Appendix A to Chapter II
(Refers to Paragraphs 5 and 6 of Chapter II of DAP 2020)

REQUEST FOR INFORMATION FOR LONG RANGE AUTONOMOUS AERIAL VEHICLE (LR-AAV)

1. The Ministry of Defence, Government of India, intends to induct Long Range Autonomous Aerial Vehicle (LR-AAV) for providing ISR data to *IN* units. The MoD, GoI, intends to install this system on *IN* units.

2. This Request for Information (RFI) for Long Range Autonomous Aerial Vehicle (LR-AAV) consists of three parts as indicated below: -

2.1 **Part I.** The first part of the RFI incorporates operational characteristics and features that should be met by the LR-AAV. Important technical parameters of the proposed LR-AAV are also mentioned.

2.2 **Part II.** The second part of the RFI states the methodology of seeking response of vendors. Submission of incomplete response format will render the vendor liable for rejection.

2.3 **Part III.** This part lays down the guidelines for framing Criteria for Vendor Selection/ Pre-Qualification in Buy (Indian) category.

PART - I: OPERATIONAL AND TECHNICAL REQUIREMENTS

Introduction

3. **Aim.** The aim of these Operational Requirements (ORs) is to define the broad features, performance parameters, systems and maintainability aspects for *Long Range Autonomous Aerial Vehicle (LR-AAV)* to autonomously undertake ISR.

4. **Role.** Long Range Autonomous Aerial Vehicle (LR-AAV) is intended to enhance the integral Identification, Surveillance and Reconnaissance capability for *IN* units. The LR-AAV shall provide a cost and risk effective means for undertaking ISR in maritime areas at extended ranges. The LR-AAV shall be capable of performing multi mission roles from ship or ashore, by day and night as follows: -

4.1 Augment Maritime Domain Awareness (MDA).

4.2 Assist in Low Intensity Maritime Operations (LIMO).

स्वीकृत अपेक्षा निर्धारण NHQ/DSR Dte of Staff Requirements

4.3 Assist in Search and Rescue (SAR) Missions.

4.4 Assist in Beyond Line of Sight (BLOS) Operations.

4.5 Maritime Vessels of Interest (VoI) detection, tracking and classification using multiple sensor modalities with onboard AI with edge computing.

5. **Nomenclature.** The equipment is named as '*Long Range Autonomous Aerial Vehicle (LR-AAV)*', short title 'LR-AAV'.

6. The ORs that define performance and system parameters of the LR-AAV are enumerated in subsequent paragraphs.

System Configuration

7. **Airborne Component.** The airborne component of 'LR-AAV' shall comprise of the following:-

7.1 One AAV with unassisted VTOL capability for operating from *IN* units.

7.2 Capability to undertake horizontal flight post launch.

7.3 Modular structure composition for assembling/ dissembling and stowage in a box.

7.4 Capable of undertaking autonomous navigation as per pre-fed data in GCS.

7.5 Shall have following capabilities:-

7.4.1 **AUW** ≤ 100 Kgs.

7.4.2 **Endurance** ≥ 12 hours.

7.4.3 **Speeds**

1.4.3.1 Max ≥ 80 kn.

1.4.3.2 Transit ≥ 50 kn.

NHQ/DSR
Qte of Staff Requirements

1.4.3.3 Loiter ≤ 40 kn.

7.4.4 **Service Ceiling** - Not less than 8000 feet with payload.

7.6 Integral sensors/ payload (≥ 20 kgs) with following capabilities:-

7.6.1 High resolution EO/ IR camera.

7.6.2 Artificial Intelligence for target identification and tracking.

7.6.3 GoI approved high data rate SATCOM for communication and data transfer.

7.6.4 Provision for installing light weight radar and communication relay set.

7.6.5 On-board AI (sovereign/ indigenous make) and edge computing for object detection and tracking software enhancing Full-Motion Video (FMV) analysis by accurately identifying and tracking both stationary and moving targets at sea.

7.7 It shall also be capable of operating from the deck of a ship in the following deck motion conditions:-

7.6.1 **Ship's Speed.** Upto 25 knots.

7.6.2 **Pitch.** At least upto +/- 3 deg.

7.6.3 **Roll.** At least upto 5 deg either side.

7.6.4 **Relative Winds on Deck.** upto 30 kn.

7.8 The LR-AAV shall be able to communicate and coordinate with other LR-AAVs/ unscrewed systems deployed in LOS communication range for passing ISR data whilst maintaining in given area.

7.9 The LR-AAV shall have multi-constellation GNSS receiver with anti-jamming antenna.

7.10 The LR-AAV shall have INS for operation in GNSS denied environment.

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8. **Components of LR-AAV.** The components of LR-AAV shall comprise of the following:-

8.1 One Ground Control Station (GCS).

8.2 GCS should display essential flight parameters for safe conduct of flight and mission accomplishment.

8.3 Receive and display payload data (EO/IR).

8.4 Integrate and feed inputs received (EO/ IR) data to *IN* Combat Management System (CMS).

8.5 Facility to record and playback sensor and flight data of at least ten complete sorties (minimum 60 hours).

8.6 GoI approved high data rate SATCOM for communication and data transfer.

8.7 **Data Terminals and Command and Control (C2).**

8.7.1 LR-AAV shall be able to communicate for command and control and payload feed through Beyond Line of Sight (BLOS) and LoS RF Link (≥ 60 Nm).

