

REQUEST FOR INFORMATION (RFI)

FOR PROCUREMENT OF 01 X TECHNICAL SUPPORT CRAFT

1. The Indian Navy under Ministry of Defence, Government of India, is planning to procure **01 x Technical Support Craft (TSC)** from registered Indian Shipyards. With a view to identify probable shipyards who can undertake the construction of 01 x TSC, the Shipyards are requested to forward information as sought in this RFI. The aim of seeking this RFI is also to finalise the specifications for the TSC with inputs from the Shipyards.
2. This Request for Information (RFI) consists of three parts as indicated below:-
 - (a) **Part I.** The first part of the RFI incorporates operational characteristics and features that should be met by the TSC. Few important technical parameters of the proposed TSC are also mentioned.
 - (b) **Part II.** The second part of the RFI states the methodology of seeking response of Shipyards. **It is highlighted that in accordance with Paras 13, 70 and 92 of Chapter II of Defence Acquisition Procedure (DAP) 20, there is a need to undertake capacity assessment of a shipyard prior recommending for issuance of Request for Proposal (RFP) for ship or Yardcraft construction irrespective of shipyard's response to this RFI (Appendix C to Chapter XII of DAP 20 relevant).**
 - (c) **Part III.** Guidelines for Framing Criteria for Vendor Selection/ Pre-Qualification in respect of 01 x TSC under Buy (Indian-IDDMM) category.
3. Apart from the information sought as per the Appendices, the shipyards may also forward technical details/brochure/preliminary design/literature, etc., as deemed appropriate with respect to this said RFI for Procurement of 01 x TSC.

PART- I

4. **Intended Use of TSC (Operational Requirements).** The TSC shall be capable of ferrying personnel and stores between Naval Dockyard (ND) and Ships at Anchorage or Outer Harbour and undertake repairs and overhaul as indicated at **Ser 61 of Appendix A.**
5. **Important Technical Parameters.** Important Technical Parameters are placed at **Appendix A** of this document. Detailed specifications will be given in the RFP which will be issued to Shipyard after verifying their credentials and capabilities to construct TSC. Further following details are to be submitted:-
 - (a) Feasibility to build TSC as per technical/ operational parameters and specifications indicated at **Appendix A.** The shipyards are required to furnish details for each of the operational and technical parameters as brought out in **Appendix A.** Any modification to the parameter/ specifications listed at **Appendix A,** can be suggested by the Shipyard with suitable justification(s).

- (b) Shipyard to submit the concept design for the Vessel and option of providing upcoming technologies, if any, which will meet the intended purpose of the Vessel and enhance its employability.
- (c) Agreement and / or collaboration with firms with regard to Design and Construction of the Vessel.
- (d) Budgetary quotes of the Vessel with detailed break up of cost is to be submitted. This should include material cost, labor cost, equipment cost, training cost and taxes (as applicable). All entities factored in the costing are to be indicated in the break up.
- (e) Information on whether the offered Vessel/ design is in use by any other Indian Customer is to be indicated.
- (f) The Vessel will be operated by Manpower/ Crew as indicated in **Appendix A**. The maintenance of the Vessel post guarantee period will be carried out by Naval Dockyards/ Naval Repair Yards. Training to **IN** personnel on operation and maintenance is to be imparted by the Shipyard/ Original Equipment Manufacturer (OEM) of equipment at Shipyards/ OEM premises and (or) **IN** premises. Shipyard to submit proposed training schedule for crew and maintainers covering all the equipment fit and auxiliary systems installed in the Vessel in accordance with DAP-20. Further, shipyard to indicate acceptance to conduct the training at OEM premises and shipyard premises for the crew and maintainers.
- (g) The tentative delivery schedule/ build period for delivery of the Vessel to **IN** at **Visakhapatnam** after conclusion of contract including the build strategy.
- (h) Shipyards may consider this RFI as advance information to obtain requisite Government clearances and setting up of necessary infrastructure both in terms of manpower and material requirements.
- (j) Shipyard has to confirm its acceptance with the terms of payment as per Chapter XII, Section B, Para 79 and Appendix B to Chapter XII of DAP 20 and amendments thereof.
- (k) Experience in building/ supply of Vessel which meets the requirement as listed in this document, along with details of customer/ clients and cost per Vessel, delivery date, etc. will have to be submitted.
- (l) Willingness for Option Clause as per Para 93 of Chapter II of DAP 20.
- (m) The shipyard to submit copy of Government license relevant for ship construction/ building activity.
- (n) Shipyard is to indicate the compliance and/ or conformity to various industrial and classification society rules and standards related to operations and safety such as Indian Standards Institute (ISI), CE, MIL (Military) Spec, Information Technology (IT) related etc., for various components/ sub-components of the Vessel as applicable.

(p) Whether the shipyard would be able to comply with all provisions of DAP 20 or not. If not, which Para/ Clause of DAP 20 would not be agreed to, with reasons, needs to be submitted.

(q) Shipyards to provide inputs on maintenance philosophy (Engineering Support Package (ESP), Annual Maintenance Contract (AMC), Performance Based Logistics (PBL), etc.). In this regard, Para 51 and Appendix F of Chapter II of DAP 20 is relevant.

(r) Shipyard has to confirm its acceptance with the terms and conditions on obsolescence of the component/ parts of equipment of the Vessel, which may become obsolete, during the life cycle of the Vessel as per DAP 20 and amendments thereof. Further, Shipyard to submit details/plan for envisaged upgradation of equipment for obsolescence management and details with respect to repair facilities may also be submitted.

(s) Shipyard has to confirm its acceptance to follow all the provisions of Chapter XII, Section-B of DAP 20 regarding acquisition of Yardcraft and Auxiliaries on competitive basis. If not, which Para/ Clause of Chapter XII of DAP 20 would not be agreed to, with reasons, needs to be submitted.

(t) **Acceptance Trials**. Shipyard to submit details with respect to Acceptance Trials, including parameters for product evaluation.

(u) **Alternatives for same/better Operational Requirements**. Shipyard to provide inputs/recommendation with respect to any alternatives to meet the same/better operational requirements.

(v) **Compliance to Environmental Norms**. Shipyard to submit compliance to environmental standard for weather, corrosion resistance etc.

(w) **Undertaking Certificate**. Shipyard to submit an undertaking that in the past they have never been banned/debarred from doing business dealing with MoD/Gol/ or any other Govt organization.

(x) Shipyards are required to provide following details:-

(i) Displacement / dimensions of the Vessel.

(ii) Proposed Delivery Schedule of the Vessel.

(iii) Details pertaining to capacity, infrastructure, financial status of the Shipyard to be furnished and how it is intended to be used to meet the delivery schedule of the Vessel.

(iv) Past experience of Shipyard in executing similar projects.

(v) Details of present order book status to be furnished.

6. The Shipyard should confirm that following conditions are acceptable: -
- (a) The solicitation of offers will be as per 'Single Stage -Two Bid System'. It would imply that a '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 date of submitting of offers.
- (b) The financial assessment parameters would be evaluated by a Financial Parameter Evaluation Team (FPET) constituted by SHQ prior to Technical Evaluation Committee (TEC). The technical offers would be evaluated by a TEC to check its compliance with RFP.
- (c) Amongst the Shipyards cleared by TEC, a Contract Negotiations Committee (CNC) would decide the lowest cost bidder (L1) and conclude the appropriate contract.
- (d) 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. Documentation for training/ maintenance/ repairs are also to be provided.
- (e) The vendor would be required to accept the general conditions of contract given in the Standard Contract Document at **Chapter VI of DAP 20**.
- (f) **Integrity Pact and Earnest Money Deposit (if applicable)**. An Integrity Pact is to be submitted at the time of bid submission as indicated below (Refer **Annexure I to Appendix O of Schedule I, Chapter II of DAP 20**):-
- (i) **Pre Contract Integrity Pact (PCIP)**. All vendors will be required to submit a PCIP for all procurement schemes above Rs 20 Crores along with their technical and commercial offers. **Earnest Money Deposit (EMD) will act as security for PCIP till signing of contract. Format of EMD is given at Annexure I to Appendix O of schedule I to Chapter II. Post signing of contract, PCIP will be covered by PWBG till completion of contract.**
- (ii) EMD would be applicable as follows :-

| Estimated Cost of Procurement Scheme (Rs Crs) | | EMD Amount |
|--|-------------------|------------|
| Above (not including) | To (including) | |
| - | 100 | Nil |
| 100 | 150 | 30 Lakh |
| 150 | 300 | 70 Lakh |
| 300 | 1000 | 2 Crore |
| 1000 | 2000 | 5 Crore |
| 2000 | 3000 | 10 Crore |
| 3000 | 5000 | 15 Crore |
| 5000 | - | 25 Crore |

(iii) EMD is not required from Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) or are registered with the Central Purchase Organization or the concerned Ministry or Department or Startups as recognized by Department of Industrial Policy & Promotion (DIPP), in accordance with the Ministry of Finance memorandum bearing No. F.20/2/2014-PPD (pt.) dated 25 Jul 2017 (as amended from time to time). Defence Public Sector Units (DPSUs) are not required to submit EMD when nominated as ab-initio single vendor. DPSUs will submit all BGs and EMD as applicable while participating in multi-vendor cases with private vendors.

