to the *IN*'s efforts to consolidate interoperability and forge strong bonds of friendship with the Qatari Navy.
7 Aug 2021	Zayed Talwar (India–UAE Joint Naval) Exercise	Held off the coast of Abu Dhabi. INS *Kochi*, with two integral Seaking MK-42B helicopters, deployed in the Persian Gulf, participating. The UAE participated with UAESAL-*Dhafra*, a Baynunah-class guided missile corvette and one AS-565B Panther helicopter. The ships undertook tactical manoeuvres, OTHT, SAR, and EW exercises to enhance interoperability and synergy between the two navies.
5–7 Apr 2021	La Perouse	*IN* ships *Satpura, Kiltan* and *IN* aircraft P8I along with French Navy ships *Tonnerre* and *Surcouf*, US Navy (USN) ship *Somerset*, Japan Maritime Self Defence Force (JMSDF) ship *Akebono* and Royal Australian Navy (RAN) ships *Anzac* and *Sirius* participated in the exercise.
5–20 Jan 2022	Sea Dragon	Indian Navy participated along with Royal Australian Air Force, Royal Canadian Air Force, Japan Maritime SelfDefence Force, Republic of Korea Navy. U.S. Navy P-8 Poseidon, Indian Navy P-8I, Canadian CP-140 Aurora, Japanese P-1, South Korean P-3C participated; to improve interoperability, shared tactics, techniques and procedures among the participating forces, especially in the domain of Anti-Submarine Warfare in the Indo-Pacific.

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Month/Year	*Name of the Exercise*	*Exercises Held With/Ships Participated/Location*
17–19 May 2023	Samudra Shakti	INS *Kavaratti* participated; Surface & ASW evolutions, communications, cross-deck visits, coordinated manoeuvres.
Apr 2025	Tiger Triumph (India–US)	Amphibious joint (Navy-Army) operations, HADR and amphibious assault interoperability; tri-service cooperation.

Source: Naval History Division, Indian Navy

AUSINDEX: The biennial maritime defence Australia–India Exercise (AUSINDEX) commenced in 2015. It was aimed at strengthening and enhancing cooperation and interoperability between the *IN* and Royal Australian Navy (RAN). Apart from enhancing interaction and exchange of professional views between the personnel of two navies, it aims to promote peace and prosperity in the Indian Ocean Region.

Table 29.5: Exercises Between Indian Navy and Royal Australian Navy

Duration	*Indian Navy*	*Royal Australian Navy*	*Location*	*Nature of Exercise*
11–21 Sep 2015	*IN* ships *Shivalik*, *Ranvijay*, *Shakti*	HMA ships *Arunta*, *Sirius*, submarine HMAS *Sheean*	Off the coast of Visakhapatnam	ASW, fleet manoeuvres, gun firing, VBSS, cross-deck operations, SAG procedures.
13–19 Jun 2017	*IN* ships *Shivalik*, *Jyoti*, *Kamorta*	HMAS *Newcastle*, submarine HMAS *Waller*, UAV Scan Eagle	Off the Australian coast	Seamanship evolutions, live fire drills, VBSS, surface and sub surface drills.
2–4 Apr 2019	*IN* ships *Sahyadri*, *Ranvijay*, *Kora*, *Kiltan*, submarine INS *Sindhukirti*, aircraft Dornier 228, P-8I	HMA ships *Newcastle*, *Paramatta*, *Success*, submarine HMAS *Collins*	Off the coast of Visakhapatnam	Warfare drills in 3 dimensions, live fire drills, RAS, cross-decking.

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Duration	*Indian Navy*	*Royal Australian Navy*	*Location*	*Nature of Exercise*
6–10 Sep 2021	*IN* ships *Shivalik, Kadmatt*	HMA ships *Warramunga*, submarine HMAS *Rankin*	Off the Australian coast	Surface, sub-surface training operations, air operations.
30 Oct–1 Nov 2022		HMAS *Adelaide* (LHD), and HMAS *Anzac*	Off the coast of Visakhapatnam	Tactical manoeuvres, helicopter operations.
22–25 Aug 2023	INS *Sahyadri* and *Kolkata*	HMAS *Choules* and HMAS *Brisbane*	Off the coast of Sydney, Australia	Complex surface, sub-surface and air operations (maritime warfare drills, ASW/anti-surface drills, combined manoeuvres to enhance interoperability.

Source: Naval History Division, Indian Navy

Ex INDRA: Exercise INDRA takes place between the navies of India and Russia, epitomizing the long-term strategic relationship between the two countries. The maiden exercise took place in 2003. A Joint Tri-Services exercise, INDRA is held once in two years since 2017. The exercise has matured over the years with an increase in scope, complexity of evolutions and level of participation across the spectrum of maritime operations.

Table 29.6: Exercises Between Indian Navy and Russian Navy

Duration	*Indian Navy*	*Russian Navy*	*Location*	*Nature of Exercises*
20–31 May 2003 (West: 20–22 May, East: 29–31 May)	INS *Mumbai, Mysore, Viraat, Brahmaputra, Gomati, Sindhuvijay*; eastern	*Moskva* (Cruiser), *Marshal Shaposhnikov, Admiral Pantyeleyev* (Destroyers), *Vladimir*	Eastern seaboard, Bay of Bengal	First-ever Indo-Russian bilateral naval exercise; included fleet manoeuvres, anti-air, and anti-submarine

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Duration	*Indian Navy*	*Russian Navy*	*Location*	*Nature of Exercises*
	seaboard: INS *Rajput, Ranjit, Ranvijay, Sindhuvir, Vela*	*Kolechitsky* (Tanker)		operations, western & eastern seaboards of India.
14–21 Oct 2005			Eastern seaboard, Bay of Bengal	Second edition of Indo-Russian bilateral naval exercise; focused on ASW, Maritime Interdiction Operations, and firing on surface/ aerial targets.
24–27 Apr 2007	INS *Mysore, Rana, Ranjit, Kuthar, Jyoti*	2 Udaloy class destroyers, 1 tug, 1 submarine, shore-based aircraft	Off Vladivostok, Russia	
27–28 Jan 2009	INS *Delhi, Talwar*	RFN *Pyotr Veliky* and *Admiral Vinogradov*	Western seaboard	
28 Nov–3 Dec 2012	INS *Mysore, Tabar*	*Marshal Shaposhnikov*, *Irkut*, *Alatau*	Off Mumbai	Asymmetric operations, seamanship evolutions, AD, gunnery exercises, embarkation of sea riders, manoeuvres, cross-deck flying.

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Duration	*Indian Navy*	*Russian Navy*	*Location*	*Nature of Exercises*
14–17 Jul 2014	*IN* ships *Shivalik, Ranvijay, Shakti*	*Vinogradov*, *Varyag*, *Ilim*, *Peresvet*	Sea of Japan, Off Vladivostok	Tactical manoeuvring, ASW, AA and surface warfare exercises, cross-deck helo operations, SAR, RAS.
7–12 Dec 2015	*IN* ships *Sahyadri, Ranvir, Shakti*	*Varyag*, *Bystry*, *Alatau*, *Boris Butoma*	Bay of Bengal	ASW, AA/AD, anti-surface fleet operations, manoeuvres, seamanship evolutions.
14–21 Dec 2016	*IN* ships *Ranvir, Satpura, Kamorta,* aircraft P-8I, Dornier 228	*Admiral Tributs*, *Boris Butoma*	Bay of Bengal	ASW, AD, surface firings, VBSS, tactical procedures.
18–30 Oct 2017	*IN* ships *Satpura, Kadmatt*	*Admiral Nevelsky*, *Ust Llimsk*	Off Vladivostok	First Tri-Services bilateral military exercises.
9–16 Dec 2018	*IN* ships *Ranvir, Satpura, Kadmatt, Kuthar, Khanjar, Jyoti, IN* submarine: 1	*Varyag*, *Panteleyev*, *Boris Butoma*	Off Vizag	ASW, AD, surface firing, VBSS, tactical procedures.
10–19 Dec 2019	*IN* ships *Tarkash, Aditya,* aircraft P-8I, Dornier 228	*Yaroslav Mudry*, *Yel'nya*, *Viktor Konetsky*	Off Goa	RAS, AD, surface firing, VBSS.

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Duration	*Indian Navy*	*Russian Navy*	*Location*	*Nature of Exercises*
4–5 Sep 2020	*IN* ships *Ranvijay, Sahyadri, Shakti*	*Admiral Vinogradov*, *Admiral Tributs*, *Boris Butoma*	A "non-contact, at sea only" passage exercise off Vizag, Bay of Bengal, due to COVID restrictions	Surface and anti-aircraft drills, firing exercises, helicopter operations, seamanship evolutions.
4–5 Dec 2020	*IN* ships *Shivalik*, *Kadmatt*	*Varyag*, *Admiral Panteleyev*, *Pechenga*	Eastern Indian Ocean	PASSEX exercises.
28–29 Jul 2021	INS *Tabar*	*Zelyony Dol*, *Odintsovo*	Off Baltic Sea	Anti-aircraft firing, UNREP, helo operations, VBSS.
Nov 2023	INS *Ranvijay*, INS *Kiltan*	*Admiral Tributs*, *Admiral Panteleyev*	Bay of Bengal	Short at-sea bilateral manoeuvres: formation steaming, gunnery/ artillery firings, air-defence drills, ASW manoeuvres and underway replenishment practice—aimed at interoperability and joint response to maritime threats.

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Duration	*Indian Navy*	*Russian Navy*	*Location*	*Nature of Exercises*
28 Mar–2 Apr 2025	INS *Rana*, INS *Kuthar*, Indian P-8I maritime patrol aircraft	RFS *Pechenga, Aldar Tsydenzhapov*	Harbour phase: off Chennai; sea phase: Bay of Bengal	Formation manoeuvres, anti-surface/ anti-air and ASW drills, live gunnery firings, aviation operations (deck helicopters / maritime aircraft), communications / replenishment at sea — designed to deepen interoperability and practice combined responses to maritime threats.

Source: Naval History Division, Indian Navy

Ex IBSAMAR: A biennial multilateral maritime exercise between the navies of India, Brazil, and South Africa, IBSAMAR highlights the maritime dimension of the IBSA Dialogue Forum. Initiated in 2008, the exercise has been noted as the most visible manifestation of this convergence of democratic values, economic interests, and maritime cooperation between the three countries. The scope and complexity of the exercise have increased steadily. Naval cooperation among the countries epitomizes the strong long-term strategic relationship between the three nations and their shared ideas of inclusive maritime security.

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Table 29.7: Exercises Between Indian Navy, Brazilian Navy, and South African Navy

Duration	*Indian Navy*	*Brazilian Navy & South African Navy*	*Location*	*Nature of Exercises*
2–16 May 2008	2 Indian Navy ships	Brazil (2 ships), South Africa (4 ships)	Off South Africa; port calls at Mozambique, Maldives, Mauritius, Seychelles	Trilateral India–Brazil–South Africa maritime exercise.
Sep 2010	*IN* ships *Mysore, Ganga, Tabar,* and *Aditya*		IBSAMAR II conducted off Durban, South Africa	
10–26 Oct 2012	*IN* ships *Delhi, Deepak*	Brazil: BN *Barroso* South Africa: SAS *Amatola*	IBSAMAR III, held in South Africa	Sea phases and harbour phases. Sea phases included naval exercises such as GUNEX, CASEX, UNREP, anti-piracy operations and HADR.
20 Oct–7 Nov 2014	INS *Teg*	Brazil: BN *Barroso*	IBSAMAR-IV conducted off Simons Town, South Africa	ASW, AA/AD warfare, surface warfare, SAR, VBSS, naval gunfire support, asymmetric threats, HADR, MDA, interoperability, naval conventional operations, SOPs, cross-deck helo operations and special operations.
19–29 Feb 2016	*IN* ships *Mumbai, Trishul*, submarine INS *Shalki*, aircraft: Sea Harriers, MiG-29K, Dornier 228	Brazil: BN *Amazonas* South Africa: SAS *Spioenkop*	IBSAMAR-V conducted off India's west coast; harbour phase conducted at Goa. Conducted in Indian waters for the first time	The thrust of this edition of the exercise was on ASW, surface firing, AD, VBSS, flying operations, special operations, and SAR.

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Duration	*Indian Navy*	*Brazilian Navy & South African Navy*	*Location*	*Nature of Exercises*
1–13 Oct 2018	*IN* ships *Kolkata, Tarkash*, aircraft: P-8I	Brazil: BN *Barroso* South Africa: SA ships *Amatola, Protea,* submarine *Manthatisi* aircraft: Saab JAS-39 Gripen	IBSAMAR-VI off Simons Town, Atlantic Ocean	Navigation and seamanship evolutions, surface weapon firings, force protection exercises, anti-piracy exercises, AA, ASW, flying operations.
10–12 Oct 2022	INS *Tarkash*	SAS *King Sekhukhune 1*	IBSAMAR VII off Port Elizabeth (South Africa)	Strengthening maritime relations, promoting joint operational military training, combating maritime crimes,
6–18 Oct 2024	INS *Talwar*	BNS *Defensora* from Brazil and SAS *Amatola* from South Africa	IBSAMAR VIII Simon's town, South Africa	Enhancing interoperability and strengthening cohesion between the three navies. Professional exchanges, damage control & firefighting drills, visit, board, search, and seizure drills, cross-boarding, aviation safety lectures, joint diving operations, an Ocean Governance seminar, sports interactions, cross-decks visits, and interaction among Special Forces and Junior Officers.

Source: Naval History Division, Indian Navy

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JAIMEX: A biennial naval exercise, the Japan–India Maritime Exercise aims to enhance interoperability, improve understanding, and imbibe the best practices of each other's Navy. The exercise was called JIMEX, with the name being changed to JAIMEX from the 2025 edition. The exercise is also indicative of the strengthening of Indo-Japanese defence relations and of the continued efforts of both governments. The objective of the exercise is to work closely to enhance the safety and security of the global commons in keeping with a "rules-based order".

Naval cooperation between India and Japan has incrementally scaled up in scope and complexity. Post-2013, the next edition of JIMEX took place in 2018, indicating an upswing in Indo-Japanese defence relations after a brief gap.

Table 29.8: Exercises Between Indian Navy and Japanese Navy

Duration	*Indian Navy*	*Japanese Maritime Self-Defence Force*	*Location*	*Nature of Exercises*
9 Jun 2012	*IN* ships *Rana, Shakti, Shivalik, Karmuk*	JMSDF ships *Ōnami, Hatakaze*	Off Uraga Strait, Yokosuka, Japan	HADR operations, VBSS and anti-piracy drills.
19–23 Dec 2013	*IN* ships *Ranvijay, Satpura, Kuthar*	JMSDF ships *Ariake, Setogiri*	Off Chennai	VBSS, gun firing, cross-deck helo operations, ASW, SAG procedures, seamanship evolutions, anti-surface threat scenarios.
7–15 Oct 2018	*IN* ships *Satpura, Kadmatt, Shakti, Kirti,* submarine INS *Sindhushastra*	JMSDF ships *Kaga, Inazuma*	Off Visakhapatnam	ASW, VBSS, gun-firing, anti-aircraft threats, cross-deck helo operations.
26–28 Sep 2020	*IN* ships *Chennai, Tarkash, Deepak,* aircraft P-8I	JMSDF ships *Kaga, Ikazuchi*	Arabian Sea (non-contact at sea, due to COVID-19 restriction)	Weapon firing, cross-deck helo operations, surface, ASW, AAW.