8.7.2 The LR-AAV shall provide a LoS datalink, with automatic failover from the BLOS link that can communicate with the LR-AAVs at ranges greater than 60 Nm.

8.7.3 The LR-AAV shall be capable of BLOS datalink for command and control as well as real time information streaming. This solution shall operate in the Ku band and provide upto 9 Mbps for high bandwidth high reliability and secured connection with AES-256 encryption for data security.

System Description

9. **Positioning System.** The positioning system of LR-AAV shall comprise of GNSS receivers with anti-jamming antenna.

10. **Redundancy.** The LR-AAV should have redundant electrical and avionics systems, to ensure its survivability and mission reliability. All onboard systems should have a high degree of fail-safe redundancy.

NHQ/DSR Chief of Staff Requirements

11. **Datalink.** The LR- AAV shall be capable of maintaining Line of Sight (LoS) datalink communication at a range of ≥ 40 Nm from Command & Control Station and BLOS communication with range of ≥ 350 Nm.

12. **EO/ IR Payload Capabilities.**

12.1 EO/ IR sensor shall provide a Field of Regard (FOR) of 360° azimuth direction and at least +10° to -80° in elevation.

12.2 The EO shall provide continuous Wide Field of View (WFOV) of at least 30°.

12.3 The EO/ IR payload shall operate between temperature ranges of at least -20° to +55° C.

12.4 The EO & IR shall have an overall pointing accuracy of atleast 15 milli Rad. Still imagery, digital video and IR imagery capability is to be available. Capability of video recording and capturing still image (day and thermal camera) should be available at GCS.

12.5 Resolution of still image captured shall be atleast 640 x 480 pixels for IR image and 960 x 720 pixels for image captured by day camera. Digital video output is to be available at minimum HD720 pixels for day channel at GCS.

12.6 The detection range at ambient temperature 25°C and RH 80% shall be at least by 20 Km by day camera with a resolution of at least 640 x 480 pixels and 15 Km by Thermal Imager (IR) with a resolution of atleast 640 x 480 pixels.

12.7 The EO camera shall have minimum optical zoom of 30X and digital zoom at 2X. The IR camera should have a minimum zoom 12X.

12.8 The gyro stabilisation of EO/ IR shall provide 360° continuous freedom of movement.

12.9 The EO & IR system shall incorporate features of LoS slaving, Geo-pointing and video tracking.

12.10 The EO & IR system shall incorporate features of auto focus and onboard target coordinate computation with passive ranging.

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13. **Control Station.** The Control Station shall have the following features:-

13.1 Man portable.

13.2 Screen enabled for both day and night operations.

13.3 Continuous streaming of feed from the integral sensors of airborne component in suitable digital format for publishing on *IN* Combat Management System.

13.4 Display of all necessary parameters and controls.

13.5 The Control Station shall carry out the following functions:-

13.5.1 Operate airborne component in autonomous mode with facility to pre-feed coordinates to follow.

13.5.2 Maneuver the airborne component with operator inputs.

General Requirements

14. **Stipulated Conditions of Use.**

14.1 **Indian Reference Atmosphere.** Unless stated otherwise, all performance requirements shall be met under the Indian Reference Atmosphere which is defined as follows: -

Ser	Parameter	Remarks
1	Sea Level Mean Temperature (°C)	ISA + 15°C
2	Reference Temperature for Take-off and Landing	ISA + 20°C
3	Reference Temperature for performance less 2 above	ISA + 15°C
4	Lapse rate	6.5 °C/ Km
5	Mean Sea Level Pressure	1005 Hpa

14.2 **Certification.** The LR-AAV shall have certification/ flight clearance from an Authorised Certification Agency in India or equivalent or better national or International Standard for Remotely Piloted Aircraft/ Unmanned Aerial Vehicle. The certification should be compliant with MIL STD 810G or equivalent standard or latest.

NHQ/DSR

14.3 **EMI/ EMC.** EMI/ EMC standards of AAV (all applicable payloads, GCS, GDT etc.) shall conform to MIL STD 461G or FAR or equivalent or better national or international standard for Unmanned Aerial Vehicle.

14.4 **IP Rating.** IP rating of LR-AAV shall confirm to following: -

14.4.1 IP - 57: For subsystems located on the weather deck.

14.4.2 IP - 68: For LR-AAV, catering protection against accidental submersion in water.

15. **Operations.** The LR-AAV shall be able to Vertically Take-off and Land (VTOL) by day and night automatically and unassisted by personnel. The LR-AAV shall have following additional features: -

15.1 The pilot shall be able to monitor and control all phases of flight including launch and recovery from the GCS.

15.2 The GCS shall enable the pilot to switch between Automatic Take-off and Landing (ATOL) and manual mode in emergency.

15.3 The maximum area required for launch/ recovery of the equipment shall not exceed 5m x 5m.

15.4 All airframe/ avionic components and associated parts shall be corrosion resistant for operations in marine environment.

16. **Basic Design Features.** LR-AAV shall have following design and capability:-

16.1 It shall have fully autonomous flight mode, with pre-programmed or operator initiated mission guidance.

16.2 The system shall have primary data link. The downlink data of the payloads from the LR-AAV shall be capable of being encrypted. The minimum standards shall be AES 256.