(iv) **Format of EMD.** The Bid Security may be accepted in the following forms, safeguarding the Buyer's interest in all respect:-

(aa) Bank Guarantee from any Indian Public or Private Schedule Commercial Bank notified by RBI or first-class banks of international repute. The format of the Bank Guarantee for Bid Security is provided at Annexure 1 to Appendix O of schedule I to Chapter II. The bidder may also submit EMD in the form of electronic Bank Guarantee (e-BG). UIN Number of beneficiary (Directorate of Ship Production) is **NCDGS1230P**.

(bb) Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque shall be payable in an acceptable form. The Beneficiary Bank Details for furnishing the same are as follows:-

(IFSC CODE- SBIN0000691)
State Bank of India New Delhi Main Branch
C Block, 11 Parliament Street
New Delhi, Pin: 110001

(v) **Validity of EMD.** The EMD will be valid for eighteen months or till signing of contract, whichever is later. The EMD shall be extended from time to time as required by the buyer and agreed by the bidder. No interest shall be payable by the buyer to the Bidder(s) on the EMD for the period of its currency. For unsuccessful bidders EMD will be returned on declaration of successful bidder(s).

(g) **Performance-cum-Warranty Bond.** Performance-cum-Warranty Bond both equal to 3% value of the contract inclusive of taxes and duties is required to be submitted after signing of contract as per current PWBG rate promulgated by Ministry of Defence (MoD). However, the final amount of PWBG will be applicable as per the rate promulgated by MoD from time to time and in force at the time of tender submission.

(j) **Indigenous Content (IC).** The procurement of the Vessel will be as per DAP 20, and accordingly shipyards are required to submit the details regarding Indigenous Content (IC). The categorisation for the procurement is intended to be under Buy (Indian - IDDM). The Vessel must meet the minimum IC parameters in accordance with Para 21 of Chapter I of DAP 20. The Shipyard

is also required to comment on the categorisation and IC content as per DAP 20. The category wise (less Strategic Partnership model cases) summary of IC as per cost of the **Base Contract Price** (i.e. **Total Contract Price less taxes and duties**) will be as under:-

| Ser | Category | IC |
|------------|-------------------|-----------------------------------|
| (a) | Buy (Indian-IDDM) | Indigenous design and $\geq 50\%$ |

PART-II

7. Procedure for Response

(a) Vendors must fill the form of response as given in **Appendix B** (as per **Annexure II to Appendix A to Chapter II of DAP 20**) and **Appendix C** of this document. 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 design and construction of 01 x TSC can also be attached with the form.

(b) The Shipyard to submit separate enclosure clearly indicating compliance with the operational/ technical specifications placed at **Appendix A** of this RFI. Non-Compliance to any of the parameters listed in **Appendix A**, has to be clearly indicated along with reasons.

(c) Compliance/ acceptance to Paras 5 and 6 at Part-I above are to be clearly indicated and certified in response. Any other relevant additional literature or document on the TSC can also be attached with the RFI response form.

(d) The duly filled RFI response should be dispatched to the under mentioned address:-

Cmde (Ship Production)
Directorate of Ship Production
9th Floor, Chanakya Bhawan,
Chanakyapuri, New Delhi- 110021
Tele: 011-26886427
Fax: 011-21610614
E-mail: dsp@navy.gov.in

(e) Last date of acceptance of filled RFI response is **09 May 23**. The Shipyards short listed for issuance of RFP would be intimated based on Technical Capacity Assessment as per Appendix C to Chapter XII of DAP 20.

(f) **Shipyards, if required, can communicate to the Project Officer of DSP with below mentioned contact details for seeking clarification/ information on the documents (such as Navy Order (NO), Naval Construction Document (NCD), etc) mentioned in this document:-**

Lt Cdr (Ship Production)
Directorate of Ship Production
8th Floor, Chanakya Bhawan,
Chanakyapuri, New Delhi- 110021
Tele: 011-26886433
Fax: 011- 21610614
E-mail: dsp@navy.gov.in

8. The Government of India invites responses to this request from registered Indian Shipyards who qualify the criteria/ willing to meet the criteria as enumerated below :-

(a) Financial Assessment Parameters as per **Annexure II to Appendix C to Chapter XII of DAP 20**.

(b) The shipyard should have been qualified by Technical Capacity Assessment as per **Annexure I to Appendix C to Chapter XII of DAP 20** or willing to be assessed as per the aforesaid technical capacity assessment parameters.

9. The end user of 01 x TSC is the Indian Navy.

10. Shipyard to submit information with respect to utilisation of Indigenous Military Material and Software, indicating the plan for material sourcing and cost implications vis-a-vis foreign sourcing of materials, iaw Paras 11 and 13 of Chapter II of DAP-20, if applicable.

11. This information is being issued with no financial commitment and the Ministry of Defense 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 20.

PART- III

Guidelines for Framing Criteria for Vendor Selection/ Prequalification in respect of 01 x Technical Support Craft under Buy (Indian-IDDM) Category

12. The guidelines prescribed for short-listing/ pre-qualification of Indian vendors in case of shipbuilding cases are detailed in **Chapter XII of DAP 20** and Financial Assessment Parameters as per **Annexure II to Appendix C to Chapter XII of DAP 20**. The relevant details are placed at **Appendix D**.

13. **SME/MSME/Startup Certification**. Shipyard to provide certificate/relevant documents of being a SME, MSME or Startup, if applicable.

OPERATIONAL/TECHNICAL SPECIFICATIONS
FOR TECHNICAL SUPPORT CRAFT

| <u>SECTION A - GENERAL</u> | | |
|-----------------------------------|-------------------------------|--|
| 1. | <u>Aim</u> | The Vessel shall be capable to enhance time on task of yard personnel by ferrying them between Naval Dockyard (ND) and Ships at Anchorage or Outer Harbour. |
| 2. | <u>Functions</u> | <p>(a) Ferrying of 100 yard personnel along with their tools, equipment, machinery and spares between Dockyard and Ships at Anchorage or Outer Harbour, to increase the Time on Task of ND Workforce.</p> <p>(b) To undertake repairs and overhaul stipulated at Para 61 below.</p> <p>(c) Ferrying of stores between Dockyard and Ships at Anchorage or Outer Harbour.</p> |
| 3. | <u>General Remarks</u> | <p>(a) The vessel should be constructed as per IHQ MoD (N) approved Classification Society Standards (ABS/BV/DNV-GL/IRS/LR/ RINA/NKK).</p> <p>(b) SS 316 grade Stainless Steel (SS) is to be used for all hull fittings on the weather deck.</p> <p>(c) The vessel should comply with all the latest requirements of Marine Pollution (MARPOL)/ Marine Environment Protection Committee (MEPC) and Safety of Life at Sea (SOLAS) regulations as well as DG Shipping regulations, as applicable. However IN requirements/ standards, wherever specified, would be applicable over and above other rules and regulations.</p> <p>(d) It should have an expected life of minimum 30 years.</p> <p>(e) The Vessel should be designed to follow an Ops-cum-Refit cycle of 30 months of operations followed by 03 months of Refit Period.</p> |
| 4. | <u>Speed</u> | <p>(a) Maximum speed - More than 12 kn upto 85% (Maximum Continuous Rating (MCR)).</p> <p>(b) Economical - More than 10 kn.</p> |
| 5. | <u>Dimensions</u> | <p>The principal dimensions of the Vessel should be as follows:-</p> <p>(a) Length - 50m +/- 5%</p> <p>(b) Breadth - As per design.</p> |