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Duration	*Indian Navy*	*Japanese Maritime Self-Defence Force*	*Location*	*Nature of Exercises*
6–8 Oct 2021	*IN* ships *Kochi, Teg*, aircraft P-8I	JMSDF ships *Kaga, Murasame*	Off Kochi	Multifaceted tactical exercises involving weapons firing, cross-deck helo operations, complex surface, ASW, air warfare drills.
11–17 Sept 2022	INS *Sahyadri, Kadmatt, Kavaratti, Ranvijay*	JS *Izumo* (helicopter carrier) & JS *Takanami* (destroyer)	Bay of Bengal	Surface, sub-surface & air domain exercises, ASW, replenishment operations.
5–10 Jul 2023	INS *Delhi, Kamorta, Shakti*	JS *Samidare*	Off Visakhapatnam	Advanced joint operations in surface/ sub-surface/ air domains; emphasized interoperability and mutual learning.
14–15 Jun 2024	INS *Shivalik*	JS *Yugiri*	Off Yokosuka, Japan	Complex multi-discipline operations in surface, sub-surface & air domains.
Oct 2025	INS *Sahyadri*		Off Yokosuka, Japan	Interoperability and professional exchanges towards strengthening maritime cooperation.

Source: Naval History Division, Indian Navy

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Exercise Konkan: Naval cooperation between India and the United Kingdom (UK) is rooted in their longstanding strategic partnership. The bilateral Exercise Konkan serves as a key platform for both navies to conduct joint operations at sea and in harbour, enhancing interoperability and facilitating the exchange of best practices. Initiated in 2004, the Konkan series has steadily expanded in scope and complexity over the years. Regular engagements between the Indian Navy and the Royal Navy have strengthened cooperation and contributed to the growing operational depth of the exercise. Exercise Konkan aims to derive mutual advantages from shared experiences, reflecting the enduring maritime collaboration between the two nations. The interoperability achieved through these exercises has proven beneficial for both navies. This sustained naval partnership underscores the shared commitment of India and the UK in maintaining stability at sea, fostering strategic trust, and promoting regional and global maritime security. The exercise is conducted alternately in Indian and UK waters.

Fig 29.1: Maiden Tri-Service Exercise Konkan Shakti 2021 between Indian Armed Forces and the United Kingdom Forces



Source: Naval History Division, Indian Navy

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Table 29.9: Exercises Between Indian Navy and Royal Navy

Duration	*Indian Navy*	*(UK) Royal Navy*	*Location*
17–25 July 2009	Four *IN* ships	RN ships *Mounts Bay, Westminster, Northumberland, Fort Rosalie, NIMROD, Hawk, Falcon*	North Atlantic Ocean
26–30 Jul 2010	*Shishumar* Class Submarine	HMS *Talent*	Off Mumbai
7–10 Oct 2011	INS *Betwa*	Submarine HMS *Turbulent*	Off the west coast of India
15–18 Oct 2011	Submarine INS *Shankush*	HMS RFA *Diligence*	Off the west coast of India
19–23 Nov 2012	Konkan 2012 was conducted as a tabletop amphibious operations exercise. Three officers of the *IN* participated in the exercise.		Portsmouth, UK
14–19 Oct 2013	INS *Delhi*	HMS *Westminster*	Off the west coast of India
5–11 Sep 2015	INS *Trikand*	HMS *Iron Duke*, *Wave Ruler*	Off Plymouth, UK
2–6 May 2017	INS *Tarkash*	HMS *St Albans*, Special Forces	Plymouth and London
28 Nov–6 Dec 2018	INS *Kolkata*, INS *Shankush*, Dornier 228	HMS *Dragon*	Goa
15–16 Aug 2019	INS *Tarkash*	HMS *Defender*	Off Portsmouth, south coast of UK
2020	Not held due to COVID-19 pandemic		
16 Aug 2021	INS *Tabar*	HMS *Westminster*	English Channel, UK
Mar 2023	INS Trishul	HMS *Lancaster*	Off Mumbai
5–12 Oct 2025	INS *Vikrant*, *Kolkata*, *Imphal*, *Teg*, *Tushil* and *Deepak*	UK Carrier Strike Group (UK CSG 25), HMS *Prince of Wales*, HMS *Richmond*, RFA *Tide Spring*, HNoMS *Roald Amudsen*, JS *Akebono*	Western seaboard

Source: Naval History Division, Indian Navy

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Exercise Malabar: The exercise, which started as a bilateral exercise between the Indian Navy and the US Navy in 1992, is one of the oldest exercises with a Friendly Foreign Country. The biennial exercise was halted by the US after India's nuclear tests in 1998. However, it was resumed after the US's attention towards maritime security increased post attacks on the World Trade Centre on 11 September 2001. In 2007, several other countries joined the exercise, including Australia and Singapore, while the venue shifted from the Pacific Ocean to the Indian Ocean. It has been alternating every year thereafter. Japan participated in several drills since 2007 as an Observer and eventually became a Permanent Member in 2015. Over the last 30 years, Exercise Malabar has grown in scope and complexity, and aims to address the variety of shared threats and challenges to maritime security in the Indo Pacific.

In 2015, the Japan Maritime Self-Defense Force (JMSDF) participated in the exercise, and has been participating ever since, officially making Exercise Malabar a trilateral maritime exercise. The year 2020 marked the first time when the exercise was conducted in two phases, which was followed in 2021. It was also the second occasion where all the Quad member countries (Australia, Japan, India, and US) exercised jointly after 2007. Australia rejoined the exercises in 2020 and participated in the 2021 edition onwards.

Exercise Malabar endeavours to further strengthen India–Japan–Australia–US naval cooperation and enhance interoperability, based on shared values and principles for the betterment of the global maritime community.

Table 29.10: Exercise Malabar

Duration	*Indian Navy*	*USN, JMSDF, Australian Navy*	*Location*	*Nature of Exercise*
5–10 Oct 2003	INS *Brahmaputra, Ganga, Shalki, Shakti*, Tu-142, Dornier aircraft, shipborne helicopters	USS *Chosin* (Cruiser), USS *Fitzgerald* (Destroyer), USS *Pasadena* (Submarine), P-3C Orion	Off Kochi	Annual Indo-US naval exercise focusing on ASW, surface warfare, and interoperability; included sporting interaction (MALABAR Cup).

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Duration	*Indian Navy*	*USN, JMSDF, Australian Navy*	*Location*	*Nature of Exercise*
1–10 Oct 2004	INS *Mysore, Brahmaputra, Shankul* (SSK Submarine), INS *Aditya*, TU-142M, Dornier (MPA), Sea Harrier Fighters, Integral Helicopters	USS *Cowpens* (Cruiser), USS *Gary* (Frigate), USS *Alexandria* (Submarine), P-3C Orion (MPA)	Off Goa, Arabian Sea	Advanced ASW, fleet air defence, sea control, MIO, and VBSS operations; establishment of standard operating procedures (SOPs) for interoperability.
25 Sep–4 Oct 2005	INS *Viraat* (Aircraft Carrier), Sea Harrier fighters, Indian naval units	USS *Nimitz* (Carrier), FA-18 aircraft, US Navy Task Force	Western seaboard, Arabian Sea	First joint carrier operations between India and the US; included air defence, ASW, aviation interoperability, and sea control exercises.
6–11 Apr 2007	INS *Mysore, Rana, Ranjit, Jyoti, Kuthar*	US Navy – 6 destroyers, 1 nuclear submarine, P3C Orion aircraft	Off Okinawa, Japan	Bilateral Indo-US exercise, advanced interoperability training.
17–24 Oct 2008	8 *IN* ships (1 *Shishumar*-class submarine, aircraft with Sea Harriers)	7 US Navy ships including USS *Ronald Reagan*, USS *Springfield*, and P3C Orion	Off Goa	Bilateral Indo-US naval exercise; air, sub-surface and carrier ops.
26 Apr–3 May 2009	A total of nine ships, 11 aircraft, one SSN and over 4,000 personnel from *IN*	JMSDF ships *Kurama* and *Asayuki*; US Ships *Blue Ridge, Fitzgerald* and *Chafee*	Off Sasebo, Japan and East of Okinawa	

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Duration	*Indian Navy*	*USN, JMSDF, Australian Navy*	*Location*	*Nature of Exercise*
23 Apr–2 May 2010	INS *Mysore*, *Tabar*, *Brahmaputra*, *Godavari* along with submarine *Shishumar*	US Navy units *Shiloh*, *Chaffee*, *Curts*, *Lassen*, nuclear powered submarine *Annapolis*	Off Goa	
Apr 2011	*IN* ships *Delhi*, *Ranvir*, *Ranvijay*, *Jyoti*	US Ships *Sterett*, *Stethem*, *Preble*, *Ronald Reagan*, *Chancellorsville*, *Blue Ridge*, *Carl Brashear*, Submarine USS *Santa Fe*	Off Okinawa, Western Pacific Ocean	Communication exercises, SAG operations, formation manoeuvring, helo cross-deck evolutions, UNREP, HADR, gunnery exercises, VBSS, maritime strike, air defence, ASW, screen exercises.
7–16 Apr 2012	INS *Satpura*, *Ranvijay*, *Ranvir*, *Kulish*, *Shakti*, Aircraft TU-142M	Carrier Task Force (CTF) 70, 7th Fleet—US Ships *Carl Vinson*, *Bunkerhill*, *Halsey*, USNS *Bridge*, Submarine *Louisville*, Aircraft P-3C Orion	Bay of Bengal	Communication exercises, SAG operations, helo cross-deck evolutions, gunnery exercises.
5–11 Nov 2013	INS *Ranvijay*, *Shivalik*, Aircraft TU-142M	USS *McCampbell*, Aircraft P-3C Orion	Off the east coast of India	Communication exercises, SAG operations, leapfrogs, helo cross-deck evolutions, gunnery exercises, VBSS and ASW.

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Duration	*Indian Navy*	*USN, JMSDF, Australian Navy*	*Location*	*Nature of Exercise*
23–26 Jul 2014	INS *Shivalik, Ranvijay, Shakti*	US Ships *George Washington, John S McCain, Shiloh, and 1 tanker*, 1 nuclear submarine, aircraft *P-3C Orion*, *JMSDF* Ships *Kurama, Ashigara*	Off the coast of Japan	Carrier Battle Group operations, maritime patrol & reconnaissance, anti-piracy, VBSS, SAR, UNREP, gunnery & ASW exercises, officer exchange & embarkation.
12–17 Oct 2015	INS *Shivalik, Shakti, Betwa, Ranvijay;* Submarine INS *Sindhudhwaj;* Aircraft P-8I	US Ships *Theodore Roosevelt, Normandy, Fort Worth;* Submarine *City of Corpus Christi;* Aircraft P-8A; JMSDF JS Fuyuzuki	Bay of Bengal (off Chennai)	Maritime patrol & reconnaissance, surface & ASW, AD exercises, VBSS; officially upgraded to trilateral exercise.
10–14 Jun 2016	INS *Satpura, Sahyadri, Shakti, Kirch*	US Ships *John C Stennis, Mobile Bay, Stockdale, William P Lawrence;* JMSDF *Hyuga*	Western Pacific, off Japan	Increased interoperability among three navies; developed common understanding for maritime security operations.
9–17 Jul 2017	INS *Vikramaditya, Ranvir, Shivalik, Sahyadri, Kamorta, Kora, Kirpan, Jyoti;* Submarine *Sindhudvaj;* Aircraft P-8I	US Ships *Nimitz (CVN68), Princeton, Kidd, Howard, Shoup;* Submarine USS *Jacksonville;* Aircraft P-8A*;* JMSDF Ships *Izumo, Sazanami*	At/off Chennai (Bay of Bengal)	Aircraft carrier operations, AD, ASW, surface warfare, VBSS, SAR, joint & tactical procedures.

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Duration	*Indian Navy*	*USN, JMSDF, Australian Navy*	*Location*	*Nature of Exercise*
7–15 Jun 2018	INS *Sahyadri, Kamorta, Shakti;* Aircraft P-8I	US Ships *Ronald Reagan, Antietam, Chancellorsville, Benfold, Mustin;* JMSDF Ships *Ise, Suzunami, Fuyuzuki;* JMSDF Submarine 1; Aircraft P-1, P-8A	Guam operation area	Aircraft carrier operations, AD, ASW, surface operations, VBSS, manoeuvres.
26 Sep–4 Oct 2019	INS *Sahyadri, Kiltan;* Aircraft P-8I; MARCOS teams	US Ships *McCampbell, Pecos, Oklahoma;* JMSDF Ships *Samidare, Choukai, Kaga;* Aircraft P-1; Aircraft P-8A	Off Sasebo, Japan	Maritime surface, sub-surface & air operations; ASW, AA & anti-surface firings, maritime interdiction operations including VBSS.
Phase I: 3–6 Nov 2020	INS *Ranvijay, Shivalik, Sukanya, Shakti;* Submarine *INS Sindhuraj;* Aircraft P-8I, Hawks, Dornier	USS *John S McCain;* JMSDF *JS Onami;* HMAS *Ballarat*	Hosted by India (non-contact at sea only)	Surface, ASW, AAW, cross-deck flying, seamanship evolutions, weapons firing.
Phase II: 17–20 Nov 2020	INS *Vikramaditya, Kolkata, Chennai, Talwar, Deepak;* Submarine INS *Khanderi;* Aircraft P-8I, Mig-29K, IL-38	US Ships *Nimitz, Princeton, Sterett;* JMSDF *JS Murasame;* HMAS *Ballarat;* Aircraft P-8A, F/A-18, E2C Hawkeye, MH-60R, SH-60	Off Goa	Surface, air & subsurface warfare; complex multi-domain tactical operations.

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Duration	*Indian Navy*	*USN, JMSDF, Australian Navy*	*Location*	*Nature of Exercise*
Phase I: 26–29 Aug 2021	INS *Shivalik, Kadmatt;* Aircraft P-8I	US Ships *Barry, Rappahannock, Big Horn;* JMSDF *Ships Kaga, Murasame, Shiranui;* HMAS *Warramunga;* Submarine *SSN 1*; Aircraft P-8A, C-17, P-81	Off Guam, Sea of the Philippines	Combined maritime ops, ASW, air warfare, live-gunnery, replenishment at sea, cross-deck flight operations, maritime interdictions.
Phase II: 12–15 Oct 2021	INS *Ranvijay, Satpura;* IN Submarine 1; Aircraft P-8I	US Ships *Carl Vinson, Lake Champlain, Stockdale;* JMSDF Ships *Kaga, Murasame;* HMAS *Sirius, Ballarat*	Bay of Bengal	Advanced surface & ASW exercises, seamanship evolutions & weapons firing.
8–15 Nov 2022	INS *Shivalik, Kamorta*, P-8I Maritime Patrol Aircraft	JMSDF JS *Hyuga*, JS *Takanami*, JS *Shiranui*, P-1 Aircraft USA (USN): USS *Barry*, USS *Ronald Reagan*, USS *Chancellorsville*, USS *Benfold*, P-8A Aircraft; Australia (RAN): HMAS *Arunta*, HMAS *Stalwart*, P-8A Aircraft	Off Yokosuka, Japan	Advanced maritime operations, interoperability, and joint tactical manoeuvres.
9–18 Oct 2024	INS *Delhi, Tabar, Kamorta, Kadmatt, Shakti, Shalki*, P8I Hawks	USS *Dewey* HMS	Off Visakhapat-nam	Live weapon firings, complex surface, anti-air and anti-submarine warfare drills and joint manoeuvres.