16.3 Monitoring system for engine parameter shall be available in the GCS. Audio/ visual alarm/ warning shall be available to the operator for critical systems.

NHQ/DSR

16.4 The system shall be easily dismantled in not greater than 30 minutes and stowed in a container (container for stowage to be provided

along with system). The maximum assembly time of the completed system shall not exceed 30 minutes from storage box to launch.

17. **Propulsion System.** The propulsion system shall have the following features: -

17.1 Be able to use commercially available fuel with capability for fuelling and de-fuelling.

17.2 The fuel system shall have facility of low level warning (audio/ visual) in operator console.

17.3 The system shall have the provision of fuel gauge in the GCS. The display in the GCS shall be able to indicate the fuel consumed, remaining fuel and remaining endurance.

17.4 The LR-AAV shall have provision for safe fuelling and de-fuelling.

17.5 The LR-AAV shall only use one propulsion system for all phases of flight and must not include any other supporting systems for propulsion.

18. **Navigation.** The navigation shall have following specifications: -

18.1 Ability to proceed on a specified navigation route through auto mode defined by waypoints (at least 20 waypoints).

18.2 Automatic change of height/ speed and heading as specified in the navigational route.

18.3 Ability to carry out operator generated search pattern and navigate the LR-AAV.

18.4 Ability to navigate to a desired waypoint and loiter as per mission requirement.

18.5 Ability to return and hold at designated waypoint/ home position as specified by user in case of data link loss.

19. **System Integration.** The LR-AAV shall be capable of standalone operations from ground station for exchange real time tracks, images and video. System should enable Ethernet based architecture to ensure ease of integration with user network. Additionally, the following data shall be available in NATO, STANAG or any other standards formats like MIL Std or

MHQ/DSR

similar for integration with *user* network (assistance for integration would be provided by user): -

19.1 Position data of LR-AAV.

19.2 EO/IR Video data from LR-AAV.

19.3 Metadata to accompany the video in KLV format.

19.4 EO/IR Video to be shared on a specified UDP port and Radar tracks to be shared in digital format.

19.6 Correlated target tracks (EO/IR) transmissible to user network.

20. **Temporal and Geospatial Alignment**

20.1 Stamping of time and position shall be done at the system, when it initiates a track or any other time or position sensitive data point.

20.2 The GCS shall be able to input common digital map formats.

20.3 The GIS solution in the GCS shall use WGS 84 datum for commonality positional reference.

21. **Built-in Test Equipment (BITE).** The system shall have built-in test facility to enable fault-diagnosis, automatic fault location and failure identification of systems by the operator. The Control Station shall be capable of undertaking systems checks and defect identification prior deploying the vessel in the form of Pre - launch Test and Maintenance.

Maintainability Parameters

22. **Maintenance.** The system shall be easy to maintain, rugged and weatherproof.

23. **Reliability and Maintainability.** Each system shall have a designed service life not less than 8 years with possibility for further life extension/ up gradation of all its components, as an option.

24. **Upgradation of System.** The system shall incorporate features for software upgradation. Such upgrades shall be possible, with minimal change in system configuration.

NHQ/DSR

25. Vendors should confirm that following conditions are acceptable:-

25.1 The solicitation of offers will be as per 'Single Stage -Two Bid System'. It would imply that 'Request for Proposal' would be issued soliciting the technical and commercial offers together, but in two separate sealed envelopes. The validity of commercial offers would be at least 18 months from the last date of submission of offers.

25.2 The technical offers would be evaluated by a Technical Evaluation Committee (TEC) to check its compliance with RFP.

25.3 The equipment of all TEC cleared vendors would be put through a trial evaluation in India on a No Cost No Commitment' basis. A staff evaluation would be carried out by IHQ MoD (N) to analyse the result of field evaluation and shortlist the equipment for introduction into service.

25.4 Amongst the vendors cleared by GS evaluation, a Contract Negotiations Committee would decide the lowest cost bidder (L1) and conclude the appropriate contract.

25.5 Vendor would be bound to provide product support for time period specified in the RFP, which includes spares and maintenance tools/ Jigs/ fixtures for field and component level repairs.

25.6 The vendor would be required to accept the general conditions of contract given in the Standard Contract Document at Chapter VI of DAP.

25.7 **Offset (if applicable).** Not Applicable.

25.8 **Integrity Pact (if applicable).** An Integrity pact along with appropriate Earnest Money Deposit (EMD) is a mandatory requirement in the instant case in accordance with provisions of Annexure I to Appendix O of Schedule I Chapter II of DAP -20.

25.9 **Performance-cum-Warranty Bonds.** Performance-cum-Warranty Bond both equal to 5% value of the contract inclusive of taxes and duties is required to be submitted after signing of contract. Confirmation of submission of PWBG at the rate as promulgated by MoD at the time of tender submission is to be provided.

25.10 **ToT (if applicable).** Not Applicable.

NHQ/DSR

25.11 **Warranty/ CMC**. The equipment shall be covered by warranty for replacement by the vendor for a period of minimum 02 years with CMC for 05 years post completion of warranty.

25.12 **Delivery Period**. The equipment to be delivered within 24 months from the effective date of the contract.