| | | |
|-----|--|---|
| | | (c) Displacement - Not Less than 420T. |
| 6. | <u>Draught</u> | Not More Than (NMT) 2.5 Mtrs. |
| 7. | <u>Endurance</u> | 100 nm at speed of 10 kn with 25% reserve fuel capacity. |
| 8. | <u>Sea Worthiness</u> | <p>(a) Safety and operability of crew and machinery upto Sea State 4 at all headings.</p> <p>(b) Survivability of the Vessel upto Sea State 5.</p> <p>(c) Ability to be towed upto Sea State 4.</p> <p>(d) Vessel should be able to come alongside another bigger ship at anchorage up to sea state 4.</p> |
| 9. | <u>Crew</u> | <p>Should be manned by the following qualified civilian crew:-</p> <p>(a) One Master.</p> <p>(b) Two Engineers working in two shifts.</p> <p>(c) 22 Deck and Engine Room/Electrical Crew divided in two shifts.</p> |
| 10. | <u>Environmental Conditions</u> | Environmental conditions are to be as per rules and standard of Classification Society. |
| 11. | <u>Special Features</u> | <p>The following features are to be included:-</p> <p>(a) The maneuverability of the vessel should comply with IMO standards of Maneuverability, Resolution MSC 137 (76).</p> <p>(b) The Vessel should be designed to minimize roll and pitch to achieve stability at sea state 5 for 'ferrying yard personnel' and crew comfort in accordance with limiting values specified as per rules and standard of Classification Society.</p> <p>(c) Two sea boats with suitable Electrical Davits for launch and recovery. Specification are to be as per rules and standards of Classification Society.</p> <p>(d) Passenger spaces, crew accommodation and other manned spaces such as bridge are to be provided with Marinised Air Conditioning.</p> <p>(e) Layout of instrument panel, controls, noise level, whole body vibration is to be iaw Classification Society guidelines for crew comfort, lighting ventilation and air conditioning.</p> <p>(f) A 25 m² area on 01 Deck is to be earmarked for storage of the equipment removed from ship for repair. This area should be provided with deck strengthening to sustain weight of the equipment and retractable canopy for wet weather protection.</p> |

| | | |
|-----|--------------------------|--|
| | | <p>(g) A separate lockable, air conditioned compartment is to be provided on main deck for carrying out essential soldering/ Printed Circuit Board (PCB) repairs using portable repair sets provisioned by respective work centers from yard. The compartment should cater for work bench and soldering station.</p> <p>(h) A machine shop on 01 deck.</p> <p>(j) Bottle banks on upper deck (01 deck) aft of the bridge for stowage of Nitrogen, Oxygen and Acetylene bottles required for pressure testing, cutting, welding and brazing repairs.</p> <p>(k) Two motorised telescopic derricks/ cranes of 05 Ton Safe Working Load (SWL) on Port and Stbd waist of 01 deck for lowering of equipment/heavy items from ship to Vessel and vice versa.</p> <p>(l) Separate lockable compartments are to be provided near machine shop on 01 deck to cater for the following:-</p> <ul style="list-style-type: none"> (i) Stowage of ingots, rods, pipes, sheets etc, required for onboard machining and repairs. (ii) Segregation and stowage of industrial waste prior disposal. <p>(m) Three separate air conditioned seating cum dining areas of capacity of 50, 30 and 20 personnel. Seating cum Dining Areas should have Air Door Curtains.</p> <p>(n) The Vessel should have galley arrangement and equipment for preparation of food.</p> |
| 12. | <u>Ergonomics</u> | <p>The following are to be met:-</p> <p>(a) Latest design concept for Vessel, with respect to ergonomics/ functional aspects and passenger (yard personnel) & crew comfort.</p> <p>(b) Sound insulation for all accommodation, work spaces etc.</p> <p>(c) Modern modular accommodation spaces as per rules and standard of Classification Society.</p> <p>(d) The living spaces, workshop spaces and Bridge should be air conditioned and other spaces to be mechanically ventilated as per rules and standard of Classification Society.</p> |

SECTION B - NAVIGATION

| | | |
|-----|--------------------------------|---|
| 13. | <u>Bridge</u> | <p>The Bridge should be enclosed and air conditioned with large inclining windows for all around view to assist maneuvering alongside. All front windows should have Clear View Screen equipment and other windows should have either Clear View Screen equipment or marinised window wipers. Following should be provided in the Bridge:-</p> <p>(a) Navigation and Communication equipment.</p> <p>(b) Machinery Control for Main Propulsion, Power Generation and Auxiliary Machineries.</p> <p>(c) All audio and video alarm displays/indications iaw SOLAS Regulations II - 1/29 interpreted vide IMO MSC 1/ Circ 1398 dated 10 Jun 11.</p> <p>(d) Adequate number of electrical sockets for charging and energising portable equipment.</p> <p>(e) Three portable revolving chairs for operators with deck securing arrangement (during rough weather) and facility to adjust height.</p> |
| 14. | <u>Mast</u> | <p>Foldable mast is to be provided to restrict the height of the Vessel from water level. This mast should be capable of carrying navigation lights and flags. Height of the foldable mast should not be more than 8.5 m in light load condition.</p> |
| 15. | <u>Steering Post</u> | <p>Primary and secondary steering posts should be provided.</p> |
| 16. | <u>Radar</u> | <p>One 'I' Band Commercial off the Shelf (COTS) navigation radar with Electronic Chart Display and Information System (ECDIS) functionality is to be provided in twin Multi Function Console (MFC) configuration. The radar should be interfaced with Gyro, Electromagnetic (EM) Log, Echo Sounder, Global Positioning System (GPS) and Automatic Identification System (AIS) trans receiver.</p> |
| 17. | <u>Gyro</u> | <p>One COTS Gyro with repeaters at primary & secondary steering posts and Bridge Wings.</p> |
| 18. | <u>EM Log</u> | <p>One COTS EM Log.</p> |
| 19. | <u>Echo Sounder</u> | <p>One COTS Echo Sounder.</p> |
| 20. | <u>Magnetic Compass</u> | <p>One transmitting magnetic compass is to be provided on the bridge with repeaters on Bridge Wings.</p> |
| 21. | <u>GPS</u> | <p>One Satellite Based Augmentation System (SBAS) enabled GPS.</p> |
| 22. | <u>AIS</u> | <p>One AIS.</p> |