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Duration	*Indian Navy*	*USN, JMSDF, Australian Navy*	*Location*	*Nature of Exercise*
12–18 Nov 2025	INS *Sahyadri*	USS *Fitzgerald* HMAS *Ballarat*, P8 JS *Hyuga*, P1	Off Guam	Live weapon firing, ASW exercises, SAG vs SAG.

Source: Naval History Division, Indian Navy

Exercise Milan: A biennial exercise started in 1995 at the Andaman & Nicobar Islands, involving the IOR littoral navies. Standing as the banner of India's Look East Policy, over the years it also congregated with India's Act East Policy and SAGAR initiative, which brought in the western Indian Ocean islands and other IOR littorals. The exercise is focused on enhancing interoperability between navies of the region and exchanging best practices. Over the years, this flagship exercise in the Andaman Sea has grown from a simple tactical exercise to one much more complex, involving weapons firing, SAR operations, air defence exercises, boarding operations and medical evacuation drills. It also provides a platform for the senior Naval officers and diplomats of the littorals to interact and exchange best practices. The initiative, which started as a face of India's commitment to security in the region, now bears testimony to the success of this multilateral event and encompasses participation by maritime forces from not only the Bay of Bengal and South East Asia, but also the larger IOR.

Table 29.11: Exercise Milan

Year	*Location*	*Nations Participated*	*Nature of Exercise*
1995	Port Blair, Andaman & Nicobar Islands (Andaman & Nicobar Command)	India, Indonesia, Singapore, Sri Lanka, Thailand	Inaugural session; focused on interoperability, maritime safety, and regional friendship.
1997	Port Blair, Andaman & Nicobar Islands	Bangladesh, India, Indonesia, Malaysia, Singapore, Sri Lanka, Thailand	Expanded participation from IOR littorals; focused on operational coordination, search and rescue (SAR), and maritime security cooperation.

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Year	*Location*	*Nations Participated*	*Nature of Exercise*
1999	Port Blair, Andaman & Nicobar Islands	Bangladesh, India, Indonesia, Malaysia, Singapore, Sri Lanka, Thailand	Focused on enhancing interoperability, sharing best practices, and strengthening regional naval cooperation. Milan became a biennial multilateral naval engagement.
2001	—	—	Skipped due to International Fleet Review.
2005	—	—	Postponed due to the 2004 Indian Ocean tsunami.
2006	Port Blair, Andaman & Nicobar Islands	Australia, Bangladesh, Brunei, India, Indonesia, Malaysia, Myanmar, New Zealand, Philippines, Singapore, Sri Lanka, Thailand, Vietnam	Included seminars, professional exchanges, cultural events, and coordinated naval exercises to enhance regional maritime cooperation and interoperability. Largest congregation of navies up to that point—8 ships, 20 officers, 802 sailors, and 21 civilians.
2008	Port Blair, Andaman & Nicobar Islands	13 countries (same as 2006 edition)	Featured professional interactions, SAR, maritime interdiction, and Humanitarian Assistance and Disaster Relief (HADR) operations.
2010	Port Blair, Andaman & Nicobar Islands	12 countries; 8 sent warships	INS *Kesari*, the largest Landing Ship Tank of the Indian Navy, served as the flagship. Focus on maritime safety, SAR, and HADR.
2012	Port Blair, Andaman & Nicobar Islands	14 countries, including previous participants and Seychelles	Focus on maritime security, interoperability, search and rescue, and HADR.
2014	Port Blair, Andaman & Nicobar Islands	17 countries, including Seychelles and IOR nations beyond Southeast Asia	Expanded participation beyond Southeast Asia; continued focus on regional cooperation and multilateral coordination.
2016	—	—	Skipped due to International Fleet Review.

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Year	*Location*	*Nations Participated*	*Nature of Exercise*
2018	Port Blair, Andaman & Nicobar Islands	16 countries	Theme: "Friendship Across the Seas"; emphasized maritime cooperation, capacity building, and interoperability.
2020	Proposed at Visakhapatnam (under Eastern Naval Command)	—	Cancelled due to the COVID-19 pandemic.
2022	Visakhapatnam (under Eastern Naval Command)	13 countries sent warships, 21 aircraft, and 1 submarine participated	First Visakhapatnam edition; Theme: "Camaraderie–Cohesion–Collaboration." Included a sea phase with multilateral participation.
2024	Visakhapatnam (under Eastern Naval Command)	Around 15 foreign warships and nearly 20 Indian Navy ships, including aircraft carriers INS *Vikrant* and INS *Vikramaditya*	Largest edition conducted so far; included multiple aircraft carriers, ASW drills, air defence, and advanced tactical manoeuvre.

Source: Naval History Division, Indian Navy

Naseem Al-Bahr: The first-of-its-kind exercise with the Royal Navy of Oman (RNO) started in 1993. Initially named Thammar-Al Tayyib, meaning "best dates", the name was later changed to Naseem Al-Bahr, meaning "fresh breeze". These exercises were held in 1995 and 1998, and then took a biennial format since 2003. Exercise Naseem-Al-Bahr is aimed at deriving mutual benefit from each other's experiences and sharing best practices. The signing of an MoU on defence cooperation in December 2005 and subsequent establishment of the Joint Military Cooperation in March 2006 set the foundation for increased defence cooperation.

Table 29.12: Exercise Between India and Oman

Duration	*Indian Navy*	*Royal Navy of Oman*	*Location*	*Nature of Exercises*
24–26 Apr 2003	*IN* ships	RNO ships	Western seaboard (Arabian Sea)	Bilateral naval cooperation exercise, focusing on interoperability and maritime security.

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Duration	*Indian Navy*	*Royal Navy of Oman*	*Location*	*Nature of Exercises*
21–22 Feb 2005	*IN* ships	RNO ships	Gulf of Oman	Joint bilateral exercise focusing on operational coordination and maritime cooperation.
26 Dec 2011–2 Jan 2012	*IN* ships *Beas, Subhadra*	RNOV *Al-Mua'zzar, Najah*	Off the coast of Mumbai	—
23–26 Sep 2013	*IN* ships *Mysore, Tarkash, Tabar, Aditya*	RONV *Al-Mua'zzar, Al-Mussandam, Al-Najah, Temsah*	Off the coast of Oman	Surface warfare, VBSS, AA warfare, Maritime Interdiction Operations (MIO) & advanced helo operations.
22–27 Jan 2016	*IN* ships *Trishul, Trikhand*, Fast Attack Craft, Aircraft P-8I	RNOV [Ships] *Al-Shamikh, Al-Seeb*	Off the coast of Goa	Navigation & seamanship evolutions, surface firing, force protection, anti-piracy, flying operations.
16–21 Dec 2017	*IN* ships *Teg, Trikand;* Submarine *INS Shankush;* Aircraft P-8I	RNOV *Al-Rasikh, Khassab, Al-Mubshir, Al-Bushra*	Off the coast of Muscat (Wudam)	—
Jan 2020	*IN* ships *Beas, Subhadra*	RNOV *Al-Rasikh, Khassab*	Off the coast of Goa	—
19–25 Nov 2022	INS *Trikand, INS Sumitra*	RNO *Al Shamikh, Sadh, Al Seeb*	Off Muscat	—
13–15 Oct 2024	INS *Trikand* and Dornier Maritime Patrol Aircraft	RNOV *Al Seeb*	Off Goa	Crossdeck landings, VBSS.

Source: Naval History Division, Indian Navy

RIMPAC: Hosted by the US Navy, RIMPAC is the world's largest multilateral naval exercise held at the Pacific Rim. The exercise commenced in 1971 but the Indian Navy's association with RIMPAC commenced with participation

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as an Observer in 2006, 2010, and 2012. RIMPAC provides a platform for multilateral operational interaction aimed at increasing interoperability and developing a common understanding of procedures for maintenance of security operations. Participation in the exercise is also a demonstration of India's commitment to security and prosperity in the Indo-Pacific region. Since 2014, the *IN* continues to be a regular RIMPAC participant.

Table 29.13: Exercise RIMPAC

Duration	*Indian Navy*	*Other Participating Navies*	*Remarks*
2012	—	—	Observer status of India.
27 Jun–1 Aug 2014	INS *Sahyadri*	More than 40 ships and submarines	Conducted off the coast of Hawaii; 22 nations participated. For the first time, an Indian warship was in USA's waters for an exercise.
30 Jun–4 Aug 2016	INS *Satpura*	27 navies	Conducted off the coast of Hawaii.
26 Jun–4 Aug 2018	INS *Sahyadri*, Aircraft P-8I	26 navies	Conducted at Hawaii, and in Kakadu at Darwin.
Jun 29–4 Aug 2022	INS *Satpura* (frigate) + one P-8I MPA	26+ countries including US Navy-led force	Exercise aimed at interoperability and trust-building.
Jun–Aug 2024	INS *Shivalik* (stealth frigate)	29 countries, ~40 ships, 150+ aircraft	Participation shows deepening *IN* global reach.

Source: Naval History Division, Indian Navy

SIMBEX: The Indian Navy's cooperation with Singapore began with goodwill visits and regular PASSEX. Eventually, the Singapore–India Maritime Bilateral Exercise (SIMBEX) became the cornerstone of India–Singapore naval relations. Initiated in 1994, SIMBEX is the *IN*'s longest uninterrupted bilateral maritime exercise with any foreign navy. The scale and complexity of the drills are ample testimony to the interoperability achieved between the two navies. The exercise was initially called "Lion King", which was later changed to "Maitri" and formalized as a bilateral exercise in 1999. Since then, SIMBEX has transformed into one of the *IN*'s most high-level maritime exercises. SIMBEX has grown in tactical and operational complexity. It has transcended the traditional emphasis on Anti-Submarine Warfare (ASW) to more complex maritime exercises, such as AD, air and surface practice firing, maritime security, and SAR operations.

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Table 29.14: Exercises Between Indian Navy and Singapore Navy

Duration	*Indian Navy*	*Republic of Singapore Navy*	*Location*	*Nature of Exercises*
21 Mar–1 Apr 2012	*IN* ships *Shivalik*, *Ranvijay, Jyoti, Kora,* aircraft Fokker 50	RS ships *Stalwart, Victory*	Bay of Bengal & Andaman Sea	Surface engagements, VBSS, tactical exercises, anti-submarine exercises.
16–23 May 2013	*IN* ships *Satpura, Kirch*	RS ships *Steadfast, Valiant,* submarine RSS *Conqueror,* aircraft Fokker 50	South China Sea	Surface engagements, VBSS, tactical exercises, anti-submarine exercises.
22–28 May 2014	*IN* ships *Kuthar, Karmuk*	RS ships *Valour, Independence*	Andaman Sea	AD, air and surface practice firings, maritime security and SAR.
18–26 May 2015	*IN* ships *Satpura, Kamorta*	RSS *Supreme, Archer*-class submarine RSS *Archer,* aircraft Fokker 50	South China Sea	AD, air and surface practice firings, maritime security and SAR.
31 Oct–5 Nov 2016	*IN* ships *Ranvijay, Kamorta,* submarine INS *Sindhudhvaj*	RSS *Formidable*	Bay of Bengal	AD, ASW exercises, gun live firing.
12–24 May 2017	*IN* ships *Shivalik, Sahyadri, Kamorta, Jyoti*	RSN *ships Formidable, Supreme, Victory*	Singapore, South China Sea	AD exercise, gun live firing, and tactical exercises.
10–21 Nov 2018	*IN* ships *Ranvijay, Satpura, Sahyadri, Kadmatt, Kirch, Sumedha, Sukanya, Shakti,* submarine INS *Sindhukirti,* aircraft P-8I, Dornier 228	RSN ships *Steadfast, Formidable, Unity, Valiant, Vigour, MV Swift Rescue (SSRV)* Submarine *Swordsman,* aircraft Fokker 50 UAV Scan Eagle	The silver-jubilee edition of the annual SIMBEX was held in the Andaman Sea and Bay of Bengal	Live weapon drills, torpedo firings, AS rocket firings, ASW, submarine rescue, AAW, UAV operations, cross-deck helo operations. Dr Ng Eng Hen, Defence Minister of the Republic of Singapore, observed the exercise between the two navies at sea.

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Duration	*Indian Navy*	*Republic of Singapore Navy*	*Location*	*Nature of Exercises*
16–22 May 2019	*IN* ships *Kolkata, Shakti,* aircraft P-8I	RS ships *Steadfast, Valiant,* aircraft Fokker 50	South China Sea	Maritime combat exercises, gun firing, aerial tracking, coordinated targeting exercises.
23–24 Nov 2020	*IN* ships *Rana, Karmuk, Kamorta,* submarine INS *Sindhuraj,* aircraft P-8I	RS ships *Intrepid, Steadfast, Endeavour*	Conducted in a non-contact format in the Andaman Sea due to COVID restrictions	War-at-sea exercise, naval manoeuvres, weapon firing, seamanship evolutions and coordinated navigation operations.
2–4 Sep 2021	*IN* ships *Ranvijay, Kiltan, Kora,* aircraft P-8I	RS ships *Steadfast, Vigour,* submarine: 1, aircraft Fokker 50	South China Sea	Live weapons firing, advanced naval warfare serials.
28–30 Oct 2022	—	RSS *Stalwart* (a Formidable class frigate) and RSS *Vigilance* (a Victory class corvette)	Off Visakhapatnam	
25–28 Sep 2023	*IN* ships *Ranvijay* (guided-missile Destroyer), *Kavaratti* (ASW Corvette), submarine *Sindhukesari* and a long range Maritime Patrol Aircraft P8I	RSS *Stalwart, Valour, Tenacious*, a submarine, Maritime Patrol Aircraft Fokker F-50 and fighter aircraft	Singapore	Signing of a Joint Standard Operating Procedure on submarine rescue between India and Singapore.
23–29 Oct 2024	INS *Shivalik*	Singapore Navy Ship RSS *Tenacious*	Eastern Naval Command at Visakhapatnam	Naval drills, including live weapon firings, anti-submarine warfare (ASW) training, anti-surface and anti-air operations, seamanship evolutions, and tactical manoeuvres.

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Duration	*Indian Navy*	*Republic of Singapore Navy*	*Location*	*Nature of Exercises*
30 Jul–1 Aug 2025	INS *Satpura*	RSS *Supreme*, RSS *Vigilant* Fokker 50 MPA F15 SG Fighters	Off Singapore	Live weapon firing, anti-air exercises, VBSS, etc.

Source: Table 29.14: A Decade of Transformation, PIB, MoD annual reports.

SLINEX: The Sri Lanka–India Exercise (SLINEX), conducted for the first time in 2005, is a testimony to India's long and enduring maritime closeness with the neighbouring country. Conducted every alternate year, SLINEX was stopped between 2006 and 2010 due to the civil war situation and restarted in September 2011. The benefits of operational interactions under the aegis of SLINEX are clearly visible, as both the navies today have an improved and steadfast understanding. SLINEX has also enhanced the capability of the two navies to work together at sea and contribute towards maritime security in the region. It aims to promote mutual understanding and provide exposure to the operating procedures and best practices of both navies and resonates with India's policy of "Neighbourhood First" and SAGAR.