25.13 **Spares**. List of Onboard (OB) and Base & Depot (B&D) spares required for supporting the equipment must be provided with cost. Quotations for spares should have a minimum validity of 18 months. Adequacy and continued availability of spares must be ensured prior to placement of orders for procurement of equipment. The list should be split in two parts as follows:-

25.13.1 **Onboard (OB) Spares**. OB spares should cater for one-year exploitation needs of the equipment and comprise spares, which can be replaced by the ship's staff. OB spares normally comprised items like PCBs, modules, sub-assemblies etc.

25.13.2 **Base and Depot (B&D) Spares**. B&D spares are required to cater for at least five-year exploitation needs of the equipment. They must also comprise adequate quantities of all items included in the OB spares especially more PCB/ modules instead of discrete electronic components.

25.14 **Training**. The vendor shall be responsible for the training of operators and maintainers and shall provide skilling certificate post training. Details of training schedule for operators and maintainers are to be indicated accordingly. The vendor must provide computer aided instruction packages in CD, instruction notes and special training aids to enable subsequent in-house training being conducted for following categories of personnel: -

25.14.1 Operators.

25.14.2 First/ Second level maintenance personnel.

25.14.3 Third/ Fourth level depot maintenance personnel.

25.14.4 Training establishment staff.

25.15 **Life Cycle Support**. Vendor would be bound to provide product support for time period specified in the RFP. This would include spares and maintenance tools/ jigs/ fixtures for field and component level repairs. The equipment is to be supported till the service life of the equipment. In the event of non-availability of the components/ sub-

NHQ/DSR

assemblies due to obsolescence, the sub-assemblies identical in the form, fit and function shall be provided. Overall life of the equipment should be at least 10 years from date of delivery to *IN*. Each set is to be provided with set of OBS and consolidated set for B&D spares to ensure maintainability of the equipment for 5 years post expiry of warranty.

25.16 **Documentation**. Documentation for the equipment must be supplied as per the latest guidelines promulgated by Indian Navy meeting the requirements Reliability Action Plan. Technical and Operators manuals and other associated technical documents shall include internal circuitry details and fault localization procedures that are required to undertake in-house repairs/ support by Indian Navy.

25.17 **Upgrading of System**. The vendor shall give an undertaking to make available all future upgrades to the system software and hardware. As for as possible, such upgrades should be possible with minimal change of system configuration.

25.18 **Relaxation**. Relaxation or review of any feature or parameters specified herein which could lead to major reduction in cost, complexity or development and production timeframe of the system shall be informed to the user for consideration.

25.19 **CMC**. CMC for hardware and software as part of life cycle management is to be provided by the OEM for 05 years post completion of warranty.



PART - II

1. **Procedure for Response.**

1.1 Vendor must fill the form of response as given in **Annexure II to Appendix A to Chapter II of DAP - 20**. Apart from filling details about company, details about the exact product meeting other generic technical specifications should also be carefully filled. Additional literature on the product can also be attached with the form.

1.2 The filled form should be dispatched at under mentioned address:-

Directorate of Staff Requirements
Room No 206, D Block
Africa Avenue
Integrated Headquarters
Ministry of Defence (Navy)
New Delhi 110026
Fax: 011-26771320
Email ID: dsr@navy.gov.in
PoC - CDR (SR) - ND, Contact details 011-26771553/ 26771343

Planning Officer (Electronic System)
Dte Gen of Planning and Coordination, DDP
Ministry of Defence
Room No 516, C Block, Defence Offices Complex
KG Marg, New Delhi - 110001
Email ID: poes-ddp-mod.nic.in

1.3 Last date of acceptance of filled form is ***eight weeks*** from the date of posting of this RFI on MoD website. The vendors short listed for issue of RFP would be intimated.

2. The Government of India invites responses to this request only from Original Equipment Manufacturers (OEM)/ Authorised Vendors/ Government Sponsored Export Agencies (applicable in the case of countries where domestic laws do not permit direct export by OEMs). The end user of the equipment is Indian Navy.

3. The information is being issued with no financial commitment and the Ministry of Defence reserves the right to change or vary any part thereof at any stage. The Government of India also reserves the right to withdraw it should it be so necessary at any stage. The acquisition process would be carried out under the provisions of DAP.

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PART - III

GUIDELINES FOR FRAMING CRITERIA FOR VENDOR SELECTION/ PREQUALIFICATION IN 'BUY (INDIAN-IDDM)' 'BY (INDIAN)'

4. The guidelines prescribed for short-listing/pre-qualification of Indian vendors in Buy (Indian-IDDM) and Buy (Indian) cases are enumerated in the succeeding paragraphs. **Paragraph 5** deals with the parameters that may be considered for short-listing of vendors, whereas **Paragraph 6** amplifies the process for applying selected parameters to the process of vendor short listing.

5. **Parameters.**

5.1 **General Parameters.**

5.1.1 Applicant Entity should be an Indian Vendor as defined at Paragraph 20 of Chapter 1 of DAP 2020.

5.1.2 Business dealing with applicant Entity or any of its allied entities should not have been suspended or banned, by MoD/ SHQ or any Government Department or organization (as defined in Guidelines for Penalties in Business Dealings with Entities issued vide Ministry of Defence, D (Vigilance) MoD ID No 31013/1/2006-D (Vig) Vol II dated 21 Nov 2016). None of the Promoters and Directors of applicant entity should be a willful defaulter.