| 23. | <u>Global Maritime Distress and Safety System (GMDSS)</u> | Following should be provided:- (a) <u>Emergency Position Indicating Radio Beacon (EPIRB)</u> . EPIRB operating at 406 MHz. (b) <u>Search and Rescue Transponder (SART)</u> . One SART. | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--|-----|-------------|-----|-----|---|-------|-----|--|-------|-----|--|-------|-----|-----------------------|-------|-----|-------------------|--------|-----|--------------|-------|-----|--|--|
| 24. | <u>Fog Horn</u> | Two electric fog horns are to be provided as per Classification Society requirement on top of the wheel house with local operating controls and provision for remote operations from the bridge. | | | | | | | | | | | | | | | | | | | | | | | | |
| 25. | <u>NAV Lights</u> | As per International Regulation for Prevention of Collision at Sea (IRPCS) - 1972. Battery and backup supply is to be provided for the navigation lights. | | | | | | | | | | | | | | | | | | | | | | | | |
| 26. | <u>Radar Reflector</u> | One portable radar reflector is to be provided. | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>SECTION C - COMMUNICATION</u> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27. | <u>Communication</u> | The following communication facilities complying with current IMO Regulations for GMDSS are to be provided:- <table border="1" data-bbox="638 892 1409 1654"> <thead> <tr> <th data-bbox="638 892 719 934">Ser</th> <th data-bbox="719 892 1141 934">Description</th> <th data-bbox="1141 892 1409 934">Qty</th> </tr> </thead> <tbody> <tr> <td data-bbox="638 934 719 1144">(a)</td> <td data-bbox="719 934 1141 1144">Latest version of Very High Frequency (VHF) Millimeter Mobile Broadband (MMB) Tx/Rx with Digital Selective Calling (DSC) with power output 25 W</td> <td data-bbox="1141 934 1409 1144">- Two</td> </tr> <tr> <td data-bbox="638 1144 719 1318">(b)</td> <td data-bbox="719 1144 1141 1318">VHF Hand Held (HH) Radio sets (Motorola make, latest version) with one each battery charger, spare battery and water proof pouch</td> <td data-bbox="1141 1144 1409 1318">- Six</td> </tr> <tr> <td data-bbox="638 1318 719 1388">(c)</td> <td data-bbox="719 1318 1141 1388">5" Hand signaling lantern with stowage box</td> <td data-bbox="1141 1318 1409 1388">- One</td> </tr> <tr> <td data-bbox="638 1388 719 1430">(d)</td> <td data-bbox="719 1388 1141 1430">Portable loud hailers</td> <td data-bbox="1141 1388 1409 1430">- Two</td> </tr> <tr> <td data-bbox="638 1430 719 1482">(e)</td> <td data-bbox="719 1430 1141 1482">Blue Ensign Flags</td> <td data-bbox="1141 1430 1409 1482">- Four</td> </tr> <tr> <td data-bbox="638 1482 719 1545">(f)</td> <td data-bbox="719 1482 1141 1545">Search light</td> <td data-bbox="1141 1482 1409 1545">- One</td> </tr> <tr> <td data-bbox="638 1545 719 1654">(g)</td> <td data-bbox="719 1545 1409 1654">Mast should have halyards and gaff for hoisting of flag Signals, Ensign and dressing overall arrangements.</td> <td data-bbox="1141 1545 1409 1654"></td> </tr> </tbody> </table> | Ser | Description | Qty | (a) | Latest version of Very High Frequency (VHF) Millimeter Mobile Broadband (MMB) Tx/Rx with Digital Selective Calling (DSC) with power output 25 W | - Two | (b) | VHF Hand Held (HH) Radio sets (Motorola make, latest version) with one each battery charger, spare battery and water proof pouch | - Six | (c) | 5" Hand signaling lantern with stowage box | - One | (d) | Portable loud hailers | - Two | (e) | Blue Ensign Flags | - Four | (f) | Search light | - One | (g) | Mast should have halyards and gaff for hoisting of flag Signals, Ensign and dressing overall arrangements. | |
| Ser | Description | Qty | | | | | | | | | | | | | | | | | | | | | | | | |
| (a) | Latest version of Very High Frequency (VHF) Millimeter Mobile Broadband (MMB) Tx/Rx with Digital Selective Calling (DSC) with power output 25 W | - Two | | | | | | | | | | | | | | | | | | | | | | | | |
| (b) | VHF Hand Held (HH) Radio sets (Motorola make, latest version) with one each battery charger, spare battery and water proof pouch | - Six | | | | | | | | | | | | | | | | | | | | | | | | |
| (c) | 5" Hand signaling lantern with stowage box | - One | | | | | | | | | | | | | | | | | | | | | | | | |
| (d) | Portable loud hailers | - Two | | | | | | | | | | | | | | | | | | | | | | | | |
| (e) | Blue Ensign Flags | - Four | | | | | | | | | | | | | | | | | | | | | | | | |
| (f) | Search light | - One | | | | | | | | | | | | | | | | | | | | | | | | |
| (g) | Mast should have halyards and gaff for hoisting of flag Signals, Ensign and dressing overall arrangements. | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28. | <u>Internal Communication</u> | The following internal communication systems are to be provided:- (a) Main Broadcast System with Sound Reproduction Equipment (SRE) audible in all compartments (for general and emergency announcements). | | | | | | | | | | | | | | | | | | | | | | | | |

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| | <p>(b) Megaphone (Fixed on Bridge top) - Two</p> <p>(c) Call up bells - As required</p> <p>(d) Intercoms with battery backup between:-</p> <p>(i) Bridge, Secondary Steering post, Forecastle and Quarterdeck.</p> <p>(ii) Bridge, Engine Room, Aft Steering Post (ASP), crew mess and all workshop spaces.</p> <p>(e) Sound Power Telephones between Bridge, secondary steering position, foyle, Quarter Deck (QD), Engine Room, ASP, crew mess, Master's and Engineer's Cabin.</p> <p>(f) Voice pipe in Engine Room and between Bridge and Bridge Top for emergency communication.</p> |
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SECTION D - HULL, MACHINERY, FIRE FIGHTING AND DAMAGE CONTROL

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| 29. | <u>Hull</u> | <p>(a) <u>Hull Form.</u> The Vessel is to be of mono hull construction of a proven design either existing in service or supported by model testing to prove the efficacy of design. Resistance and Sea keeping performance of the initial design is to be supported by calculations using proven methods/ software. Model test would be conducted post placement of order as per rules and standard of Classification Society to ascertain the resistance and powering requirements. The model testing is to be carried out in the presence of IHQ MoD(N) representative. Detailed calculations regarding resistance/powering, sea keeping and maneuverings also should be undertaken as per requirement of Class.</p> <p>(b) <u>Construction Material.</u> The main hull superstructure should be of all welded steel of IS 2062 specifications of 2011 (Grade E250/Quality BR with impact test required/ killed) provided under certification of Class society. IHQ MoD (N) approved material including fire retarding paints, curtains and linings are to be used for all areas.</p> <p>(c) <u>Plate Thicknesses & Scantlings.</u> Corrosion allowances specified in Classification Society Rules are to be provided for hull structure scantlings and are to be specified at design stage. Hull plate thickness of underwater hull and main deck should be more than or equal to 5 mm.</p> <p>(d) <u>Hull Strength.</u> The design of hull and hull members should be undertaken as per Class rules applicable for the role of the ship. Structural analysis including Direct Strength</p> |
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| | | Analysis (DSA) and Residual Strength Analysis (RSA) would be carried out to ensure that hull is designed for the area of operation for intact condition. The necessary structural analysis/calculation should be vetted by Classification Society. All Structural Bulkheads, Decks, Super Structure, Structural Closures, Mast, Foundation etc, should be as per Class requirements. |
| 30. | <u>Water Tight (W/T) & Gas Tight (GT) Integrity</u> | <p>(a) Collision bulkhead is to be provided in accordance with Classification Society rules and should extend to the uppermost continuous Deck.</p> <p>(b) No passageways through watertight bulkheads are to be provided below main passage deck/damage control deck.</p> <p>(c) All openings/piercings below the damage control deck in main bulkheads are to be fitted with a permanent means of watertight closure.</p> <p>(d) Watertight boundaries are to be iaw Classification Society rules.</p> <p>(e) Water tight doors and hatches as well as Emergency Escape Scuttles (EES) should be iaw IMO/Class requirements. Sizes of EES should not be of less than 600 mm dia.</p> <p>(f) All APT clusters and boundaries are to be tested iaw Class rules.</p> <p>(g) Escape route is to be provided iaw the rules and standard of Classification Society.</p> |
| 31. | <u>Fire Resistant Material</u> | Fire Resistant Material used for structural fire protection and fire zone boundaries are to be provided as per IMO/SOLAS and Classification Society rules. |
| 32. | <u>Under Water (U/W) Hull Protection</u> | U/W Hull Protection should be as per rules and standard of Classification Society. |
| 33. | <u>Paint Scheme and Deck Covering</u> | Paint scheme to be as per rules and regulations of Class Society. The exterior colour scheme only is required iaw CS 1 of NO 53/16 (Extract placed at Annexure I for reference). |
| 34. | <u>Ventilation and Air Conditioning</u> | <p>Ventilation and air conditioning is to be provided as follows:-</p> <p>(a) Central ACs (with direct cooling) with 100% redundancy should be provided for all living spaces, workshop and bridge.</p> <p>(b) All storerooms are to be provided with supply and exhaust based on the content of the storerooms.</p> |

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| | | <p>(c) Ventilation as per rules and standard of Classification Society is to be provided in the cargo areas, machinery spaces, battery charging spaces, wash places and showers/WCs as following:-</p> <p>(i) Forced supply and forced exhaust ventilation in machinery compartments.</p> <p>(ii) Forced exhaust and forced supply in WC, galley, showers. Galley ventilation should be iaw rules and standard of Classification Society.</p> <p>(d) The following should be iaw rules and standard of Classification Society:-</p> <p>(i) Number of air changes per hour.</p> <p>(ii) Capacity of air supply and exhaust system.</p> <p>(iii) The internal temperatures of air conditioned spaces.</p> <p>(e) Ventilation in spaces other than the ones mentioned above should be provided as per Classification Society rules.</p> |
| 35. | <u>Stability</u> | The Vessel should satisfy stability requirements for both intact and damage stability condition as per Class Society rules. |
| 36. | <u>Inclining Experiment</u> | Inclining Experiment of the vessel and preparation of stability booklet are required to be undertaken iaw NCD 0104 Issue 4 and NCD 0106, respectively for standardization and benchmarking of stability aspects of <i>IN</i> vessels. |
| 37. | <u>Ships Husbandry Tools</u> | Ships Husbandry Tools should be provided. |
| 38. | <u>Capacities</u> | <p>(a) Fuel Oil (propulsion) - As per endurance + 25% reserve</p> <p>(b) Domestic Fresh Water - 15 Ton</p> <p>(c) Lub Oil - As per endurance + Quantity for 02 rounds of oil changes for 04 DAs + 25% reserve</p> |
| 39. | <u>Main and Auxiliary Machinery</u> | The vessel should be propelled by <u>Diesel-Electric propulsion</u> . The Propulsion System prime mover shall be an Electric Motor on each shaft and power generator will be using Diesel Generator sets only. Main Propulsion, Auxiliary Machinery and all associated systems should conform to Classification Society rules and should have indigenous support within the country. The salient aspects of Main and Auxiliary machinery are as follows:- |