Table 29.15: Exercises Between Indian Navy and Sri Lankan Navy

Duration	*Indian Navy*	*Sri Lankan Navy*	*Location*	*Nature of Exercise*
20–23 Sep 2011	*IN* ships *Shivalik, Ranvijay, Gharial, Khanjar, Cora Divh, Cheriam,* aircraft Dornier 228	SLN ships *Sagara, Samudura, Nandimitra, Ranajaya, Prathapa*. The X FAC Sqn also participated	Off the coast of Trincomalee	Asymmetric warfare exercises, manoeuvres, seamanship evolutions, AA, VBSS, rocket firing.
4–7 Nov 2013	INS *Talwar*	SLNS *Sagara*	Off the coast of Goa	RAS, VBSS, surface firing, asymmetric threat operation.
27 Oct–1 Nov 2015	*IN* ships *Kora Savitri, Kirpan*	SLN ships *Sayura, Samudura, Sagara*. FACs and gun boats also participated.	Off the coast of Trincomalee	Anti-piracy exercise, anti-surface operation, cross-deck helo operations.
7–14 Sep 2017	*IN* ships *Gharial, Kora*	SLN ships *Sayura, Sagara*	Off the coast of Visakhapatnam	Anti-piracy exercises, cross-deck helo operations, gun firing drills and anti-surface exercises.

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(*Continued*)

Duration	*Indian Navy*	*Sri Lankan Navy*	*Location*	*Nature of Exercise*
7–13 Sep 2018	*IN* ships *Kirch, Sumitra, Coradivh*	SLN ships *Sayurala, Samudura, Suranimala*	Off the coast of Trincomalee	Gun firings, communication procedures, helo ops, seamanship, navigation evolutions.
7–12 Sep 2019	*IN* ships *Sumedha, Khukri*	SLN ships *Sindurala, Suranimala*	Off the coast of Visakhapatnam	Coordinated maritime operations, gun firing, VBSS, underway replenishment.
19–21 Oct 2020	*IN* ships *Kamorta, Kiltan,* aircraft Dornier 228	SLN ships *Sayura, Gajabahu*	Off the coast of Trincomalee	Surface, anti-air, seamanship evolutions, manoeuvres, cross-deck flying operations.
7–10 Mar 2022	*IN* ships *Jyoti, Kirch,* aircraft Dornier 228 (Helos) ALH-MK II, Seaking, Chetak	SLNS *Sayurala*	Off the coast of Visakhapatnam	Surface and AA weapon firing exercises, seamanship evolutions.
3–8 Apr 2023	INS *Kiltan* (Kamorta class ASW corvette), INS *Savitri* (OPV)	SLNS *Gajabahu* & SLNS *Sagara* (Sri Lanka)	Off Colombo	
17–20 Dec 2024	INS *Sumitra* (NOPV)	SLNS *Sayura* (OPV)	Off Visakhapatnam	
14–18 Aug 2025	INS *Rana* (Guided Missile Destroyer), INS *Jyoti* (Fleet Tanker)	SLNS *Sayura* & SLNS *Vijayabahu* (AOPV)	Off Colombo	

Naval History Division, Indian Navy

Exercise Varuna: Bilateral naval exercises between the navies of India and France were initiated in 1993. Varuna become a vital part of the India–France strategic bilateral relationship. Having grown in scope and complexity over the years, the Varuna series of exercises continues to provide both navies with opportunities to learn from each other's best practices. The exercise has been a principal driver for operational-level interactions between the two navies and underscored the shared commitment of both nations to security, safety, and freedom of the global maritime commons.

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Fig 29.2: From Varuna 2025, Bilateral Naval Exercises between the Navies of India and France



Source: Naval History Division, Indian Navy

Table 29.16: Exercises Between Indian Navy and French Navy

Duration	*Indian Navy*	*French Navy*	*Nature of Exercises*	*Location*
25–30 Aug 2003	INS *Ganga*, *Dunagiri*, *Shankul*	FNS *Marne* (Tanker), FNS *Dupleix* (Destroyer), Atlantique Mk II aircraft (operating from Goa)	Fourth in Indo–French Varuna series; focused on anti-submarine warfare and replenishment operations	Off Mumbai and Goa
6–15 Apr 2004	6 Indian Navy ships, 1 submarine, 5 aircraft	French Task Force: *Charles de Gaulle* (Aircraft Carrier), SSN (Nuclear Submarine), 6 ships total, 7 aircraft; included 1 Royal Navy ship	Largest Indo–French exercise till date; focused on Carrier Battle Group operations, Air Defence, and Maritime Power Projection	Off Goa, western seaboard

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Duration	*Indian Navy*	*French Navy*	*Nature of Exercises*	*Location*
28 Feb–7 Mar 2005 and Nov 2005	Indian Navy ships and aircraft (unspecified)	French Navy	Conducted in two phases; focus on ASW, Maritime Interdiction, and advanced tactical manoeuvres	Off Kochi and Red Sea
15–17 Sep 2007	INS *Beas*, *Rajput*, *Jyoti*, 16 MARCOS (Marine Commandos)	FNS *La Motte Picquet* (Frigate), FNS *Commandant Blaison* (Corvette), Atlantique, 2 PUMA Helicopters, 6 Mirage aircraft, 15 French Commandos	First Indo–French Horn of Africa Patrol; focused on anti-piracy and maritime security cooperation	Gulf of Aden
May 2008	3 Indian Navy ships (unspecified)	FNS *Dupleix*	Regular annual Indo–French bilateral exercise emphasizing maritime interoperability and coordination	Eastern seaboard (Bay of Bengal)
11–13 Jan 2011	INS *Viraat, Godavari, Ganga,* submarine INS *Shalki*	FN ships *Charles De Gaulle, Jean Bart, Forbin, Tourville, Meuse*	AA tracking, ASW, maritime interdiction operations, VBSS	Western seaboard, off the coast of Goa
19–22 Jul 2012	INS *Mumbai, Trishul, Gomati, Aditya,* helos Seaking & Chetak	FN ships *Surcouf, Commandant Birot, Meuse, Montcalm*	Included various gun engagement, air-defence serials, ASW, UNREP, evolutions at sea	In Mediterranean Sea, off Toulon
2013	Not conducted	—	—	—
2014	Not conducted	—	—	—
28 Apr–2 May 2015	INS *Viraat, Mumbai, Tarkash, Gomati, Deepak,* submarine INS *Shankul*	FN ships *Charles de Gaulle, Chevalier Paul, Jean De Vienne, Meuse*	Cross-deck flying operations, surface operations, AD, gunnery firing exercises, Air-to-Surface firing, manoeuvres, aircraft carrier operations, ASW exercises, maritime interdiction operations, multi-ship RAS	In Arabian Sea, off the coast of Goa

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Duration	*Indian Navy*	*French Navy*	*Nature of Exercises*	*Location*
27–29 Apr 2017	INS *Mumbai*, *Trishul*, *Aditya*	FN ships *Cassard, Auvergne, Aquitaine, Jean Bart*	Manoeuvres, RAS, passage exercises, electronic warfare exercises, VBSS, surface exercises, exchange of sea riders, INTEXEX	Off Toulon
18–24 Mar 2018	INS *Mumbai, Trikand,* submarine INS *Kalvari,* aircraft P-8I, Dornier 228	FNS *Jean de Vienne,* submarine SSN *Perle*	Anti-submarine exercises with SSN, maritime reconnaissance, gun firing, VBSS/MIO, and manoeuvres	Arabian Sea, Bay of Bengal
2–3 May 2018	*INS Mumbai, Trikand,* aircraft *P-8I*	FNS *Nivôse*	Cross-deck flying operations, medium-range gun firing	With France off Réunion, Sea Phase II
8–10 May 2019	INS *Vikramaditya, Mumbai, Tarkash, Deepak, Chennai,* submarine INS *Sindhudhvaj*	FN ships *Charles De Gaulle, Forbin, Provence, Latouche Tréville, Marne,* submarine SSN *Améthyste*	Air-to-air combat, AD exercises, ASW exercises and surface shoots	Off Goa
May 2020	Submarine INS *Kalvari,* aircraft P-8I	Submarine SSN *Émeraude*	Full-scale Exercise Varuna was not held due to COVID-19 restrictions. Non-contact passage exercise was conducted between the two navies	An advanced ASW exercise was held on 19–21 October 2020 in the Arabian Sea
25–27 Apr 2021	INS *Kolkata, Tarkash, Talwar, Deepak,* submarine INS *Kalvari,* aircraft P-8I	FN ships *Charles de Gaulle, Chevalier Paul, Provence*	AD, ASW, surface and AA weapon firing, UNREP evolutions	Arabian Sea
30 Mar–3 Apr 2022	INS *Chennai*, P-8I maritime patrol aircraft	FS *Courbet*, support vessel FS *Loire*	Focus on advanced anti-submarine warfare (ASW), gunnery shoots, cross-deck helicopter ops, underway replenishment	Arabian Sea (off Goa)

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Duration	*Indian Navy*	*French Navy*	*Nature of Exercises*	*Location*
16–20 Jan 2023 (Phase I) & later phase off western seaboard	Guided missile frigates, tanker, MPA & integral helicopters	French Navy units	Joint operations, underway replenishment, tactical manoeuvres to enhance war-fighting skills & interoperability	Off western seaboard, India
2–4 Sep 2024	INS *Tabar*, P-8I LRMR aircraft	French frigate FS *Provence*, submarine *Suffren*, Atlantique2 aircraft, NH90 & Dauphin helicopters	Included FLYEX (air-naval integration), advanced ASW drills, live weapon firings and multi-domain manoeuvres	Mediterranean Sea (off Toulon, France)
19–22 Mar 2025	INS *Vikrant* (aircraft carrier), Mig-29K fighters, surface & sub-surface assets	French CSG including CK de Gaulle, Rafale-M fighters, multi-domain assets	Large scale carrier operations, mock air-to-air combat (Rafale-M vs Mig-29K), sub-surface & surface warfare operations across domains with high tactical complexity	Arabian Sea (off Kochi)

Source: Naval History Division, Indian Navy

Exercise Komodo: A multilateral HADR exercise, Exercise Komodo was conducted for the first time by the Indonesian Navy in 2014 at Batam, Indonesia. The Indian Navy's relation with the Indonesian Navy began with goodwill visits in the 1990s. India and Indonesia also share a close defence relationship, especially after the agreement signed between the governments of both nations on "Cooperative Activities in the Field of Defence" in 2001. Both India and Indonesia have mutual interest in promoting peace and prosperity in the Indian Ocean and Exercise Komodo is a natural progression of the navy-to-navy relationship and shared maritime security interests.

Table 29.17: Exercises Between Indian Navy and Indonesian Navy

Duration	*Indian Navy*	*Location*	*Nature of Exercises*
28 Mar–3 Apr 2014	INS *Sukanya*	Batam	The exercise included Land and Ship Medical Evacuation Exercise (MEDEVAC) and Engineering Civic Action Programme (ENCAP) during the Civic Mission Phase; 22 navies participated.

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Duration	*Indian Navy*	*Location*	*Nature of Exercises*
11–16 Apr 2016	INS *Sumedha,* aircraft P-8I	Padang	The P-8I aircraft participated in the exercise for the first time and operated from Padang. INS *Sumedha* participated in Indonesian International Fleet Review.
4–9 May 2018	INS *Rana*, INS *Sumedha*, aircraft P-8I	Lombok, Indonesia	The Indian contingent joined the International Fleet Review, HADR simulations, and planning workshops aimed at improving disaster relief response and multinational maritime cooperation.
5–8 Jun 2023	INS *Kiltan*	Makassar, South Sulawesi, Indonesia	The exercise featured table-top and field HADR simulations, International Fleet Review (IFR), and maritime interdiction operations.
16-22 Feb 2025	INS *Shardul*	At/ off Bali	Ex Komodo and Indonesian IFR.

Source: Naval History Division, Indian Navy

India–ASEAN Maritime Exercise: AIME is a multilateral naval drill designed to promote cooperation, enhance interoperability, and strengthen maritime security between India and the member states of the Association of Southeast Asian Nations (ASEAN). The exercise was developed within the framework of the ASEAN Defence Ministers' Meeting (ADMM) Plus, a platform for dialogue and cooperation. ASEAN is at the core of India's Indo-Pacific Policy, as Prime Minister Narendra Modi stated in his speech at the Shangri La Dialogue in Singapore in 2018. AIME reinforces this belief and India's commitment to "Act East" in its endeavour to ensure "Security and Growth for all in the Region" (SAGAR).[6]

Table 29.18: India–ASEAN Maritime Exercises

Year	*Exercise*	*Participants*	*Location*	*Features*
2018	India–ASEAN Maritime Exercise	Navies from India and all ASEAN nations	Port Blair, Andaman & Nicobar Islands	Table-top exercise focusing on coordination, information sharing, and maritime domain awareness.

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Year	*Exercise*	*Participants*	*Location*	*Features*
2019	AIME–19	Navies from India and all ASEAN nations	Harbour Phase – Changi Naval Base, Singapore; Sea Phase – South China Sea	Joint tactical drills, search & rescue, helicopter operations, and maritime security cooperation. First-ever India–ASEAN joint naval exercise.
2021	AIME–21	Navies from India and all ASEAN nations	Virtual	Table-top exercise focusing on HADR, SAR operations, and information exchange. Conducted virtually due to COVID-19.
2022	AIME–22	Navies from India and all ASEAN nations	Visakhapatnam, Eastern Naval Command	Enhancing interoperability, coordinated patrols, communication drills, and maritime domain awareness.
2023	AIME–23	Navies from India and all ASEAN nations	Harbour Phase – Changi Naval Base, Singapore; Sea Phase – South China Sea	Anti-submarine warfare, surface firing, tactical manoeuvres, air operations, and coordinated patrols.

Source: Naval History Division, Indian Navy

Africa–India Key Maritime Engagement (AIKEYME)

The maiden edition of Africa-India Key Maritime Engagement (AIKEYME) was inaugurated on 13 April 2025 at Dar-es-Salaam, Tanzania, marking a significant step in strengthening maritime cooperation between India and African nations.[7] The exercise was jointly inaugurated by the Indian Minister of State for Defence and the Defence Minister of Tanzania.

INS *Chennai* and INS *Kesari* represented the Indian navy at AIKEYME. The exercise was conducted over six days with participation from Comoros, Djibouti, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, and South Africa, alongside India and Tanzania. In addition, IOS Sagar 25 (INS *Sunayna*) also participated in the harbour phase of the exercise. The exercise included a harbour phase with joint training and exercises focused on piracy and information sharing, followed by a sea phase to enhance maritime

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security cooperation.[8] This *IN* initiative aims to develop collaborative solutions to regional maritime challenges, enhance interoperability, and strengthen the friendly relations between India and African nations.[9]

Conclusion

India's bilateral and multilateral naval exercises reflect the nation's growing maritime stature and its commitment to ensuring stability and security in the Indo-Pacific and beyond. Through sustained engagement with partner navies, the Indian Navy has evolved into a credible blue-water force capable of operating seamlessly across diverse maritime domains. These exercises project the Indian Navy's diplomatic role in action ultimately advancing the vision of SAGAR (Security and Growth for All in the Region) and now MAHASAGAR**.** They not only enhance operational capabilities but also reinforce India's role as a responsible maritime power dedicated to maintaining a free, open, and inclusive Indo-Pacific.

Notes

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Chapter 30

IMAC and IFC–IOR

The Indian Ocean Region sits at the crossroads of maritime traffic along critical sea routes, which are exposed to a variety of traditional and non-traditional threats. Given the vastness of the maritime domain and the fragmented nature of information, the Indian Navy has defined Maritime Domain Awareness (MDA) as "an all-encompassing term that involves being cognisant of the position and intentions of all actors, whether own, hostile, or neutral, in all dimensions of a dynamic maritime environment, across the areas of interest."[1] Maritime Situational Awareness (MSA) is a component of Maritime Domain Awareness (MDA), and is ensured through effective surveillance, reconnaissance, and information fusion systems.