5.1.3 "Entities" will include companies, with whom the Ministry of Defence has entered into, or intends to enter into, or could enter into contracts or agreements.

5.1.4 "Applicant entity" may be a company, subsidiary, an associate company (as defined in the Companies Act, 2013) a consortium or a Joint Venture (JV).

5.2 **Technical Parameters.**

5.2.1 Vendor should be a manufacturing entity or a system integrator of defence equipment and not a trading company, except in case where the OEM participates only through its authorized Vendors.

5.2.2 Minimum **'two years'** experience in **broad areas like manufacturing/ electronics etc as applicable in the instant procurement case.** If not, then cumulative experience of at **least**

NHQ/DSR

three years in above areas, resulting in gaining of competence for manufacturing the proposed product. (In case the SHQ feels that for a particular equipment a lesser experience could be accepted, then the same should be got approved by the competent authority before including the same in the RFP).

5.2.3 Where product involves integration, previous experience **of not less than one year/one project** in integration of systems/equipment shall be required.

5.2.4 **ICT Cases.**

5.2.4.1 Certification to be included if linked to scope of work-Gartner Quadrant/ISO9001/CMMi3 or more (specifying development /service /acquisition models) /ISO27001. For information security and large value projects preferably CMMi5 may be specified.

5.2.4.2 Compliance with IEEE/ITU standards depending upon nature/type of project or solution required.

5.3 **Financial Parameters.**

5.3.1 **Average Annual Turnover.** Minimum average annual turnover for last three financial years, ending 31st March of the previous financial year, should not be less than 30% of estimated cost of the Buy (Indian-IDDM) and Buy (Indian) project.

5.3.2 **Net Worth.** Net worth of entities, ending 31st March of the previous financial year, should not be less than 5% of the estimated cost of the Buy (Indian-IDDM) and Buy (Indian) project.

5.3.3 **Insolvency.** The entity should not be under insolvency resolution as per Indian Bankruptcy Code at any stage of procurement process from the issuing of RFP to the signing of contract.

5.3.4 **Credit Rating (Desirable Financial Parameter).** Long term credit rating equivalent to CRISIL rating on Corporate Credit Scale as **CCR-BBB or better**, and **SME-04 or better for SMEs** issued by credit rating agencies recognized by SEBI. Credit rating should be as on 31st March of the previous financial year.

स्वीकृत अपेक्षा निदेशालय NHQ/DSR Dte of Staff Requirements

5.4 **Other Parameters.**

5.4.1 **Industrial License (IL).** Vendors should be either holding a valid defence industrial license or should have applied for the same before responding to RFP. In any case the vendor must confirm holding of IL before commencement of FET. (Items requiring IL will be as per DIPP Press Note 3 of 2014 as amended from time to time).

5.4.2 **Registration.** Registered for a minimum of two years (one year for SMEs). Minimum number of years not applicable for JVs constituted specifically for a project.

5.4.3 **Maintenance, Repair & Overhaul.** Vendors should be capable of carrying out comprehensive Maintenance, Repair & Overhaul, calibration and obsolescence management of the equipment / platform / system indigenously, along with associated jigs, fixtures and test setups, during the designed service life of the equipment.

5.4.4 **Input/ Output Protocols.** Vendors should be able to provide indigenously, the Input/ Output Protocols of devices/ Line Repair Units envisaged to be replaced by indigenous equivalents or interfaced with equipment of own choice.

6. **Stipulations for Applying Parameters.**

6.1 Areas like manufacturing/electronics/explosive etc. should be defined in each case of procurement.

6.2 In case the Applicant Entity is unable to meet the Financial Parameters by itself, it may rely on its **Holding Company** (as defined in the Companies Act, 2013 and amendments thereof) ("Companies Act") for fulfilment of the Financial Parameters, in which case reliance must be placed on the Holding Company towards fulfilment of **ALL** the Financial Parameters.

6.3 In case the Applicant Entity is unable to meet one or more of the technical parameters by itself, it may rely on a Group Company (ies) for fulfilment of the technical parameters. A Group Company in relation to the Applicant Entity may be:-

6.3.1 A Company of which the Applicant Entity it is an Associate Company such company should have ownership, directly or indirectly, of at least 26% of the voting shares of the Applicant Entity.

NHQ/DSR

6.3.2 A Company which is an Associate Company of the Applicant Entity. The Applicant Entity should have ownership directly or indirectly, of at least 26% of the voting shares of such Associate Company.

6.3.4 A Company with whom the Applicant Entity is commonly owned, directly or indirectly, for at least 26% of the voting shares by another company. For example: An Applicant Company A is an Associate Company of Company B, in which B holds at least 26%. Further, C is also an Associate Company of B, in which B holds at least 26%. In this case the Applicant Company may use the credentials of C as well.

6.3.5 The Holding Company and Subsidiary companies (as defined under the Companies Act) of the Applicant Entity.

6.4 The Applicant entity may be a single entity or a group of entities (the "consortium"), coming together to implement the project. In such case:-

6.4.1 The credentials of only those members of their related entities may counted, who have at least 26% equity stake in the Consortium.