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| | <p>(a) Twin shaft with one AC motor driving each shaft with one fixed pitch propeller and shaft locking arrangement.</p> <p>(b) Four Main Diesel Generator sets of equal capacity complying with IMO/ MARPOL requirements and requirements at 'Section E - Electrical' of this specification.</p> <p>(c) AC continuous duty induction/ synchronous motors for propulsion along with Propulsion Drive Converters, and Dynamic Braking System, to achieve faster braking of the Main Propulsion to be provided.</p> <p>(d) The ventilation and cooling system for electric propulsion equipment are to be provided with monitoring/ alarm devices iaw class rules.</p> <p>(e) The Propulsion System Integration (PSI) study to be undertaken through a reputed third party having experience in Electric Propulsion. PSI consultant will be responsible for ratification of the design and performance of the Main Propulsion Package to meet the vessel speed and endurance requirements. NSTL/ PSIC will be involved from IN side to validate the PSI aspects.</p> <p>(f) Bridge and Engine Room should have Propulsion Controls System (PCS) as per Class rules.</p> <p>(g) Power Management System (PMS) iaw Class rules suitable for Diesel Electric Propulsion catering for requirement at 'Section E - Electrical' is to be provided.</p> <p>(h) A separate Auxiliary Control System (ACS) comprising controls of Main, Auxiliary machinery and NBCD equipment iaw Class rules is to be provided.</p> <p>(j) PSI consultant may recommend suitable size battery bank for the vessel for consideration to meet the stipulated endurance.</p> <p>(k) No Reduction Gear is envisaged. To be ratified by PSI consultant based on the detailed design.</p> <p>(l) Main and Auxiliary machinery are to be mounted on anti-vibration mounts.</p> <p>(m) Main and Auxiliary machinery should have indigenous product support.</p> |
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(n) **Bow Thruster**. Auxiliary propulsion consisting of a suitably rated Bow Thruster is to be provided to enable better maneuverability.

(p) **Steering Gear**. Steering Gear should be Electro Hydraulic as per Classification Society norms. The steering gear should be provisioned with control from in FU and NFU modes at primary position, Bridge. Also, the steering Gear is to be provided controls from local position (secondary) with three modes of operation viz, electrical, solenoid and manual (hand wheel).

(q) **Emergency Diesel Generator**. One Emergency Diesel Generator set as per 'Section E - Electrical' and complying to IMO/ MARPOL requirement is to be provided.

(r) **Oily Water Separator**. One Oily Water Separator of suitable capacity complying with MARPOL requirements. Provision to drain dirty lub oil from DA and other engineering equipment to dirty oil tank to be provided.

(s) **Air Conditioning**. Central ACs (with direct cooling) with 100% redundancy should be provided for all living spaces, workshop and bridge.

(t) Following auxiliary machinery/ equipment are to be provided:-

| Ser | Equipment | Qty |
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| (i) | Emergency Generator set of adequate capacity to take the load as per rules and standard of Classification Society. | 01 |
| (ii) | Air Compressor (Motor Driven(MD)) - 200 bar. | 02 |
| (iii) | Air Compressor (Diesel Driven(DD)) | As per Class |
| (iv) | Bilge/ Ballast Pump | 02 |
| (v) | Dirty Oil Pump | 02 |
| (vi) | Fresh water system comprising of following:- | |
| | (aa) Fresh water pumps | 02 |
| | (ab) Hydrophore tank | 01 |
| (vii) | Fuel oil pump | 02 |
| (viii) | Centrifuge:- | |
| | (aa) Fuel Centrifuge | 02 |
| | (ab) Lub oil Centrifuge | 01 |

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| | | <table border="1" data-bbox="618 157 1427 552"> <tr> <td data-bbox="618 157 716 296">(ix)</td> <td data-bbox="716 157 1219 296">General Service Pump/Fire Pump to cater for sufficient head and foam throw distance for both foam guns on bridge top</td> <td data-bbox="1219 157 1427 296">02</td> </tr> <tr> <td data-bbox="618 296 716 331">(x)</td> <td data-bbox="716 296 1219 331">Semi Rotary Hand Pump</td> <td data-bbox="1219 296 1427 331">02</td> </tr> <tr> <td data-bbox="618 331 716 367">(xi)</td> <td data-bbox="716 331 1219 367">Lub Oil Pump</td> <td data-bbox="1219 331 1427 367">02</td> </tr> <tr> <td data-bbox="618 367 716 403">(xii)</td> <td data-bbox="716 367 1219 403">Stripping Pump</td> <td data-bbox="1219 367 1427 403">02</td> </tr> <tr> <td data-bbox="618 403 716 552">(xiii)</td> <td data-bbox="716 403 1219 552">Tank Content Gauges/ Level indicators with Audio visual alarm for 95% filling up of tanks meeting Classification Society requirements.</td> <td data-bbox="1219 403 1427 552">01</td> </tr> </table> <p data-bbox="618 583 1443 688">(u) Sewage Treatment Plant (STP). Sewage treatment system/plant conforming to the latest regulations of MARPOL and capable of performing the following:-</p> <ul style="list-style-type: none"> <li data-bbox="711 730 1443 793">(i) Conform with rules and standards of Classification Society. <li data-bbox="711 835 1443 940">(ii) The STP compartments should be provided with a gas tight door, adequate ventilation and be fitted with H₂S sensors. <li data-bbox="711 982 1443 1079">(iii) Sewage treatment system should achieve standards of effluent discharge as per MARPOL/IMO standards. | (ix) | General Service Pump/Fire Pump to cater for sufficient head and foam throw distance for both foam guns on bridge top | 02 | (x) | Semi Rotary Hand Pump | 02 | (xi) | Lub Oil Pump | 02 | (xii) | Stripping Pump | 02 | (xiii) | Tank Content Gauges/ Level indicators with Audio visual alarm for 95% filling up of tanks meeting Classification Society requirements. | 01 |
| (ix) | General Service Pump/Fire Pump to cater for sufficient head and foam throw distance for both foam guns on bridge top | 02 | | | | | | | | | | | | | | | |
| (x) | Semi Rotary Hand Pump | 02 | | | | | | | | | | | | | | | |
| (xi) | Lub Oil Pump | 02 | | | | | | | | | | | | | | | |
| (xii) | Stripping Pump | 02 | | | | | | | | | | | | | | | |
| (xiii) | Tank Content Gauges/ Level indicators with Audio visual alarm for 95% filling up of tanks meeting Classification Society requirements. | 01 | | | | | | | | | | | | | | | |
| 40. | <u>Controls</u> | <p data-bbox="618 1087 1443 1192">Following control systems based on COTS technology complying to Class norms having indigenous support by the OEM is to be provided:-</p> <p data-bbox="618 1245 1443 1350">(a) Propulsion Control System. The Propulsion Control System (PCS) in addition to the conventional control function should also cater for following:-</p> <ul style="list-style-type: none"> <li data-bbox="695 1381 1377 1417">(i) Propulsion Motor speed and torque control. <li data-bbox="695 1459 1263 1495">(ii) Ahead, Astern and Stop functions. <li data-bbox="695 1537 1279 1572">(iii) Integrated controls of Bow Thruster. <p data-bbox="618 1604 1443 1772">(b) Power Management System. An independent Power Management system (PMS) for controlling and monitoring of power generation and distribution equipment, load management iaw class rules is to be provided. Following functions should be part of PMS.</p> <ul style="list-style-type: none"> <li data-bbox="695 1814 1443 1877">(i) Generator power adaption to avoid overloading of generators. | | | | | | | | | | | | | | | |