The strategic necessity of MDA was starkly highlighted by the 2008 Mumbai terror attacks, which underscored the urgent need for a dedicated institution to compile and share maritime traffic navigating the vast oceans. Facing challenges such as Illegal, Unreported, and Unregulated (IUU) fishing, trafficking, piracy, and maritime terrorism, India prioritized real-time information sharing across its extensive coastline. Consequently, the establishment of the Information Management and Analysis Centre (IMAC) and the Information Fusion Centre-Indian Ocean Region (IFC-IOR) marked pivotal steps in creating a comprehensive Maritime Domain Awareness (MDA) picture in the Indian Ocean Region (IOR).

Fig. 30.1: IFC-IOR Logo



Source: Naval History Division, Indian Navy

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Establishment of Information Management and Analysis Centre

The Information Management and Analysis Centre was established by the Indian Navy, following the meeting of the Cabinet Committee on Security (CCS) on 9 February 2012, which brought into the limelight the fragmented nature of India's coastal surveillance network in the wake of the 26/11 Mumbai terror attacks. The Centre was established alongside 51 subsidiary Indian Navy and Coast Guard centres as part of the larger National Command, Control, Communication and Intelligence (NC3I) System Network. The entire network, along with the Information Management and Analysis Centre (IMAC) as the central hub for data collection and dissemination, was sanctioned in March 2012 and consolidated by Bharat Electronics Limited (BEL), Bengaluru, in January 2014. The Centre was inaugurated, along with the NC3I Network, by the then Defence Minister, Manohar Parrikar, on 23 November 2014 at Gurgaon, Haryana. The Information Management and Analysis Centre (IMAC) serves as the nerve centre for ensuring India's maritime security, integrating real-time data from multiple sources to generate a Common Operational Picture (COP). Beyond data fusion, IMAC communicates this COP to relevant operational centres and monitors white shipping traffic across the Indian Ocean Region (IOR) to alert authorities to suspicious activities preemptively.[2]

NC3I Network and IMAC: Enhancing Maritime Domain Awareness in India

The NC3I network integrates 51 nodes (20 Navy and 31 Coast Guard) across India's mainland and island territories, providing a secure pipeline for real-time data exchange. Functioning as a digital nervous system, this network aggregates data from a variety of sources, including coastal radar stations, space and shore-based AIS stations, LRIT and international white shipping agreements. IMAC is responsible for fusing the diverse data points into a comprehensive Common Operational Picture (COP), which is then disseminated to all 51 nodes in real time.

Manned around the clock, IMAC maintains a 24X7 watch on the COP, undertaking traffic pattern analysis and anomaly detection to support early identification of potential security risks by utilising an indigenously developed software, Maritime Domain Awareness-Decision Support Software (MDA-DSS).[3] This information is then shared with key maritime stakeholders, including the Navy, the Coast Guard, and other security agencies, ensuring coordinated responses to potential threats. Additionally, the Centre provides technical oversight to ensure the network's operational availability.

A Decade of Impact and the Move Towards NMDAC

Since its establishment on 23 November 2014, IMAC has played a central role in enhancing India's MDA, significantly strengthening the country's

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ability to monitor and respond to maritime threats. On 23 November 2024, the Centre marked a decade of operational excellence, transforming raw data into actionable information to make the Indian Ocean Region more secure.

Looking ahead, the Government of India has approved the transition of IMAC into the National Maritime Domain Awareness Centre (NMDAC). This upgraded entity will integrate 15 agencies from seven distinct ministries, fostering seamless inter-agency cooperation and ensuring a unified national response to any maritime incident within India's areas of interest.

One Step Forward: Information Fusion Centre—Indian Ocean Region (IFC-IOR)

The idea of the Information Fusion Centre-Indian Ocean Region was first floated in 2016, encapsulated in an approach paper submitted to the Ministry of Defence. The idea emerged from the belief that India needs to assume a more proactive role as the "Net Security Provider" in the Indian Ocean Region, given IMAC's success in enhancing Maritime Domain Awareness (MDA). Fast forward to 2017, the Indian Navy made a presentation to both the Ministry of Defence (MoD) and the Ministry of External Affairs (MEA) to elaborate on the reasons why IFC-IOR is needed to position India as a leading power in collaborative information sharing. Subsequently, the Navy received an Approval in Principle (AIP) from the then Defence Minister, Nirmala Sitaraman, in September 2017, which set into motion how IFC-IOR would function and the infrastructure it would need.

IFC-IOR was inaugurated on 22 December 2018 in Gurugram, Haryana, by the Indian Navy as a nodal maritime information-sharing hub with Friendly Foreign Countries (FFCs). Since then, it has partnered with over 28 countries and more than 54 Maritime Security (MARSEC) Centres. The IFC-IOR also hosts International Liaison Officers (ILOs) from 15 countries (Australia, Bangladesh, France, Italy, Japan, Kenya, Maldives, Mauritius, Myanmar, Singapore, Seychelles, Sri Lanka, Thailand, the UK, and the US), reflecting the international nature of the IFC-IOR, which was envisioned and executed successfully by the Indian Navy. ILOs from other countries are also expected to join as the infrastructure has been upgraded. As a repository of information on maritime traffic, the IFC-IOR has a clear mission, which is elucidated below:

> To advance Maritime Safety and Security in the Indian Ocean Region; by enhancing maritime domain awareness and coordinating activities, through information sharing, cooperation and expertise development; along with partner nations and agencies.[4]

The establishment of the Information Fusion Centre-Indian Ocean Region (IFC-IOR) was necessitated by the growing importance of sea-borne trade and rising geopolitical uncertainties. Several regional and global threats in

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the Indian Ocean include maritime terrorism, piracy, human trafficking, environmental pollution, IUU fishing, and unregulated shipping, which entail swift information sharing and cooperation among nations to counter them effectively. Additionally, the economic importance of the IFC-IOR is colossal, as 75 per cent of the world's maritime trade traverses the Indian Ocean, and 50 per cent of daily global oil consumption passes through it. The presence of IFC-IOR is also paramount due to the ever-increasing presence of extra-regional powers in the Indian Ocean Region, especially after the rise in terrorist attacks and piracy incidents off the coast of Somalia. Given the interconnectedness of the maritime domain, it is pertinent to recognize that no country can navigate the threats and challenges emanating from the seas; hence, information sharing and the preemptive interpretation of anomalies contribute significantly to improving our understanding of maritime activities. The establishment of IFC-IOR is based on the mandate given by the Defence Minister to the Indian Navy to sign White Shipping Information Exchange (WSIE) agreements with bilateral and multilateral constructs. The Indian Navy has already signed with 26 countries and one multilateral construct out of the 38 under the mandate.[5]

IFC-IOR, since its inception, has been playing a cardinal role in safeguarding maritime traffic in the IOR. It also conducts Maritime Information Sharing Workshops (MISWs) biannually with various other partner countries and multilateral constructs. The third edition of the workshop was held from 3 to 5 November 2025, during which 57 participants from 30 countries of the Indian Ocean Rim Association (IORA), the Djibouti Code of Conduct-Jeddah Amendment (DcoC/JA), and the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) participated.[6] Before this, the Maritime Information Sharing Workshop was held from 12 to 14 September 2023, with 41 delegates from 26 IORA and DCoC/JA countries in attendance. In addition to its flagship event MISW, IFC-IOR collaborates with the regional partners through various bilateral and multilateral interactions. A BIMSTEC Coastal Security Workshop was organized in November 2019, further strengthening regional outreach. Subsequently, on 8 December 2021, IFC-IOR, in collaboration with the EU-funded Critical Maritime Routes Indian Ocean (CRIMARIO) programme, conducted a workshop focused on enhancing Maritime Domain Awareness and interoperability.[7] To facilitate cross-regional collaboration, IFC-IOR has also signed a Memorandum of Understanding with the Regional Coordination Operations Centre (RCOC) in Seychelles in 2023.[8] From 4 to 6 December 2024, IFC-IOR, in collaboration with the United Nations Office on Drugs and Crime (UNODC) Global Maritime Crime Programme (GMCP), successfully conducted a three-day maiden Tabletop Exercise to strengthen cooperation in maritime security efforts in the Indian Ocean Region, which saw the participation of 30 participants from 15 countries.[9]

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Fig. 30.2: Maritime Information Sharing Workshop 2019



Source: Naval History Division, Indian Navy

The Centre has established itself as a "Voluntary Reporting Centre" in the IOR, and a large number of merchant vessels transiting the IOR are reporting voyage details, positions, and contact information to the Centre, reflecting the confidence the global maritime community reposes in IFC-IOR. The Centre's role in facilitating timely information sharing and coordination has been critical in mitigating several maritime incidents. A drone attack on a Malta flagged merchant vessel *CMA CGM SYMI* occurred on 25 November 2023, and the IFC-IOR's national and international linkages enabled it to coordinate timely assistance to the vessel. During the hijacking incident onboard MV *Ruen*, IFC-IOR played an important role in coordinating operational responses and sharing information promptly with the Indian Navy, resulting in the safe evacuation of the injured crew.[10] In another incident, the Company Security Officer (CSO) of MV *Chem Pluto* reported a drone strike 220 nm southwest of Porbandar to IFC-IOR, and the Indian Navy subsequently assisted in escorting the vessel to the nearest port safely.[11]

It is aptly said that information is power, and nowhere is this truer than in the maritime domain. Given the vastness and unpredictability of the oceans, sharing maritime information is essential to safeguard life at sea and coordinate responses among nations. The world is increasingly engaged in cross-border trade, and the roles of IMAC and IFC-IOR are vital in ensuring rapid data collection and dissemination to mitigate or prevent maritime security incidents at sea. The IFC-IOR, in particular, is a pioneer in fostering collaboration between various state and non-state maritime actors and has contributed to establishing India's position as a key security provider in the region.

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Chapter 31

Fleet Reviews

Origin and Significance of Fleet Reviews

The Indian Navy plays an indispensable role in furthering India's maritime interests through activities such as fleet reviews and port calls, which help open channels of strategic cooperation between India and the rest of the world. Fleet review is essentially an assembly of a nation's naval fleet, including warships, submarines, and even naval aircraft, at a pre-designated place, which are anchored at a harbour or bay, followed by ceremonial inspection by the head of the state. The idea of fleet review originates from the British Royal Navy's practice of the reigning monarch inspecting the naval fleet before a battle or as a demonstration of strength to adversaries.[1] Subsequently, the practice was adopted by other navies, and today it has metamorphosed into a ceremonial display of national pride and strength, and a platform to position India as one of the world's leading maritime powers. The Indian Navy, therefore, by convention, hosts a Presidential Fleet Review during the term of each President, wherein the Supreme Commander of the Armed Forces inspects the naval capabilities and the Indian Navy, in turn, demonstrates allegiance to the President. The Indian Navy also hosts its own International Fleet Review, which witnesses participation from foreign navies and in reciprocity, India also participates in fleet reviews hosted by other nations in adherence with its Mutual and Holistic Advancement for Security and Growth Across Regions (MAHASAGAR) policy.

Presidential Fleet Reviews in India

The Presidential Fleet Review (PFR) is a time-honoured tradition that took shape in Independent India following the transition of the Royal Indian Navy into the Indian Navy. On 27 May 1951, the President's Colour was presented to the Navy by the then President, Dr Rajendra Prasad, making it the first Service to receive this honour from the Supreme Commander of the Armed Forces. It has been customary for the President, as the Supreme Commander of the Armed Forces, to review the naval fleet once during their tenure in a ceremony called the President's Fleet Review (PFR). The event commences with the President inspecting a Guard of Honour and receiving a 21-gun salute. Thereafter, they embark on the Presidential Yacht, identifiable by the Ashoka Emblem on its sides, to review the assembled fleet. As the Presidential Yacht sails past the fleet formation, ceremonially dressed crew assemble on the upper deck and give three cheers for the inspecting authority, i.e., the President.[2]

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First PFR: The first Fleet Review was held on 10 October 1953 in the presence of Dr Rajendra Prasad, the first President of the Indian Republic, along with Prime Minister Jawaharlal Nehru, the then Defence Minister Krishna Menon, and the then CNS Admiral Sir Mark Pizey. The fleet included 33 vessels, of which 25 were warships, seven were yard craft, and one was a merchant marine vessel. The first PFR set a precedent for a review of the fleet to be held during the tenure of every President, a tradition that has grown exponentially in significance in Independent India.[3]

Second PFR: The second Fleet Review was conducted in the absence of the then President, Dr S. Radhakrishnan, who was indisposed at the time. The then Defence Minister, Y.B. Chavan, took the salute on behalf of the President on 20 April 1964 and reviewed the fleet comprising 31 warships, 12 yard craft and nine merchant ships. Later, in February 1966, Dr S. Radhakrishnan reviewed the naval fleet, where for the first time aircraft carrier INS *Vikrant* was on display.[4]

PFR 1969: On 28 December 1969, the Indian Navy held its review of the fleet before the Supreme Commander of the Armed Forces, the then President V.V. Giri. A total of 45 naval ships, one submarine, 33 aircraft of the Naval Air Arm, five coast guard ships, and eight vessels from other agencies/merchant marine were part of the fleet during the review.

Before the commencement of the review, the Naval Air Arm performed an aerial firepower demonstration and aerobatic display over the sea off Bombay's Marine Drive shoreline, watched by thousands of spectators. On the day of the review, the fly-past included 20 Sea Hawks, six Alizés, four Vampires, and seven Allouette helicopters, flying into two formations: one an anchor, and the second the letters "IN". As part of the fleet during the review, a submarine was on display for the first time, signalling the growing competence of the underwater and aerial capabilities of the Indian Navy.[5]

PFR 1976: The Presidential Fleet Review was held on 11 January 1976, where President Fakhruddin Ali Ahmed took the 21-gun salute. The fleet comprised 43 naval ships, five submarines, five aircraft, along with six merchant marine vessels. Indian-built frigates of the Nilgiri class were also on display as part of the review.[6]

PFR 1984: President Giani Zail Singh reviewed the naval fleet on 12 February 1984, which consisted of a formidable array of vessels and aircraft: 65 (*IN* and ICG) ships (including three submarines), 32 Navy aircraft, five Coast Guard aircraft, seven yard craft, and nine mercantile ships. The review took place in Bombay (Mumbai), and the *Rajput*-class destroyers and *Godavari*-class frigates were among the ships showcased during the review.[8]

> Men from different parts of India live and work together as one family. And nowhere is this more evident than in the confines of a naval ship, where the crew are drawn from places as far apart as Kashmir and Kanyakumari,

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> Kutch and Kohima. As India's first Prime Minister Pandit Jawaharlal Nehru had once said, 'A ship is a miniature India,' and the differences of language and food habits are blended into a harmonious entity. It is the spirit of comradeship and national integration and the commitment to the cause of India's development and defence that places the Navy and its men in the forefront of national endeavour.
>
> —President Giani Zail Singh during the 1984 Presidential Review[7]

PFR 1989: The Presidential Fleet Review under President R. Venkataraman was held on 15 February 1989 at Bombay. The review displayed the strength and preparedness of the Indian Navy, featuring 86 (*IN* and ICG) ships, eight submarines, 29 Navy aircraft, eight Coast Guard aircraft, four yard craft, and 10 mercantile marine ships. Notably, a nuclear submarine was also part of the fleet, adding to the ceremonial splendour at the review.[9]

PFR 1997: On 9 March 1997, President Dr Shankar Dayal Sharma reviewed the naval fleet in Mumbai, indicating the prowess of the Indian Navy. In the review, 25 naval ships, four submarines, three Coast Guard ships, one yard craft, and five police launches took part. The presentation of the President's Colour to the Western Fleet was the highlight of the review, recognizing its exceptional valiance and loyalty to the nation.[10]

The Supreme Commander highlighted the importance of the Western Fleet in his speech: "The Western Fleet is a premier fleet of the Indian Navy, with a tradition of valour and courage in the service of our Motherland, during war and peace. It covered itself with glory during the 1971 operations in the Arabian Sea. Professionalism, determination, devotion to duty and the pursuit of excellence have been the hallmarks of this fighting force. On this occasion, I felicitate all serving and retired personnel of the Western Fleet and of the Indian Navy for their contributions in making our nation vibrant, strong and united."[11]

PFR 2006: The 2006 edition of the PFR was held in Visakhapatnam on 12 February 2006, marking a landmark event in the history of the Indian Navy. It was for the very first time that a Presidential Fleet Review (PFR) was held on the eastern coast of India, ending the monopoly that the western coast in general, and Mumbai in particular, had with respect to the reviews. It was an unprecedented decision, and the Eastern Naval Command (ENC) was presented with a host of challenges, given the lack of standard operating procedures for a large-scale event. Despite the six-month preparation period, the review was exemplary, and for the first time it was conducted in open sea and not sheltered harbours. This necessitated detailed hydrographic surveys, given the uncertainties of open water, and to ascertain the depth for anchorage. INS *Darshak* carried out the Review Anchorage in October 2005, and the vessels could only be anchored in four lanes due to the maximum depth of 40 metres that ships could be anchored in.