6.4.1 Each Consortium should have a designated **Lead Member.**

6.4.1 For Technical Parameters, **any of the consortium members of their Group Companies** may meet the criteria.

6.4.1 **For Financial Parameters.** The Turnover and Net Worth of the Consortium Member shall be reckoned **proportionate to Consortium Member's equity stake** in the Consortium, and each Consortium member should meet the other criteria pertaining to Insolvency and Credit Rating. In case the Consortium Member relies on its Holding Company for any one of the above-mentioned Financial Parameters, then reliance must be placed on the Holding Company for meeting a**ll the financial Parameters.**

6.5 Vendors should provide all necessary self-authenticated document in support of their achievement of criteria. Such documentation should inter-alia include:-

6.5.1 Details of projects/supply orders successfully executed in the last two years.

NHQ/DSR

6.5.2 Annual reports for three years of applicant entity, parent and associate companies, consortium and JV partners.

6.5.3 Details of shareholders, promoters, associated, allied and JV companies.

6.5.4 Details of vigilance action, viz ongoing investigation and suspension/ debarment/ blacklisting actions against the applicant entity or any of its allied entities, parent company or consortium and JV partners, if any by any Department/agency of Central Government.

6.5.5 A Certificate from CA/ CS indicating the financial parameters for the last three years as per Paragraph 2(c).

6.6 Any vendor furnishing false information will be liable for action as per existing guidelines.



Annexure I to Appendix A

REQUEST FOR INFORMATION: PROCEDURE FOR RESPONSE

Request for Information for Long Range Autonomous Aerial Vehicle (LR-AAV)

1. The Ministry of Defence, Government of India, intends to induct Long Range Autonomous Aerial Vehicle (LR-AAV) for ISR. The MoD, GoI, intends to provide Long Range Autonomous Aerial Vehicle (LR-AAV) to *IN* units. OEMs/ Authorised Vendors are requested to forward information on the product which they can offer. The parameters/ broad specifications of the item are mentioned in the questionnaire attached as per Annexure III to Appendix A. In addition, the vendors are required to furnish details as per Proforma at Annexure II to Appendix A.

2. Apart from the information as per the Appendices the vendors may also forward technical details/ product brochures/ literature etc pertaining to the items in question.

3. The required information/ details may please be forwarded at the following address by ***eight weeks from the date of posting of this RFI on MoD website***:-

3.1 **User Directorate.**

Directorate of Staff Requirements
Room No 206, D Block
Africa Avenue
Integrated Headquarters
Ministry of Defence (Navy)
New Delhi 110026
Fax: 011-26771320
Email ID: dsr@navy.gov.in

3.2 **Procurement Directorate.**
Directorate of Staff Requirements
Room No 206, D Block
Africa Avenue
Integrated Headquarters
Ministry of Defence (Navy)
New Delhi 110026
Fax: 011-26771320
Email ID: dsr@navy.gov.in



3.3 **Planning Directorate.**
Directorate of Staff Requirements
Room No 206, D Block
Africa Avenue
Integrated Headquarters
Ministry of Defence (Navy)
New Delhi 110026
Fax: 011-26771320
Email ID: dsr@navy.gov.in

3.4 **ADG Acquisition Technical.**
O/o Technical Manager (M & S)
Room No 5, D-2 Wing
Ground Floor, Sena Bhawan
Rajaji Marg
New Delhi 110011
Tel: 011-23011540,
Fax: 011-23017684



Annexure II to Appendix A

VENDOR INFORMATION PROFORMA

1. Name of the Vendor/Company/Firm.

(Company profile including Share Holding pattern, in brief, to be attached)

2. **Type (Tick the relevant category)**

Original Equipment Manufacturer (OEM) Yes/No

Authorised Vendor of foreign Firm Yes/No (attach details, if Yes)

others (give specific details)

3. Contact Details.

Posta Address.....;.....

City: ..... State:-

Pin Code.....Tele.....

Fax.....URL/Web Site.....

Email.....

4. Local/ Branch/ Liaison Office/Agent (if any) at New Delhi.

Name & Address:.....

Pin Code:.....Tel:.....Fax:.....

Email:.....

5. Financial Details: Category of Industry (Large/Medium/Small-scale):.....

6. **Certification by Quality Assurance Organisation.**

Name of Agency	Certification	Applicable from (Date &Year)	Valid till (Date &Year)

रक्षा सेवा निदेशालय NHQ/DSR Directorate of Staff Requirements

7. **Details of Registration.**

Agency	Registration No	Valid till (Date)	Equipment
GeM			
DGQA/DGAQA/DGNAI			
OFB			
DRDO			
Any other Government Agency			

8. **Membership of FICCI/ ASSOCHAM/ CII or other Industrial Associations.**

Name of Organisation **Membership Number**

9. **Equipment/Product Profile (to be submitted for each product separately)**

9.1 Name of Product:.....
(IDDM Capability be indicated against the product)
(Should be given category wise)

9.2 Description (attach technical literature):.....

9.3 Whether OEM or Integrator:.....

9.4 Name and address of Foreign collaborator (if any):.....

9.5 Industrial Licence Number:.....

9.6 Indigenous component of the product (in percentage):.....

9.6.1 Overall IC (in percentage):

9.6.2 IC for material/ components/ software manufactured in India (in percentage):

9.7 Status(in service/design& development stage):

9.8 Production capacity per annum:

9.9 Countries/agencies where equipment supplied earlier (give details of quantity supplied):

.....