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| | | <p>(ii) Prevention of blackout situation.</p> <p>(c) <u>Auxiliary Control System.</u> A supervisory layer Auxiliary Control System (ACS) comprising control and monitoring functions of all shipboard equipment including DG sets, auxiliary and NBCD equipment iaw class rules is to be provided. In addition, hardwired panel with mandatory safety/alarm features iaw class rules is to be provided.</p> |
| 41. | <u>Fuel</u> | As required for specified endurance (Para 38(a)). Fuel tanks should be equipped with remote sounding system in bridge as well as local sounding system. |
| 42. | <u>Fixed Dewatering Arrangement</u> | Fixed dewatering arrangement as per Classification Society regulations to be provided. Provision for Functional Trials of De-watering pumps are to be provided. |
| 43. | <u>Fire Fighting (FF) and Damage Control (DC)</u> | <p>The Firefighting and damage control equipment/systems are to be provided as per SOLAS, Classification society and <i>IN</i> Standards. The same covers the following:-</p> <p>(a) FM 200/ any other suitable environmentally benign Fire Fighting System in main and auxiliary machinery spaces.</p> <p>(b) Firemain rings with adequate number of fire hydrants with isolating valves (to retain serviceability in the event damage at some part of ring) to meet the requirements of fire-fighting. The system should have minimum pressure of 8 bars. Firemain System meeting Class requirements.</p> <p>(c) A dedicated fixed foam based firefighting system on top of fuel tanks with foam tank of adequate capacity for fighting fuel fire.</p> <p>(d) Suitable environmentally benign major and minor firefighting arrangements in workshops as per Classification Society requirements.</p> <p>(e) Lockers and stowage arrangements (spread across the Vessel) for stowage of FF & DC gear.</p> <p>(f) Automatic Fire Detection and alarm system in all compartments as per Classification Society norms along with a centralised monitoring panel provided in the bridge.</p> <p>(g) The machinery compartments and fuel tank areas should be provided with the following:-</p> <p>(i) Sprinkling system for bulkheads in all machinery spaces.</p> <p>(ii) Foam Inlet Tubes for fighting Bilge Fire.</p> |

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| | | <p>(iii) Ladder sprinkling and cooling system.</p> <p>(h) Self-activated portable aerosol based fire extinguishers for unmanned and high risk compartments.</p> <p>(j) Flood Warning System (FWS) in all compartments located below waterline other than tanks, along with a centralised monitoring panel in the bridge. The installation of FWS should be with as per rules and standards of Classification Society.</p> <p>(k) Indicator Test Plugs (ITP) on hatches/doors below waterline.</p> <p>(l) Escape hatches in machinery compartments and mess decks with escape route marking.</p> <p>(m) Four pairs of Bristol Fire Fighting suits with all accessories.</p> <p>(n) <u>Galley Safety.</u></p> <p>(i) Galley firefighting system is to be provided for Galley equipment iaw Statement of Technical Requirements (SOTRs) promulgated by IHQ MoD(N)/DNBCD. The design, installation and trials of system is to be approved and witnessed by Classification Society.</p> <p>(ii) All galley equipment/ indication/ isolation switches should conform to latest Classification Society regulations for galley safety.</p> <p>(iii) Power supply to Galley equipment onboard ships other than refrigeration units is required to be controlled by single isolating switch along with remote indication panel. The single isolating switch is to be located in a readily accessible position outside the appropriate compartment and adjacent to the main entrance as per rules and standard of Classification Society.</p> <p>(p) <u>Smoke Extraction System.</u> All vulnerable compartments (such as Engine room, Galley, Paint/ Bosun store etc) of the Vessel should be provided with independent smoke extraction system. The system should have a dedicated Water Tight (W/T) trunking for extraction of smoke from the effected compartment to atmosphere.</p> |
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| | | <p>(q) A containment fill station is to be provided to refill two Breathing Apparatus, Self Contained Compressed Air (BASCCA) Sets up to 300 Bar.</p> <p>(r) Fixed dewatering arrangement as per Classification Society rules.</p> <p>(s) Fixed bilge educators in all underwater compartments.</p> <p>(t) Fixed shoring arrangement in hatches of all underwater compartments that do not have direct access to weather deck.</p> <p>(u) Surveillance and monitoring system, such as Closed Circuit Television (CCTV) to monitor all unmanned compartments and hazardous areas.</p> <p>(v) Fitment of Photo luminescent markings for indicating Firefighting and Damage Control gears, escape routes, waterline, underwater compartment volumetric marking and first aid boxes.</p> <p>(w) Adequate Automatic Emergency Lights (AELs) and emergency lighting arrangements are to be provided on escape routes.</p> <p>(x) Over Board discharge valve is to be provided above waterline for pumping out water.</p> <p>(y) Provision of manual call points (Entrance/exit)</p> <p>(z) Emergency Escape Plan to be as per rules and standard of Classification Society.</p> <p>(aa) Structural Fire Protection Plan as per SOLAS guidelines.</p> |
| <u>SECTION E - ELECTRICAL</u> | | |
| 44. | <u>Power Generation and Distribution</u> | <p>The entire electrical system, machinery and associated system should conform to Classification Society rules. The following electric equipment and fittings are to be provided:-</p> <p>(a) <u>Power Generation.</u> Four DAs of equal capacity with provision for running in parallel/ load sharing mode and are to be provided to cater for ship's load <u>including propulsion load. 100% redundancy is to be provided for supporting hotel load</u> of the vessel. Each alternator individually should have spare capacity to provide various power supply requirements of the repair facilities onboard, including the concurrent operation of telescopic cranes and retractable</p> |

canopy. Further, a growth margin of a minimum of 10% of the estimated power requirement of the vessel is to be catered for the Alternator.

(b) The Vessel should be provided redundancy vis-à-vis maximum electrical load envisaged at any operating regime assuming an ideal loading of alternators as 80% of the nominal rating. Alternators should be suitable for unattended parallel operation.

(c) **Emergency Generator.** The capacity of Emergency Diesel Generator (EDG) shall be such that it meets the emergency load requirements of Classification society rules as application for naval ships at an ideal loading of 80% of rated capacity and allowing for a growth margin of 10%. Emergency Generator will supply electrical power totally as an independent source, meeting Classification society Rule Requirement through Auto bus transfer switch mechanism. The EDG shall be stand alone, cooled, and provided as per class rules.

(d) **Power Distribution.** Power distribution is to be implemented through an Automated Power Management System (APMS) which would manage both propulsion power and hotel load of the vessel.

(e) **Power Supply.** Following power supplies are to be provided:-

(i) 415V AC, 3 Phase, 50 Hz, 3 Wire

(ii) 230V AC single Phase, 50Hz, 4 wire for domestic and portable equipment.

(iii) 230V AC, Single Phase, 50 Hz, 2 wire for lighting communication and navigation system.

(iv) 24V DC.

(v) Converted/suitable supply for welding rectifiers and work shop machines.

(f) **Main Switch Board.** Switchboards of adequate rating in accordance with Classification Society specifications along with Power Management System.

(g) **Shore Supply Arrangement.** Water tight (IP 57) shore supply connection boxes of 415V, 3 Phase, 50 Hz should fitted on weather deck at an appropriate position on both Port and Stbd sides. The shore supply box should be connected by

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| | | <p>permanent cable to be switch-board and should have suitable terminals for connecting flexible cables upto 100 meters length. Shore Supply Cable is to be provided with securing drum/ reel. A phase sequence indicator should also be provided.</p> <p>(h) <u>Batteries with Charging Arrangement</u>. Batteries will be Sealed Maintenance Free (SMF) of the lead-acid type approved for marine service and should be of suitable rating/capacity to withstand high starting current where cranking application is necessitated automatically charged with shore supply.</p> <p>(j) <u>Cables</u>. Low Fire Hazard (LFH) / Electron Beam Cross Linked (EBXL) cables as per Classification Society rules are to be used.</p> <p>(k) <u>Transformers and Rectifiers</u>. Transformers and rectifiers as per the Classification.</p> |
| 45. | <u>Changeover Switches</u> | <p>Following are to be followed for various switches for onboard systems (ACOS and HCOS):-</p> <p>(a) Based on the role of equipment onboard, the critical equipment/ systems are fitted with Auto Changeover Switches (ACOS) to ensure availability of alternate power supply during partial failure/non-availability of primary power supply.</p> <p>(b) Accordingly, the power supply change over time essential to prevent tripping of system/equipment which require ACOS is to be ascertained from the OEMs.</p> <p>(c) The following are the equipment broadly classified into type of change over switches:-</p> <p>(i) <u>Auto Change Over Switch (ACOS)</u></p> <p>(aa) Steering Motor</p> <p>(ii) <u>Hand Change Over Switch (HCOS)</u>. Remote Operated Change Over Switches (ROCOS) for heavier load motor viz., AC Plant, Fire Main, HP air Compressor etc. is recommended to be included. List of equipment to be fed through HCOS is as follows: -</p> <p>(aa) Air Conditioning.</p> <p>(ab) Fire pumps.</p> <p>(ac) Engine Room (E/R) Ventilation Fans</p> |