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The event began on 11 February 2006 with a spectacular band concert from 1730 to 1830 hrs, followed by Dr A.P.J. Abdul Kalam, the President, visiting the View Point 1 at Dolphin Hills to catch a glimpse of the illuminated fleet anchored in the open sea. Subsequently, the Supreme Commander graced the Presidential banquet that was organized at the ENC Officers' Mess. After the President embarked on the Presidential Yacht, *Sukanya,* and inspected the guard of honour, the Presidential Column began its review towards the first column, consisting of Sail Training Ship *Tarangini,* the *Khukri*-class missile corvettes and LSTs(M). The last ship to be reviewed was the aircraft carrier *Viraat*. The fly-past of the aircraft of *IN* and ICG consisted of all types of aircraft—TU 142, IL 38, Sea Harriers, Kirans, Dorniers, Islanders, Seakings, Kamovs, ALH Dhruv and the omnipresent Chetaks. Operational Demonstration took place on 12 February 2006, showcasing the Navy's operational readiness to not just the President but also the general public present at the R.K. Beach. One of the highlights of the three-day PFR was the presentation of the President's Colours to the Eastern Fleet on 13 February as the highest acknowledgement of its loyalty to the country. The President also undertook a three-and-a-half-hour-long submarine sortie, underscoring the importance attached to underwater domain awareness. This mega event was in congruence with the rising maritime consciousness among the general populace in India.[12]

PFR 2011: The tenth PFR was held in Mumbai on 19-20 December 2011 and the fleet consisted of 66 *IN* warships, of which one aircraft carrier, 47 aircraft, 10 CG ships, and four merchant-marine ships formed part of the fleet. INS *Subhadra* was the Presidential Yacht, with INS *Savitri* as a part of the Presidential Column. In addition to the customary Fleet Review by the President, Pratibha Patil, the event included several cultural and public programmes to enhance public awareness of India's maritime heritage. On 19 December 2011, a symphony orchestra performance was organized at the Mulla Auditorium, followed by the release of a commemorative stamp and photo essay book. A Presidential banquet was later held at the Western Naval Command Officers' Mess. To facilitate maritime consciousness in the country, a maritime exhibition was inaugurated on 20 December 2011 at the Coomaraswamy Hall, Chhatrapati Shivaji Vastu Sangrahalaya, Mumbai, which remained open to visitors for 40 days.[13]

PFR 2022: The latest edition of the Presidential Fleet Review was held at Visakhapatnam on 21 February 2022. It was celebrated as part of the 75 years of India's Independence, also referred to as "Azadi ka Amrit Mahotsav". President Ram Nath Kovind reviewed the fleet from the Presidential Yacht, INS *Sumitra*. The Indian Naval Fleet consisted of 60 ships and submarines and 55 aircraft, which included newly commissioned weapon platforms, the stealth destroyer INS *Visakhapatnam,* along with INS *Vela*, a *Kalvari* class submarine recently inducted into the Indian Navy. *IN* ships *Chennai, Delhi,*

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Teg, three *Shivalik* class frigates and three *Kamorta* class ASW corvettes were also part of the fleet. Ships from the Coast Guard, Shipping Corporation of India and Ministry of Earth Sciences also took part. An awe-inspiring Composite Fly Past by Chetaks, ALH, Seakings, KAMOVs, Dorniers, IL-38SD, P8I, Hawks and MiG-29 K was also part of the review. This review was a significant step in the direction of indigenization, highlighting the shipbuilding capacity of India, as 47 out of the 60 ships and submarines participating had been constructed in Indian shipyards.

Fig. 31.1: President's Fleet Review 2022



Source: Naval History Division, Indian Navy

Table 31.1: List of Presidential Fleet Reviews and International Fleet Reviews held till 2025

Review Date	*President / Reviewed by*	*Highlights*
10 Oct 1953	Rajendra Prasad	• 25 warships • 7-yard craft • 1 merchant ship
20 Apr 1964	Y.B. Chavan	• 31 warships • 9 merchant ships • 12-yard craft
10 Feb 1966	S. Radhakrishnan	First display of aircraft carrier INS *Vikrant*
28 Dec 1969	V.V. Giri	• 45 warships • 5 merchant ships • First display of submarine

(*Continued*)

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(*Continued*)

11 Jan 1976	Fakhruddin Ali Ahmed	• 48 warships • 5 merchant ships • First Indian-built frigates (Nilgiri class) on display
12 Feb 1984	Giani Zail Singh	• Rajput and Godavari class on display • Sea Harrier (VSTOL) aircraft on display
15 Feb 1989	R. Venkataraman	• 86 warships • 2 aircraft carriers • 1 nuclear submarine • Fly-past by 39 aircraft
9 Mar 1997	Shankar Dayal Sharma	Award of the President's Colour to the Western Fleet
17 Feb 2001	K.R. Narayanan	First International Fleet Review
12 Feb 2006	A.P.J. Abdul Kalam	Award of the President's Colour to the Eastern Fleet
20 Dec 2011	Pratibha Patil	• 66 *IN* warships • 1 aircraft carrier • 47 aircraft • 10 CG ships • 4 merchant-marine
6 Feb 2016	Pranab Mukherjee	Second International Fleet Review, first at Visakhapatnam
21 Feb 2022	Ram Nath Kovind	60 warships and submarines, and 55 aircraft

Source: Naval History Division

Indian Navy's Participation in IFRs Abroad

The Indian Navy has participated in International Fleet Reviews (IFR) as part of its maritime diplomacy charter while reinforcing its commitment towards this tradition that offers an opportunity to showcase India's maritime prowess, along with India's readiness to lead as a maritime power in the Indo-Pacific. This consists of not only hosting fleet reviews but also participating in the ones hosted by other friendly nations. India participated for the first time in another nation's fleet review in June 1953 at Spithead, held on the occasion of the coronation of Queen Elizabeth II.[14] In June 1967, INS *Brahmaputra* was one of the 40 warships that participated in the fleet review hosted by Canada in commemoration of the centennial anniversary of the Confederation at Halifax. The continuous representation of the Indian naval fleet at various international fleet reviews represents the

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formidable role that the *IN* plays in bolstering India's geopolitical standing. In 1977, the *IN* took part with INS *Udayagiri* in the historic fleet review held by the United Kingdom to mark the silver jubilee of the coronation of Queen Elizabeth II. This turned out to be the last such fleet review held by the Kingdom to commemorate coronations and silver jubilees.[15] India was invited for the first time outside the Commonwealth in July 1986 as INS *Godavari* took part in the celebrations to mark the hundred years of the Statue of Liberty. This was a significant event, as before this, no goodwill visit had ever been made by the Indian Navy to the US, therefore indicating rapprochement between the two nations.[16] In another significant event, INS *Tir* participated in the International Fleet Review hosted by South Africa to commemorate the South African Navy's 75th anniversary on 5 April 1997. The review was presided over by President Nelson Mandela.

Before the commencement of the Look East and Act East policy, the Indian Navy's engagement was limited to the western hemisphere. For instance, the Indian Navy was represented by INS *Shardul* and Long-Range Maritime Surveillance P8I aircraft in Bali, Indonesia, in the IFR 2025, which was held in February 2025.[17] Before this, India had participated in the IFR hosted by the Royal Malaysian Navy to mark its golden jubilee at Penang in 1990, projecting a major shift in Indian foreign policy.[18] This was followed by India's presence at Jakarta, Indonesia, to celebrate 50 years of the Republic of Indonesia in 1995.[19] The *IN* was also part of the IFRs hosted by China in 2009 and 2014, aiding India in enhancing interoperability and serving as a platform for the *IN* to display its naval capabilities. It is pertinent to note, hence, that participation in IFRs does not happen in isolation and reflects geopolitical circumstances along with the expanding maritime stature of the nation.

International Fleet Reviews Hosted by Indian Navy

> To be secure on Land, we must be Supreme at Sea.
>
> — Jawaharlal Nehru, former Prime Minister[20]

As aptly enunciated by the first Prime Minister of the nation, maritime capabilities are a prerequisite for India to become a global power to reckon with. International Fleet Reviews hosted by the *IN* are a testament to India's commitment to promoting global cooperation, mutual trust, and ensuring secure seas for all.

First IFR

The first IFR was held in Mumbai in 2001, envisioned by Admiral Sushil Kumar, the then Chief of the Naval Staff (CNS), to showcase to the world that the Indian Navy had acquired phenomenal capabilities in the course of 50 years of the nation's independence. "Bridges of Friendship" was decided

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to be the comprehensive theme of IFR 2001, indicative of Indian foreign policy's focus on developing mutually beneficial relationships with other maritime powers around the globe. The IFR took two years of painstaking preparation, and the organization of the IFR event (both Static and Mobile Review) was delegated by the CNS to Vice Admiral Madhvendra Singh, the then Flag Officer Commanding-in-Chief, Western Naval Command (FOC-in-C West). The event also became a success due to the impressive coordination of the Navy with the civil authorities, such as the Government of Maharashtra, civilian police, Doordarshan, MTNL, Pollution Control Board, and the Railways, among others.

A major impediment during the preparation was how to anchor a large number of warships, including foreign ones, which had not been the case in the previous PFRs. Dredging became essential to achieve the necessary depth to anchor these vessels, and each vessel's berth was chosen according to its size and the alphabetical order of the country it belonged to. After meticulous preparations came the time for rehearsal, which began as early as 11 August 2000, ensuring sufficient time for multiple rounds of practice and culminating in the final full dress rehearsal on 16 February 2001. Foreign ships started arriving not long before the review, and the *IN* was presented with the humongous task of berthing 69 ships in five days, which it managed successfully.

The IFR commenced with the presence of 29 foreign navies, including 16 CNSs / CNOs. The event was a majestic spectacle with the participation of around 97 ships, of which 24 vessels were those of other friendly countries, and the remaining (73) were Indian vessels (61 from the Indian Navy and 12 from the Indian Coast Guard [ICG]). The scale of the event was unlike the previous FRs: out of the 61 vessels of the *IN*, four ships were part of the Presidential Column, 10 were part of the Steaming Column, while 41 vessels were at Review Anchorage during the Static Review, and six remained on patrol. Furthermore, 54 IN/IAF/ ICG aircraft took part in the Fleet Review, while 87 aircraft participated in the International City Parade (ICP).

The Fleet Review was preceded by the International Maritime Seminar on "Maritime Power: Challenges in the 21st Century", which was held at Hotel Taj President on 16 February 2001. It provided an opportunity for foreign and Indian dignitaries to deliberate on emerging regional and global maritime threats. Simultaneously, bands from Bangladesh, France, Russia, Sri Lanka, and the United States participated in a series of naval symphonic concerts held across Mumbai from 15 to 19 February 2001 during the IFR and were well received by the general audience. The Governor of Maharashtra was the chief guest at the concert at Jamshed Bhabha Theatre on 16 February. As many as 363 Indian Navy musicians took part alongside foreign bands, culminating in a captivating rendition of "*It's a Small World After All*".

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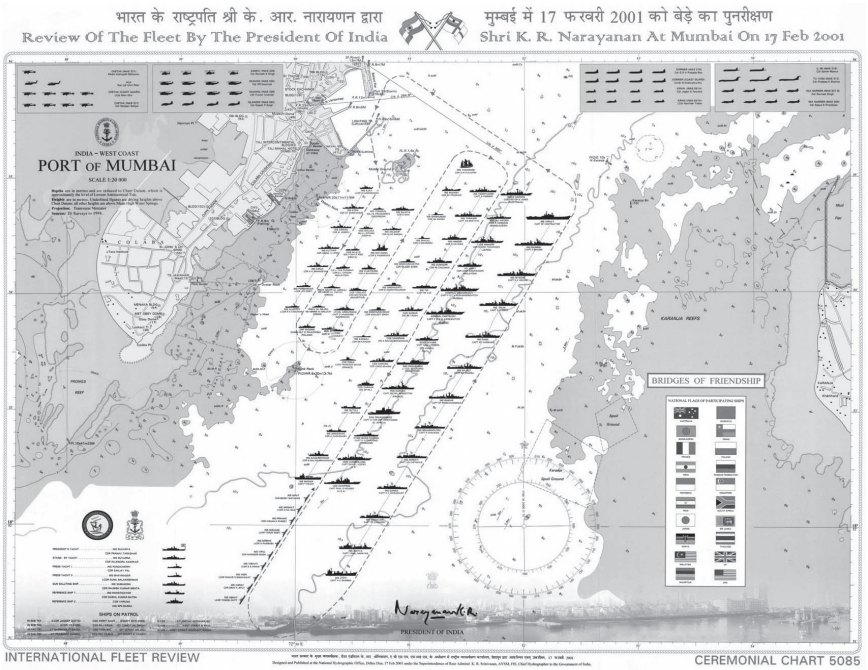
Fig. 31.2: International Fleet Review 2001, Anchorage Plan



Source: Naval History Division, Indian Navy

The Fleet Review was held on 17 February 2001 in Mumbai Harbour, and the President of India, who is the Supreme Commander of the armed forces, Dr K.R. Narayanan, was received with a 21-gun salute and a Guard of Honour. The Presidential Column consisted of INS *Sukanya* (with the President embarked), INS *Suvarna*, INS *Subhadra*, and INS *Pondicherry*, which sailed through the fleet anchored off the Gateway of India. In the first line of the fleet were smaller Indian vessels, followed by warships from Indonesia, Kenya, Oman, Malaysia, and Poland in the next line. On one side lay the foreign warships, and on the other, Indian-built vessels including *Leander*-class ships, ICG Offshore Patrol Vessels, INS *Tir*, survey ships, and the Landing Ship Tank INS *Magar*. A mobile column of missile vessels from the Killer Squadron then sailed past in salute. The final line included INS *Jyoti*, INS *Aditya*, three *Godavari*-class destroyers, INS *Brahmaputra*, and the newly commissioned indigenous destroyer INS *Mumbai*, culminating with the aircraft carrier INS *Viraat*, flagship of the Chief of Naval Staff. INS *Viraat* also embarked a contingent of Kargil War veterans, symbolizing national pride. The grand spectacle came to an end as the President disembarked INS *Sukanya,* making India's first International Fleet Review a resounding success.