NHQ/DSR

9.10 Estimated price of the equipment.....

9.11 Indigenously produce subsystems, Line Repair Units, software and critical spares of the product:

9.12 Devices / Line Repair Units for which Input / Output Protocols are indigenously available for enabling replacement by indigenous equivalents or interfacing with equipment of own choice:

9.13 Capability for carrying out Comprehensive Maintenance, Repair and Overhaul, calibration and obsolescence management of the equipment / platform / system along with associated jigs, fixtures and test setups, during the designed service life of the equipment within India:

10. Alternatives for meeting the objectives of the equipment set forth in the RFI.

11. Any other relevant information:.....

12. **Declaration.** It is certified that the above information is true and any changes will be intimated at the earliest.

(Authorised Signatory)



Annexure III to Appendix A

REQUEST FOR INFORMATION: QUESTIONNAIRE

Ser	Specifications/ Parameters	Reply
1.	Do you comply with complete ORs (operational and technical requirements) mentioned in Part I of RFI? Please provide feature wise compliance?	
2.	Any new specifications/ features/ technology development not included in ORs and are being offered by the OEM?	
3.	Will you provide complete support for software and hardware issues?	
4.	Provisioning of Long Range Autonomous Aerial Vehicle (LR-AAV) under Buy Indian (IDDM) (preferred) (Indigenous Design & IC content >50 %) /Buy Indian categorisation (IC content >60%) iaw DAP 20? ***Reply to include IC Certificate as per Appendix B to Ch I (Annexure I and Annexure II) of DAP 2020.***	
5.	Have you supplied Long Range Autonomous Aerial Vehicle (LR-AAV) to Indian/ Foreign Armed Forces? Its performance and difference vis-a-vis QRs in Part I? ***In-Service Certificate to be included with reply.***	
6.	What is the maximum time that you would take to deliver Long Range Autonomous Aerial Vehicle (LR-AAV) post contract?	
7.	What is the status of Long Range Autonomous Aerial Vehicle (LR-AAV) Technology Readiness Level (TRL) with your firm?	
8.	How would you ensure that operational requirements projected in RFI are met in totality?	
9.	Does the system cater for easy de-bugging and follow the laid down industry standards? If yes, what standards are followed? Does the architecture of the system cater for easy re-loading of corrected embedded software / firmware by *IN* maintainer?	
10.	What is experience in integrating with associated systems iaw Part I of RFI?	
11.	Please provide if any AI technology is incorporated in Long Range Autonomous Aerial Vehicle (LR-AAV)? Will it utilize hybrid AI algorithm?	
12.	In case of more than one power amplifiers, is the power supply common or do the amplifiers have independent power supplies? Also, in case of failure of one amplifier,	

Ser	Specifications/ Parameters	Reply
	will the other amplifiers continue to stay in operation mode?	
13.	Does the system have a high visibility display providing brightness and contrast control? Give details of display viewing angles and limitations, if any. Also list the details of parameters/features available for viewing on the front panel display.	
14.	Provide detailed information of Airborne equipment and Ground Control Station?	
15.	What is the system readiness time from powering up till transmission stage?	
16.	Functionality of GCS operation?	
17.	Will the displays undergo UI-UX heatmapping?	
18.	Details of COTs, MOTs and MIL STD component be provided	
19.	Utilisation of Indigenous Military Material and Indigenous Software, indicating plan for material sourcing iaw Para 11 and 13 of Ch II of DAP 20 be indicated.	
20.	Details regarding repairable LRUs/ Shop Replaceable Unit (SRUs)/ Modules/ Blocks which shall be repaired upto component level at the repair facility offered for the system indicating all critical and high population module.	
21.	Cost estimate including taxes and duties is to be provided.	
22.	Mode of FET (Physical trials/ documentation/ certification/simulation) and trial methodology as per parameters in QRs, including parameters for product evaluation is to be provided.	
23.	Vendor information and relevant documents wrt vendor being MSME and /or startup may be provided iaw Para 23, Chapter II of DAP 20.	
24.	Inputs on alternatives to meet the same/ better operational requirements is to be provided	
25.	Any dependency on Foreign OEM for critical component/ technology along with long term plan for indigenization of such foreign components/ technology.	
26.	Inputs on compliance and/or conformity to various industrial and military standards as applicable as per QRs, related to operations and safety be provided.	
27.	Undertaking is to be provided stating that "The vendors/ firms (name) have never been banned/ debarred from doing business dealing with MoD /GoI/or any other Govt organisation.	

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Ser	Specifications/ Parameters	Reply
28.	Confirmation is to be provided wrt submission of PCIP, EMD and all BGs at the rate as promulgated by MoD at the time of tender submission.	
29.	How will the vendor enhance indigenization and setup dedicated manufacturing line, including design, integration and manufacturing processes in India, in case of a joint venture with foreign OEM	
30.	What would be depth of ToT envisaged?	
31.	Environmental specification to which the equipment complies (MIL STD 810G/JSS 55555 for Environmental Tests or any other Internationally Recognised standard). Further, Environmental conditions (temperature range, vibration, thermal and mechanical shock, humidity, ingress protection, protection against corrosion & Mould Growth, Drip Proof, driving Rain and, Solar radiation etc.) along With respective test severities to which equipment would comply.	
32.	EMI/EMC standards to which the complete equipment complies (MIL STD 46G or FAR or equivalent or better national or international standard for unmanned Aerial Vehicle).	
33.	Details of Environmental Stress Screening (ESS) tests on PCBs/Module/Integrated System be provided with applicable specifications.	
34.	Detailed Bill of Material (DBOM) clearly indicating items/components/sub-assemblies that are imported, COTS and Indigenous items	
35.	Details of COTS PCBs/Modules/sub-units/sub-systems that would be used in the equipment.	
36.	What grade of cable/internal wiring will be used in the equipment?	