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| | | <p>(ad) General Ventilation.</p> <p>(ae) Coolant Pumps, Control air compressor etc.</p> <p>(af) E/R lighting.</p> <p>(ag) Aft Engine Room (AER) and Main Engine Room (MER) auxiliaries.</p> |
| 46. | <u>Motors, Starters and Control Panels</u> | All motors along with their starters/ control panels are to be provided as per international standard dimensions (IEC) and are to comply with requirements of classification society. |
| 47. | <u>Lighting</u> | <p>The installation of lighting equipment shall be as per class rules with LED based lighting. In all spaces, lighting will be grouped so that in the event of any supply failing, a portion of lighting will still be available. Following lighting conforming to Classification Society norms/specification are to be provided:-</p> <p>(a) Entire Vessel's lighting should be LED based for general illumination</p> <p>(b) Navigational lighting conforming to IRPCS - 72 Regulations.</p> <p>(c) Flood Lights.</p> <p>(d) Emergency light (LED based)</p> <p>(e) Flame Proof light fitting in Battery Charging Room.</p> |
| 48. | <u>Uninterrupted Power Supply</u> | The Uninterrupted Power Supply (UPS) is to be in accordance with rules and standard of Classification Society. |
| 49. | <u>HV Mats</u> | Class 'A' High Voltage (HV) Mats conforming to IS-15652-2006 are to be put in Switchboard Control Room, Equipment Room and Battery Compartments and HF Compartments. |
| <u>SECTION F - ACCOMMODATION AND HABITABILITY</u> | | |
| 50. | <u>Crew Accommodation</u> | <p>Air conditioned crew accommodation should be provided as follows:-</p> <p>(a) One double bunk cabin with attached WC, Bath and wash basin with mirror cabinet for Master and Engineer.</p> <p>(b) Two tier accommodation to accommodate 11 Engine Room and Deck crew.</p> <p>(c) Separate bathroom and toilet for crew as follows:-</p> |

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| | | <p>(i) Bathroom with three bath cubicles and two wash basins with mirror cabinets.</p> <p>(ii) Two toilets with Western style commodes, one toilet with Indian style commode, two urinals and two wash basin with mirror cabinet.</p> <p>(iii) Separate deck drains for each bath and toilet cubicle.</p> <p>(d) Accommodation areas should be designed iaw rules and standards of Classification Society.</p> |
| 51. | <p><u>Seating Area for Yard Personnel</u></p> | <p>Air conditioned seating cum dining areas should be provided for Yard Personnel with amenities as follows:-</p> <p>(a) Seating cum dining arrangement for 100 personnel divided into three sections of 50, 30 and 20 personnel each as follows:-</p> <p>(i) <u>50 personnel.</u> Seating cum dining cum recreation space for 50 personnel should have:-</p> <p>(aa) Dining table and Stainless Steel chairs without arm rest to accommodate 25 personnel for dining.</p> <p>(ab) Seating arrangement with fixed Stainless Steel chairs with Arm rests for 25 personnel.</p> <p>(ii) <u>30 personnel.</u> Seating cum dining cum recreation space for 30 personnel should have:-</p> <p>(aa) Dining table and Stainless Steel chairs without arm rest to accommodate 15 personnel for dining.</p> <p>(ab) Seating arrangement with fixed Stainless Steel chairs with Arm rests for 15 personnel.</p> <p>(iii) <u>20 personnel.</u> Seating cum dining cum recreation space for 20 personnel envisaged to be for Dockyard Officers, this area should have:-</p> <p>(aa) Dining table and upholstered chairs without arm rest to accommodate 10 personnel for dining.</p> |

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| | | <p>(ab) Seating arrangement with fixed upholstered chairs with Arm rests for 10 personnel.</p> <p>(b) Scullery with adequate number of sinks and taps are to be provided with each Dining Hall for washing of utensils.</p> <p>(c) Large windows for cross/forced ventilation.</p> <p>(d) Two modular toilets should be provided for Yard personnel with adequate separation from Galley and Seating cum Dining area as follows:-</p> <p style="padding-left: 40px;">(i) <u>For Dockyard Workers.</u></p> <p style="padding-left: 80px;">(aa) Five each Western and Indian style commodes with separate deck drains for each cubicle of toilet.</p> <p style="padding-left: 80px;">(ab) Five wash basins with mirror cabinets</p> <p style="padding-left: 80px;">(ac) 12 urinals.</p> <p style="padding-left: 40px;">(ii) <u>For Dockyard Officers.</u></p> <p style="padding-left: 80px;">(aa) Four Western style commodes with separate deck drains for each cubicle of toilet.</p> <p style="padding-left: 80px;">(ab) Two wash basins with mirror cabinets.</p> <p style="padding-left: 80px;">(ac) Four urinals.</p> <p>(e) Seating area and crew space to be provided with Centralised Air Conditioning. In addition, natural and forced ventilation and wall mounted fans are to be provided.</p> <p>(f) The furniture and fittings used in the passenger and crew space to be of Class approved non-combustible and fire resistant material.</p> <p>(g) The entrance/exit of the Vessel are to be wide enough to prevent any congestion during emergency/ abandon ship. It should also cater for carrying and accommodating stretchers and baggage.</p> <p>(h) A separate stowage space for baggage/limited cargo of the ship is to be provided in the vicinity of passenger seating arrangement.</p> |
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| | | (j) One each embarkation points are to be provided on either side (port and stbd) of the Vessel for embarkation/disembarkation from/to boats and other Vessels. Adequate illumination is to be provided to facilitate safe embarkation/disembarkation at night. |
| 52. | <u>Fresh Water</u> | One fresh water tank of 15 Ton capacity is to be provided. |
| 53. | <u>Galley</u> | <p>Galley co-located with Dining Halls, catering for preparation of tea/coffee for 125 personnel and for warming of food carried by Dockyard personnel, is to be provided. Following equipment and facilities are to be provided for the galley:-</p> <p>(a) Hot plates.</p> <p>(b) Exhaust trunking and fans iaw with rules and standard of Classification Society.</p> <p>(c) Four Microwave ovens.</p> <p>(d) Large capacity tea/coffee vending machines along with industrial cooking utensils catering for 125 personnel.</p> <p>(e) Cooking utensils for 15 crew members.</p> <p>(f) Storage racks for utensils.</p> <p>(g) Wash area for washing of utensils.</p> <p>(h) 02 high pressure spouts.</p> <p>(j) Appropriate fittings for stowage of washing soap/detergents.</p> <p>(k) Hot and cold water arrangement for washing of utensils.</p> <p>(l) Two waste bins.</p> <p>(m) Refrigerator of capacity of more than 400 ltr.</p> <p>(n) Two Bottle coolers.</p> <p>(p) Dry provision stowage arrangement for tea/ coffee making material.</p> <p>(q) Deep freezer for stowage of fresh milk and other fresh ration.</p> <p>(r) 02 Garbage chutes (separate for biodegradable and non-bio degradable waste each) are to be provided close to Galley for disposal of garbage.</p> |

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| | | (s) In addition to fresh water tank of 15 Ton capacity, overhead tanks are to be provided to cater for 1000 ltrs of fresh water to ensure availability of water round the clock for the crew (even when power supply is not available). The overhead tanks should be capable of being refilled with fresh water from ashore as well internal fresh water tank. |
| 54. | <u>Workshop Control Cell</u> | <p>A separate Air Conditioned compartment is to be provided as Office space near entry/exit with the following:-</p> <p>(a) Office Furniture fitted to deck as follows:-</p> <p>(i) Two tables.</p> <p>(ii) Four Chairs.</p> <p>(iii) Two Metal Almirahs.</p> <p>(iv) Two file Cabinets.</p> <p>(b) Two Computers with:-</p> <p>(i) Two all-in-one inkjet printers.</p> <p>(ii) One multifunction heavy duty Printer (Print, scan, copy).</p> |
| 55. | <u>Other Amenities</u> | <p>Other amenities should be provided in the crew spaces and seating area/dining halls as follows:-</p> <p>(a) Water coolers along with water Purifier at following locations:-</p> <p>(i) One adjacent to crew accommodation.</p> <p>(ii) One each in seating cum dining areas.</p> <p>(iii) Two suitably located near work area.</p> <p>(b) One each 52" LED TV with Satellite TV connection and DVD player in Seating cum dining cum recreation spaces.</p> <p>(c) One each 42" LED TV with Satellite TV connection and DVD player in crew accommodations/ cabins.</p> |
| <u>SECTION G - SEAMANSHIP, LIFE SAVING AND SAFETY EQUIPMENT</u> | | |
| 56. | <u>Seamanship Fittings</u> | (a) <u>Anchor, Chain Cable & Fittings</u> . Anchor and anchoring arrangement are to be as per Classification Society Rules. Anchor chain cables and accessories should be iaw Classification Society requirements. |