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The 2001 IFR came to an end with the Beating Ceremony, held on 17 February 2001 at the Gateway of India. Both the Indian Naval Band and the foreign band took part in the Retreat, making it an enthralling experience for the spectators. The International City Parade (ICP) took place on 18 February 2001 along Marine Drive and attracted over a million spectators, transforming the "Queen's Necklace" bay into a ceremonial platform of international camaraderie. The parade consisted of marching contingents, tableaux, Marine Commandos, aerial displays, and the Parade of Sails.[21]

The IFR 2001 turned out to be a momentous display of naval diplomacy and competence, and India's capability as a leading maritime power was imprinted on the minds of the global populace.

Second IFR

> The oceans are the lifelines of global prosperity. They present us with great economic opportunities to build our nations. Over 90% of global merchandise trade is carried on the oceans. Over the last 15 years, its value has grown from about 6 trillion dollars to about 20 trillion dollars. Oceans are critical for global energy security as over 60% of world's oil production moves through sea routes.
>
> —Prime Minister Narendra Modi at IFR-16 in Vizag[22]

The Indian Navy hosted its second edition of the International Fleet Review at Visakhapatnam during 4–8 February 2016 under the overarching theme "United through Oceans". The event was a continuation of the success of the first IFR, aiming to strengthen naval engagement, global partnerships, and sow the seeds of maritime cooperation among friendly nations. Instead of the western coast, IFR-16 was held at the eastern coastal city of Vizag, marking a shift away from the usual limelight given to the western coast. This also meant that the city lacked the necessary infrastructure to host a high-profile international event, especially in the aftermath of Cyclone Hudhud. Within a span of 16 months, the Indian Navy, along with the civil authorities, successfully transformed the city into a modern host city that could accommodate high-profile dignitaries along with tourists.

The Fleet Review marked the presence of key Indian dignitaries including President Pranab Mukherjee, Prime Minister Narendra Modi, Defence Minister Manohar Parrikar, Governor of Andhra Pradesh E.S.L. Narasimhan, and Chief Minister Chandrababu Naidu, alongside heads of participating foreign nations. Fifty countries participated, with 23 naval chiefs, 100 ships (including 24 foreign vessels from 24 nations), 91 aircraft, 26 foreign delegations, and over 25,000 personnel. The Indian Navy deployed 71 frontline ships and 60 aircraft, with extensive preparations to coordinate the scale of activities through multiple subcommittees and a Collaborative Command and Control Organization. A Nodal Control Centre at Swarnajyoti Complex and an Operations Centre at the district collectorate ensured efficient liaison with civil authorities.

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The Fleet Review and fly-past on 6 February included INS *Sumitra* as the Presidential Yacht, and the fleet was reviewed by the President. The International Maritime Conference on 7–8 February, themed "Partnering Together for a Secure Maritime Future", provided a platform for discussions on the maritime threats ravaging the oceans. On 7 February, the Operational Demonstration and International City Parade (ICP) was held, showcasing Indian and foreign naval contingents, bands, and aerial displays. More than 600,000 people attended the event as against the expected 150,000 people. The IFR-16 concluded on 8 February 2016 with a joint international band concert at the Naval Officer's Institute, followed by a closing ceremony. The scale and the grandeur of the events of IFR-16 were commensurate with the growing stature and increased indigenization of the Indian Navy.

The Maritime Exhibition (MAREX) and IFR Village, inaugurated on 4 February, provided a platform to highlight Indian industry, innovation, youth initiatives, and cultural heritage. Over 102 stalls showcased traditional handicrafts, art, dance forms, and cuisine, while Indian public sector undertakings like BHEL, BDL, and HAL demonstrated the Navy's self-reliance in maritime technologies. The event also included outstation visits for foreign delegations to New Delhi, Agra, and Bodh Gaya, maximizing engagement beyond Visakhapatnam.

IFR-16 was further enhanced by digital and technological innovations, including a dedicated IFR website and mobile app, the Indian Naval Communication Interoperability System for IFR (INCIS-IFR) and a Closed User Group (CUG) for tactical communication between Indian and foreign ships. These tools ensured seamless coordination, information sharing, and operational communication among all participants.[23] Despite natural challenges and the enormous logistical scale, IFR-16 was organized seamlessly and attended by many more spectators than was anticipated. The event remains a landmark in India's naval history, exemplifying the nation's commitment to peaceful engagement, enhancing interoperability, and ensuring free and open seas for all.

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Chapter 32

Assistance and Training to Friendly Foreign Countries

Prologue

The Indian Navy has been at the forefront of enhancing the capabilities of naval personnel from other Friendly Foreign Countries (FFCs). Since Independence, the Indian Navy has been involved in leveraging its soft power, and training naval officers and sailors in Indian academies is one such initiative. To date, the Indian Navy has trained more than 20,000 personnel from over 65 FFCs, underscoring its commitment to the diplomatic role of the Navy and the nation's foreign policy objectives.[1] This helps build trust and goodwill, reinforcing India's image as a leading maritime power in the Indo-Pacific. Hence, Indian Navy contributes to the vision of security and growth of all in the region, not just through assistance in training but also by assisting in capacity building for its FFCs, in the areas of hydrography, operational assistance and infrastructural support. The Indian Navy's exceptional competence enables it to cater to the diverse requirements of international trainees, for whom courses ranging from basic entry-level to specialized ones are available. Also, the Navy's assistance in capacity-building positions India as a credible maritime power, which is willing to contribute to making its partner countries self-reliant and operationally ready.

Assisting in the Training of Friendly Foreign Countries (FFCs)

As encapsulated in India's Maritime Doctrine, international training is an integral part of the diplomatic role of the Indian Navy:

> Technical, logistics and military support constitute diplomatic initiatives to build capacity and enhance the military capability of friendly maritime states. Such support would enable them to better manage their own security-related problems, which in turn enhances the overall security and stability in the region. Some of these initiatives include the transfer of warships and aircraft to friendly countries, refit support, supply of military hardware and spares, maritime surveillance support, naval training, etc. Provision of professional training also facilitates a shared way of thinking and helps to build interoperability by engendering common procedures and tactics.[2]

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The Ministry of External Affairs (MEA) assists with the training of foreign personnel through initiatives under the Indian Technical and Economic Cooperation (ITEC) scheme, wherein the MEA funds the tuition fees, boarding and other expenses of the trainees during their stay in India. A Special Aid Programme (SAP) has also been in place to facilitate the requisite participation from the countries that India has assumed more responsibility towards, a clear example of India's contribution towards South-South cooperation.[3] Self-funding options are also available for the personnel, wherein the trainee's government funds them. Any training conducted for Friendly Foreign Countries (FFCs) requires approval beforehand from the Ministry of External Affairs (MEA), in the form of an allotment or sanction letter. The training year follows the cycle from 1 April to 31 March of the next year, and in order to streamline the organizational process, the Indian Navy issues a Biennial Training Programme. In most cases, international trainees are accommodated alongside *IN* personnel; however, those who prefer to make their own arrangements are also allowed to do so.[4]

Table 32.1: List of Training Establishments for Foreign Trainees

Ser	*Trg Establishment*	*Type of Training*	*Location*
1.	Naval War College (NWC)	Training of Officers for staff appointments in HQs and higher formations	Verem, Goa
2.	Indian Naval Academy (INA)	Ab-initio officer training for *IN*, Coast Guard and Friendly Foreign countries	Ezhimala, Kerala
3.	INS Garuda	Training of Officers and Sailors wrt Naval Aviation: 3.1 Aviation Technical 3.2 Naval Air Operations 3.3 Aviation Non-Tech 3.4 Oceanography & Meteorology	Kochi, Kerala
4.	INS Dronacharya	Training of Officers and Sailors on Gunnery/ Missile Systems & VBSS	Kochi, Kerala
5.	INS Venduruthy	Training of Officers and Sailors wrt Professional training: 5.1 Anti-Submarine Warfare 5.2 Diving 5.3 Communication & Electronic Warfare.	Kochi, Kerala

(*Continued*)

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(*Continued*)

Ser	*Trg Establishment*	*Type of Training*	*Location*
		5.4 Navigation & Direction. 5.5 Training technology. 5.6 Leadership & Management. 5.7 Seamanship. 5.8 Maritime warfare.	
6.	First Training Squadron (1TS)	Sea training of Officer Cadets.	Kochi, Kerala
7.	INS Agrani	Training of Sailors wrt Leadership and Management.	Coimbatore, Tamil Nadu
8.	INS Mandovi	Training of Officers and Sailors: 8.1 Maritime Security. 8.2 Higher Command duties. 8.3 Naval Staff and Technical Management. 8.4 Marine Commandos (MARCOS). 8.5 Naval Provosts & Regulating. 8.6 Physical Training.	Verem, Goa
9.	National Institute of Hydrography (NIH)	Training of Officers and Sailors wrt Hydrography.	Vasco-da-Gama, Goa
10.	INS Valsura	Training, of Officers and Sailors wrt Electrical. & Electronic Systems, Weapon Engineering, & Information Technology.	Jamnagar, Gujarat
11.	INS Shivaji	Training of Officers and Sailors wrt Marine Engineering	Lonavala, Maharashtra
12.	NBCD School	Training of Officers and Sailors wrt Nuclear Biological, and Chemical Defence, including Damage Control & Fire Fighting.	Lonavala, Maharashtra
13.	INS Hamla	Training of Officers and Sailors wrt Naval Logistics and IT.	Mumbai, Maharashtra
14	School of Medical Assistants (SOMA)	Training of Sailors - Medical Assistants (Paramedics)	Mumbai, Maharashtra
15.	INS Vishwakarma	Training of Officers and Sailors wrt Naval Architecture & Hull Maintenance	Visakhapatnam, Andhra Pradesh
16.	INS Satavahana	Training of Officers and Sailors wrt Submarine Specialisation	Visakhapatnam, Andhra Pradesh

Source: Naval History Division

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Training at the Indian Naval Academy (INA)

The Indian Naval Academy (INA) is one of the premier institutes for ab-initio training for naval cadets. The INA initiated the induction of personnel from Friendly Foreign Countries (FFCs) in December 2014 for the Indian Naval Academy Course (INAC) B.Tech (four years course) and Naval Orientation Course (NOC) (one year course). Since then, trainees from Bangladesh, Benin, Indonesia, Madagascar, Mauritius, Maldives, Malaysia, Mozambique, Myanmar, Namibia, Philippines, Sudan, Seychelles, Sri Lanka, Tanzania Thailand and Vietnam have undergone training at INA. From a cumulative strength of fifty trainees in 2021, the vacancies for foreign personnel were further increased in consonance with the simultaneous improvement and expansion of infrastructure at the Indian Naval Academy.[5]

Training at Naval Dockyard, Visakhapatnam

In accordance with the directives from the Ministry of Defence (MoD), the Indian Navy enforced a three-year Comprehensive Training Plan (CTP) for Vietnamese Navy personnel. Under this plan, 120 personnel were to undergo training at the Naval Dockyard (Visakhapatnam), INS *Eksila*, INS *Kalinga*, and the Naval Armament Depot, Visakhapatnam, from 2014 to 2018. Out of these, eighty-four personnel could complete their training.[6]

Mobile Training Teams

Indian Navy uses a unique pedagogy to ensure that relevant skills are transferred to the FFCs, including the deputation of Indian Navy Mobile Training Teams (IN-MTT). This ensures that the trainees receive hands-on and on-the-ground training without having to leave their existing deputation. This unique endeavor allows the Navy to reduce its dependence on the training infrastructure, along with the cost involved in training. To

Table 32.2: IN-MTTs Deputed Over the Years

Ser	*Country*	*Year*
1.	Myanmar	2015, 2016, 2017, 2018, 2019, 2021, 2023, 2024, 2025
2.	Sri Lanka	2018, 2023, 2024
3.	Mauritius	2016, 2022
4.	Bangladesh	2017
5.	Nigeria	2017, 2019
6.	Oman	2009, 2011, 2012, 2014, 2015, 2016, 2017, 2018, 2019
7.	Kenya	2015, 2023
8.	South Africa	2009

Source: **Naval History Division**

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date, the *IN* has deputed MTTs to Bangladesh, Kenya, Mauritius, Myanmar, Nigeria, Oman, South Africa and Sri Lanka. Details of IN-MTTs deputed are as tabulated below:

Diving School: The school organized a combat diving course of a duration of three weeks for the Special Force of Seychelles "Tazar". It commenced on 12 March 2012 and was organized for a total of six personnel. The Diving School also conducted the Training of the National Coast Guard of Mauritius at Port Louis during September 2013 and October 2015. It was conducted as a diver refresher training course for the Mauritius National Coast Guard divers. Mobile Training Teams have also been deployed to the Maldives each year since 2017 to conduct diving training and courses on asymmetric warfare.[7] Also called the Exercise Ekatha, it was conducted in 2024 from 28 October to 23 November and focused on improving skills in technical diving, firing, slithering, and boarding operations.[8] A Mobile Training Team conducted a course for the first time in Madagascar in March 2021 to train the Malagasy Armed Forces personnel in tactical weapon handling and Explosive Ordnance Disposal (EOD) drills. Indian Navy Mobile Training Team, comprising 13 personnel, was deployed for the training of Myanmar personnel from 30 January to 23 April 2023.[9]

Naval Special Warfare and Weapons Training Centre (NSWTTC): The NSWTTC also conducts annual training of the National Coast Guard (NCG), Mauritius, on Special Operations through a Mobile Training Team. In addition to this, NCG personnel also underwent similar training at the Naval Special Warfare and Weapons Training Centre (NSWTTC) in December 2021. The Naval Special Warfare and Weapons Training Centre (NSWTTC) also conducts training for the Maldives National Defence Force with the aid of the Mobile Training Team. A Mobile Training Team comprising one officer and four sailors was deputed to Madagascar in March 2021 to impart training in Advanced Weapon Handling and Explosive Ordnance Disposal techniques.[10] Hence, the role of Mobile Training Teams is of great importance in expanding the Indian Navy's footprint in capacity building and training personnel from Friendly Foreign Countries (FFCs).

Assistance in Capacity Building to Friendly Foreign Countries (FFCs)

In addition to assistance in training, the Indian Navy has provided continuous support to the littoral states through capacity-building training programmes and by imparting hydrographic and infrastructural assistance, helping them to bolster maritime security and combat global and regional maritime threats in the Indian Ocean Region (IOR).

Hydrographic Assistance

The Indian Naval Hydrographic Department (INHD) is fully committed to providing any assistance and support requested by the coastal states.