1. **After Sale Support.** The following details will be provided by the vendor:-

1.1 Repair methodology being proposed.

1.2 What kind of Engineering Support Package (ESP) and life time support can be provided alongwith financial implications?

1.3 How are similar kind of systems being maintained by the vendor?

1.4 Will the requisite spares, SMT/ STE be provide by the vendor for carrying out component level repairs?

NHQ/DSR

1.5 What would be the training mechanism for operators and maintainers?

1.6 Proposal for CMC/ RRC with cost implications.

2. **Product Support and Upgradability.** The vendor shall indicate and give details of the information sought listed below:-

2.1 All major repairs and overhaul facilities for major assemblies and component level owned by the vendor India.

2.2 Base overhaul facilities and availability of infrastructure in India.

2.3 Management of repairs and spares post warranty.

2.4 Upgrade for software (as applicable).

2.5 Upgradability of hardware for enhanced performance features or due to modifications required to obviate recurring defects.

2.6 Vendor shall indicate conformity to submission of Manufacturers Recommended List of Spares (MRLS), Illustrated Spare Part List and Technical Manuals including for STEs.

2.7 Vendor shall indicate compliance to Tangible Obsolescence Management Plan and plane for upward compatibility with latest modules.

2.8 Vendor shall provide details of vendors/ sub-vendors and readiness/ lead time towards provisioning of spares.

3. **Manufacturing and Production Aspects.**

3.1 Vendor shall provide details of all R&D and manufacturing infrastructure.

3.2 **Indigenisation.** Vendor shall give out ability and willingness to supply the product to meet the requirements of **Buy (Indian-IDDM) and/ or Buy (Indian)** to meet the aim of indigenization as per the provisions and spirit of DAP 2020.

3.3 **Production Capacity.** Vendor will give out his current and planned annual production capacity and proposed delivery schedule of the equipment. The timeline required to deliver required quantity of the equipment for trials and post contract, time required to deliver the

NHQ/DSR

equipment. Vendor shall obtain necessary export/ import clearances in due time to ensure expeditious production

3.4 Vendor should indicate willingness to participate in trials as per DAP 2020 in India on NCNC basis.

3.5 Vendor should give details on use of indigenous military material and software indicating plan for sourcing material and cost implications vis-à-vis foreign sourcing of material.

4. **Test Standards.** Inputs on test standards adopted for similar equipment type be indicated. Equipment procured by Indian Navy has to undergo environmental test and other relevant checks by nominated CQAE, FATs as per Mil Std/ JSS 55555 requirements.

5. **Certification.** Parameters for which certifications can be made applicable and provided in lieu of trials evaluation. Details of parameters of the equipment which can be certified from NABL accredited labs will be indicated.

6. **Financial Aspects.** Vendor shall intimate the cost of Long Range Autonomous Aerial Vehicle (LR-AAV)s as mentioned in Part I of RFI, inclusive of taxes and duties. Details of cost should also include product support package, training, additional details as deemed appropriate. Additionally, vendor shall indicate acceptability to the terms of payment as per DAP-20.

7. **Compliance with Provisions of DAP 20.** Vendor should indicate compliance with all provisions of DAP-20. If not, which Para/ clause of DAP-20 not agreed with reasons be indicated.

8. Vendor should also indicate willingness for option clause as per DAP 2020.

9. **Training.** Vendor shall indicate ability and willingness to offer following: -

9.1 Training aggregate for conduct of training like technical literature, slides, blow up diagrams, training work modules, brochures and Computer Based Training package.

9.2 Vendor shall indicate the facilities available at Vendor's premises to conduct training. Vendor should also indicate training for user, maintainers and QA personnel along with skilling certification of trainee (Certificate to be provided).

NHQ/DGR

9.3 Recommended training period for users, maintainers and QA personnel.

9.4 Availability and cost of simulators if any.

9.5 Availability of willingness of the vendor to provide hard and soft copies of the User Handbook, Design Specifications, Technical Manuals along with CBT for training.

10. If vendor is MSME and/ or Startup, relevant information and supporting documents are to be provided.

11. Vendors to specify the protocols/ security features being followed to maintain cyber security of the transmitter. Please indicate acceptability and implementation of provisions with respect to security/ malicious codes as per DAP-20.

12. **Undertaking on Debarment.** Vendor should provide an undertaking that it was never banned/ debarred from doing business dealing with MoD/ GoI/ or any other Govt organization.

13. Indicate if same or similar system has been supplied to any other customer along with details of deviation in capabilities and cost, if any.

14. **Miscellaneous.**

14.1 Extract of relevant technology perspective, and capability roadmap to be included.

14.2 Any futuristic plans for modification and or modernization plans for the equipment being offered.

14.3 Vendor may consider RFI as advance information to obtain requisite government clearances.

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