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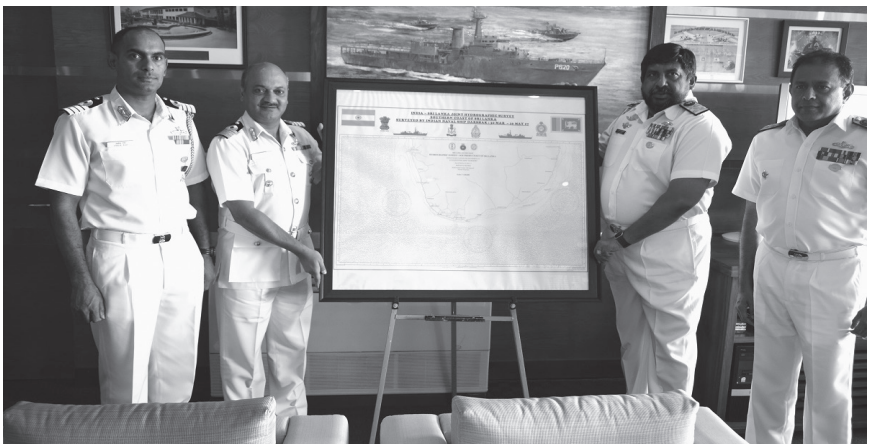
The team of experts at INHD is fully capable of offering support and specialized guidance in managing the various aspects of survey and hydrographic development programmes. This includes joint hydrographic surveys with onboard training, structured training at the National Institute of Hydrography, and specialized courses for Electronic Navigation Chart production at the National Hydrographic Office. India has assisted several littoral states in conducting hydrographic surveys and in publishing Electronic Navigation Charts (ENCs), as well as handing over equivalent paper charts.

Sri Lanka: Hydrographic cooperation between the two countries is not a new development, and cooperation in hydrography has helped the two countries in deepening their maritime ties. In addition to the hydrographic survey of Kankesanturai Harbour in 2010, five hydrographic surveys off Weligama Bay, Kosgoda, Colombo and the southern coast of Sri Lanka were also undertaken around this period. A delegation led by the then Chief Hydrographer visited Sri Lanka from 10 to 12 October 2016, and the need for a joint survey was discussed between INHD and the Sri Lanka Navy Hydrographic Service during the second bilateral meeting. In February 2020, INS *Jamuna* was deployed off the coast of Sri Lanka to carry out a detailed hydrographic survey for a period of two months.[11] Eighty-four Sri Lankan Navy personnel have completed the Long Hydrographic, Basic Hydrography, and the Survey Recorders courses at the National Institute of Hydrography, Goa, from 2011–21.[12] As part of the assistance, INS *Sarvekshak* was deployed off the coast of Colombo in July 2021 to evaluate the magnitude of the environmental damage caused in the aftermath of the sinking of MV *Xpress Pearl*.[13]

Fig. 32.1: Handing Over Surveyed Chart of Southern Coast of Sri Lanka



Source: Naval History Division, Indian Navy

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Mauritius: India and Mauritius have been cooperating in hydrography since 1998, after the two countries signed a five-year MoU. Since then, the agreement has been renewed every five years, providing continuous hydrographic assistance to Mauritius by the Indian Navy and the Indian Naval Hydrographic Department. Since 2013, one officer and two sailors have been stationed in Mauritius, and nine personnel from Mauritius have undergone various courses at NIH Goa. India has assisted in multiple hydrographic surveys, reinforcing its salient role in improving Maritime Domain Awareness (MDA) in the Indian Ocean. The surveys include those of Saya de Malha Bank–North, Cargados Carajos Shoals, Southern Part, Land Based Oceanic Industry (LBOI) in 2010, Port Louis Harbour, Nav Channel, Baie Du Cape, Pointe Petite Riviere and Quoin Channel in 2011, off Bambous in 2012, passes off Poudre D'OR, passes off Grand River D south-east in 2013, Continental Shelf Survey off Rodrigues Island in 2015, Deep Sea Block off Mauritius in 2017, approaches to Grand Port in 2018, and Point Sud Quest and Souillac in 2019.[14] INS *Sarvekshak* was deployed to Mauritius for a period of sixty days to undertake five hydrographic surveys from December 2023 to February 2024.[15] In addition to this, INS *Sarvekshak* also completed the hydrographic survey of 25,000 square nautical miles of Mauritius and handed over the nautical charts and other equipment to the Mauritian President Dharambeer Gokhool in January 2025.[16]

Seychelles: A hydrographic survey at Port Victoria led to the beginning of cooperation in the domain of hydrography between India and Seychelles in 2005. Furthermore, to solidify cooperation in the area of hydrography between the two countries, on 11 March 2015, a memorandum of understanding on hydrography was signed. During the visit of the Prime Minister to the Seychelles in 2015, a protocol was promulgated regarding the sale of navigational charts and ENCs. In accordance with the MoU, INS *Darshak* was deployed during November and December 2015 to survey Port Victoria. Between the years 2011 and 2021, surveys were conducted by the Indian Navy at Assumption Island in 2010, Aldabra Island (a World Heritage site) in 2011, Port Victoria and approaches to Port Victoria in 2015, and at La Digue and Port Victoria (Harbour Expansion Plan) in 2019. *INS Darshak* was also deployed to Seychelles in January 2020 to undertake hydrographic surveys upon a request by the Government of Seychelles.[17] As a result of these surveys, a total of seven charts and ENCs were published, and two personnel from the Seychelles were also a part of the Long Hydrography course and the Survey Recorders course at the National Institute of Hydrography, Goa.

Maldives: Since 2005, Maldives and India have pursued hydrographic cooperation, against the backdrop of the signing of the MoU between the countries. This was followed by a Joint Commission Meeting (JCM), and a conclusion was reached that the Indian Navy will assist the Maldives

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in capacity and capability building in the field of hydrography. Upon request, the INHD undertook hydrographic surveys off Kaashidhoo to North Male Atoll in 2010, a Continental Shelf Survey in 2011, North Male atoll and approaches, Kaashidhoo to North Male Atoll in 2017, Kulhudhufushi anchorage and approaches, North Thiladhunmathee to South Thiladhunmathee Atoll in 2020. As a result of these surveys, four navigational charts and ENCs were produced. Seven personnel from the Maldives undertook the Basic Hydrographic, Long Hydrographic, and Survey Recorders courses at the National Institute of Hydrography, Goa. Joint hydrographic surveys were also undertaken with the Maldives in January 2023.[18]

Myanmar: India and Myanmar are both members of the North Indian Ocean Hydrographic Commission (NIOHC) and have undertaken several initiatives to ensure hydrographic cooperation, reiterating their resolve towards maritime safety in the Indo-Pacific. Apart from the training of Myanmar Navy personnel at NIH, Goa, there have also been deployments by the Indian Naval Hydrographic Department (INHD) to conduct surveys off the coast of Myanmar. INS *Darshak* was deployed to survey Sittwe Harbour in March–May 2015 and Thandwe in 2019. To further facilitate collaboration between the two countries, an "Implementing Arrangement" on hydrographic cooperation between India and Myanmar was signed on 23 December 2020. An Indian Navy survey ship also conducted a hydrographic survey and carried out EEZ surveillance off the coast of Myanmar, which included the area around the Dawei Deep Sea Project.[19] In addition to assisting with hydrographic surveys, since 2016, the Indian Naval Hydrographic Department (INHD) has aided in capacity building for the Myanmar Navy through various training programs. Thirty-nine Myanmar personnel have completed courses in Basic Hydrography, Advanced Hydrography, and Survey Recorders at the National Institute of Hydrography (NIH), Goa, during the years 2011 to 2021. Additionally, three Electronic Navigation Chart production workshops were conducted by INHD at the National Hydrographic Office (NHO), Dehradun, in which 14 naval personnel of Myanmar participated.

Tanzania: An Indian Navy Survey Ship was deployed to Tanzania for the first time in 2013 to undertake a hydrographic survey off the coast of Dar es Salaam. An MoU was signed on 19 June 2015 between the Government of India and the Government of Tanzania, ensuring consistent Indian hydrographic assistance to Tanzania. Upon mutual deliberation, it was agreed that the Indian Naval Hydrographic Department (INHD) would assist in carrying out hydrographic surveys of the principal ports and harbours, and also provide capacity-building training to the Tanzanian personnel. India carried out several hydrographic surveys to honour its obligation to its Tanzanian counterparts through the MoU. A survey of the

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Port, approaches and anchorage of Dar es Salaam was carried out in 2014, that of Port of Zanzibar in 2015, Mkoani Harbour, approaches to Mkoani Harbour, Tanga Port in 2016, and Pemba (Port Kiuyu, Chake Chake Bay) and Pemba Channel in 2017. Based on the surveys, a total of four charts and ENCs were published. Personnel from Tanzania completed the Basic and Long Hydrographic course at the National Institute of Hydrography, Goa, between 2011 and 2021.

Mozambique: Cooperation between India and Mozambique began in 2011, when INS *Darshak* conducted a hydrographic survey of Port Beira. Both governments signed an MoU on 29 July 2019 to support more such endeavours in the field of hydrography. Naval personnel from Mozambique have also participated in courses on Basic and Long Hydrography at NIH, Goa, signalling the robust partnership that exists between the two nations.

Vietnam: In order to boost the maritime relations between Vietnam and India, the "Implementing Arrangement", emphasizing Hydrographic cooperation, was signed by the governments of both countries on 8 November 2020. The arrangement underscored India's commitment to assist in Vietnamese naval personnel training in the field of hydrography. Twenty personnel from Vietnam have undergone Basic and Long Hydrographic courses at the National Institute of Hydrography, Goa, from 2011 to 2021.[20]

Capacity Building and Infrastructural Support to Friendly Foreign Countries

> Our navy ensures that, in the Indian Ocean Region, no nation suppresses another on the basis of overwhelming economy and military power. India ensures that nations' interests can be protected, without compromising their sovereignty.
>
> —Rajnath Singh, Defence Minister, Government of India[21]

The Indian Navy has emerged as a pioneer in assisting friendly foreign countries with maritime infrastructure, and has transformed to a "Builder's Navy" from a "Buyer's Navy". The Indian Navy has worked tirelessly to support the development of the navies of its partner countries and takes great pride in being the "net security provider" in the Indo-Pacific. India has come to the aid of its maritime neighbours time and again, and a prominent example goes back to the early 1970s. The Indian Navy played a significant role in assisting the newly formed Bangladesh Navy, and in April 1973 and July 1974, India gifted two Seaward Defence Boats, INS *Akshay* and INS *Ajay*, to Bangladesh. These vessels were thereafter commissioned into the Bangladesh Navy as BNS *Padma* and BNS *Surma*, respectively. Similarly, in the early 1970s, Mauritius, seeking to improve maritime surveillance and safeguard its Exclusive Economic Zone (EEZ), was gifted a Seaward Defence Boat, INS *Amar*, by the Indian Navy. It was later commissioned as

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MNS *Amar* in the Mauritius National Coast Guard. The Mauritius Coast Guard was formed in 1989, and India delivered a Dornier surveillance aircraft to improve its reconnaissance capability. During the 1990s, India gifted another Seaward Defence Boat to Mauritius as the Coast Guard was expanding.[22] Since 2011, India has taken on a more active role in the Indo-Pacific as the "first responder", with significantly enhanced capabilities enabling it to engage more effectively in mutually beneficial partnerships with its maritime neighbours. The Indian Navy has provided various assets to Friendly Foreign Countries (FFCs); details of which are given below.

Fig. 32.2: Training Captain Interacting with Foreign Cadets at Indian Naval Academy



Source: Naval History Division, Indian Navy

Table 32.3: Assets/Aid Given by India to its Friendly Foreign Countries

Country	*Ser*	*Asset*	*Numbers*	*Year*	*Remarks*
The Maldives	1	Landing Craft Assault (LCA)	1	2014	–
	2	CGS *Huravee*	1	2015	(i) Refit funded by Ministry of External Affairs (MEA) (ii) Maintenance by *IN*.

(*Continued*)

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(*Continued*)

Country	*Ser*	*Asset*	*Numbers*	*Year*	*Remarks*
	3	Advanced Light Helicopter (ALH)	1	2016	(i) From the *IN* inventory (ii) Maintenance by *IN*
	4	CGS *Kaamiyaab*	1	2019	(i) Gifted (ii) Refit funded by MEA
	5	IN–DO	1	2020	(i) From *IN* inventory (ii) Maintenance by *IN*
	6	Coastal Radar System (CRS) – 10 sites + 1 Combat Centre	–	2021	Setting up of CRS and one-year warranty borne by India
	7	Fast Patrol Vessel and a Landing Craft Assault ship	–	2023	Gifted by India
Mauritius	1	Coastal Radar System (CRS) – 8 sites + 1 centre	–	2011	Maintained under annual maintenance contract (AMC) paid by Mauritius
	2	Survey Motor Boat (SMB)	1	2013	Presented by Chief of Naval Staff (CNS) at Port Louis
	3	CGS *Barracuda*	1	2015	Purchased by Mauritius
	4	Fast Interceptor Boat (FIB)	2	2015	Purchased by Mauritius
	5	Dornier MP/ CG 4	1	2016	Purchased by Mauritius
	6	Waterjet Fast Patrol Vessel (WFPV) – *Victory* and *Valiant*	2	2017	(i) Constructed at M/s GSL (ii) Purchased by Mauritius
	7	Passenger Variant Dornier	1	2020	On lease till own Dornier aircraft is provided; maintained by Indian Defence Line of Credit
	8	Gifting of Spares for MCGS Guardian	–	2021	Control spare parts worth INR12.8 lakh gifted by India

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(*Continued*)

Country	*Ser*	*Asset*	*Numbers*	*Year*	*Remarks*
Myanmar	1	Submarine	1	2020	Myanmar, renamed UMS *Minye Theinkhathu*
	2	Technical assistance for the installation of Ukrainian Gas Turbines onboard their under construction 135m frigate	–	2023	Spare parts amounting to INR1.9 cr were also gifted in 2023
Seychelles	1	Ex-INS *Tarasa* (PS *Constant*)	1	2014	Re-fitted and gifted
	2	Dornier DO-228	1	2015	Underwent routine overhaul in India
	3	PB Hermes/Ex-ICGS C 405	1	2016	–
	4	Coastal Radar System (CRS)	6	2018	Gifted under Government of India Aid
	5	Fast Patrol Vessel (FPV) *Zoroaster*	1	2021	Newly constructed vessel at M/s GRSE.
	6	Fast Interceptor Craft (FIC) C-449	1	2025	Gifted by the Government of India
Sri Lanka	1	Ex-ICGS OPV *Varaha* (*SLNS Sagara*)	1	2011	Gifted
	2	Advanced Offshore Patrol Vessel	2	2017 / 2018	(i) Purchased by Government of Sri Lanka. (ii) Spares/ assistance being provided on case-to-case basis post Ministry of Defence (MoD) approval
Mozambique	1	ICG FIBs	2	2019	Gifted
	2	*IN* FIC	2	2021	Gifted
	3	*IN* FIC	2	2024	Gifted

(*Continued*)

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(*Continued*)

Country	*Ser*	*Asset*	*Numbers*	*Year*	*Remarks*
Vietnam	1	Ex-Peyma/ Minesweeper Class Spares	638/48 tons	2011 / 2020	Spares provided gratis
	2	Missile Corvette INS *Kirpan*	1	2023	First-ever active warship to be gifted by the Indian Navy

Source: Doraibabu and Godbole, *A Decade of Transformation*; MoD Annual Report

The assets and aid provided by India illuminate India's consistent efforts in building trust and enhancing maritime cooperation with Friendly Foreign Countries (FFCs). The transfer of assets, along with imparting quality training to the personnel of foreign navies, not only reflects India's exponentially growing capabilities but also its resolve to contribute to regional and global maritime security in harmony with its vision of Security and Growth of All in the Region (SAGAR). India's initiative to aid in the capability and capacity building of its partner countries also aligns with a key pillar of the Indo-Pacific Oceans Initiative (IPOI), namely "Capacity Building and Resource Sharing". It is also an indication of the strong diplomatic role that the Indian Navy plays and its indispensability in contributing to a strong image of India as a maritime nation. The focus on indigenization and the transition to a "Builder's Navy" also demand that the Indian Navy plays a cardinal role in enhancing India's soft power around the globe.

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