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| | | <p>(b) <u>Anchor Windlass & Fittings</u>. As per Classification Society requirements. Auto Change Over Switch conforming to Classification Society Regulations to be provided for Anchor Windlass operations.</p> <p>(c) <u>Towing and Berthing Gears & Fittings</u>. Towing and berthing arrangements are to be provided as per the Classification Society requirements. In addition, following are to be provided:-</p> <ul style="list-style-type: none"> (i) At least four each bollards on port and stbd side. (ii) Fairleads on either side of bollards. (iii) Cleats and stag horns for rigging fenders. (iv) Bow fairlead or Stem bullring. (v) Following suitable for displacement of the Vessel:- <ul style="list-style-type: none"> (aa) Two sets of Berthing hawsers. (ab) One multiplaited Polypropylene towing hawser of suitable strength. (vi) Towing pendant of Steel Wire Rope. <p>(d) <u>Covers</u></p> <ul style="list-style-type: none"> (i) PVC coated nylon fabric retractable shade should be provided for gangway area on port and stbd side. (ii) One sets of light weight FRP canopy as per modern merchant marine standards for weather deck spaces should be provided. (iii) Two sets of canvas covers should be provided for all weather deck fittings and machinery openings. <p>(e) Sufficient fendering arrangements to be provided to protect the Vessel when alongside other vessel during rendering of technical assistance as follows:-</p> <ul style="list-style-type: none"> (i) Heavy duty non inflatable type fenders made of special rubber conforming to Class Specifications should be fitted along the hull. |
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| | | <p>(ii) Six each light weight and heavy duty portable pneumatic fenders with stowage and securing arrangement on upper deck.</p> <p>(iii) Rubber quality of fenders supplied or fitted should be such that fenders, during use would not leave marks and discolour the ships side.</p> <p>(f) Two brows of dimension and strength suitable for design of the Vessel with stowage arrangement are to be provided.</p> <p>(g) Accommodation ladder or other suitable ladder/arrangement for embarkation/disembarkation of crew and yard personnel from and to berthing pontoon alongside ships.</p> <p>(h) Six lockers (with Marinised Stainless Steel hinges of grade SS 316) are to be provided at suitable location on weather deck.</p> <p>(j) Scuppers are to be provided at suitable locations for draining out of rain water from decks.</p> |
| 57. | <u>Rescue Boats and Davits</u> | Two seaboats are to be provided as rescue boats. Specification should be as per rules and standard of Classification Society. Separate davit and associated launch and recovery arrangements are to be provided for boat iaw Class. |
| 58. | <u>Life Saving Equipment</u> | <p>(a) Lifesaving equipment are to be provided as per SOLAS.</p> <p>(b) <u>Life Rafts</u>. 10 x 20 men life rafts, fitted five each on port and stbd side.</p> <p>(c) <u>General Service Life Jackets (GSLJs)</u>. 200 General Service Life jackets are to be provided.</p> <p>(d) <u>Hazardous Duty Life Jackets (HDLJs)</u>. Ten Hazardous Duty Life jackets are to be provided.</p> <p>(e) <u>Lifebuoys and MOB Markers</u>. Lifebuoys and Man Overboard (MOB) markers are to be provided on upper deck as follows:-</p> <p style="padding-left: 40px;">(i) One Lifebuoy on Foxle.</p> <p style="padding-left: 40px;">(ii) One Lifebuoy each on either side at midship and Quarter Deck with 30m buoyant line.</p> |

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| | | <p>(iii) One each Lifebuoy with Man Overboard Light and Smoke Marker on port and stbd Bridge Wings.</p> <p>(iv) One each Lifebuoy with Man Overboard Light and Smoke Markers on port and stbd side at midship.</p> <p>(v) One Lifebuoy with Man Overboard Light and Smoke Marker on Quarter Deck.</p> <p>(f) Specification of Man Overboard Light and Smoke Markers should be as per SOLAS.</p> |
| 59. | <u>Safety Equipment</u> | <p>The following safety equipment are to be provided:-</p> <p>(a) Safety Helmets - 15</p> <p>(b) Ear Defenders - 12 pairs</p> <p>(c) Safety Gloves - 50 pairs</p> <p>(d) Anti-Splash Goggles - 15</p> <p>(e) Dust Protectors - 15</p> <p>(f) Safety Harness - 06</p> |
| 60. | <u>Medical Facilities</u> | <p>Medical facilities are to be provided as follows:-</p> <p>(a) Sick bay equipped with the following:-</p> <p>(i) Two beds.</p> <p>(ii) Basic lifesaving medical equipment and medical aid to treat wounds, cuts, burns, electric shock, fracture etc.</p> <p>(iii) Refrigerator.</p> <p>(iv) Stowage cupboard for medicines.</p> <p>(v) Automated External Defibrillator (AED) - 01</p> <p>(vi) Ambu bag - 01</p> <p>(vii) Electronic BP monitor - 01</p> <p>(viii) Stethoscope - 01</p> <p>(ix) Electronic Thermometer - 01</p> |

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| | | <p>(x) Oxygen cylinder 623 ltrs along with Bull nose fitting, humidifier, tubing with mask, Spanner key & stand. - 01</p> <p>(xi) Pneumatic splint set - 01</p> <p>(xii) Philadelphia cervical collar - 01</p> <p>(xiii) Suction apparatus (foot operated) - 01</p> <p>(b) At least 20 First aid boxes should be provided and distributed at following locations:-</p> <p>(i) Crew Mess.</p> <p>(ii) Bridge.</p> <p>(iii) Engine Room/DA Compartments.</p> <p>(iv) Galley.</p> <p>(v) Main switch Board.</p> <p>(vi) Master's Cabin.</p> <p>(vii) All work shop spaces.</p> <p>(viii) On upper deck at sheltered positions.</p> <p>(c) Four Neil Robertson stretchers with stowage arrangement placed at suitable locations.</p> <p>(d) One ambulance stretcher.</p> <p>(e) One Scoop Stretcher.</p> |
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SECTION H - WORKSHOP, MACHINERY AND EQUIPMENT

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| 61. | <u>Repairs and Manufacturing</u> | <p>A machine shop should be provided on main deck to undertake on-site repairs and manufacturing of items involved in dockyard assistance provided to the ships. Workshop and repair facilities should be provided to undertake the following repairs/manufacturing onboard the Vessel:-</p> <p>(a) Minor repairs, overhaul and easing out of valves of size upto 80 mm diameter.</p> <p>(b) Machining of calve seats, valve and reducer body.</p> |
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| | | <p>(c) Manufacture and machining of shims for alignment of pumps and other equipment.</p> <p>(d) Manufacture of flanges, fasteners and pipe and fittings (unions and nipples) upto 32 mm of MS, SS and Brass, as required.</p> <p>(e) Bending of pressure gauge lines and other as per templates.</p> <p>(f) Pressure testing of gas lines with Nitrogen.</p> <p>(g) Cutting, welding, and brazing repairs with portable machines.</p> <p>(h) Manufacturing of distance pieces, washers and gaskets as per requirement.</p> <p>(j) Machining of Zinc plugs.</p> <p>(k) Drilling and tapping for damaged flanges and bolt extraction.</p> <p>(l) Valve lapping tool.</p> <p>(m) Stowage of portable hydraulic flushing kit, portable chemical circulating kit and portable pneumatic/ hydraulic pressure testing kits for undertaking flushing through of hydraulic systems, chemical cleaning of systems and pressure testing of systems/components onboard respectively.</p> <p>(n) Stowage of portable Hot Water Jet Spray machine for in-situ cleaning of motors and other electrical equipment infested by sea water ingress.</p> |
| 62. | <u>Workshop Machinery</u> | <p>Workshop machinery should be provided as follows:-</p> <p>(a) One Pedestal Grinding Machine.</p> <p>(b) One Bench Vice.</p> <p>(c) Six operator welding plants which can undertake Tungsten Inert Gas (TIG), Metal Inert Gas (MIG) as well as arc welding, with 3-phase 415V, 50 Hz power supply and current rating in the range of 30-120 Amps.</p> <p>(d) A portable drilling machine with magnetic base to cater for in-situ drilling and tapping jobs onboard.</p> <p>(e) Welding hoses of length 250m including stowage space onboard.</p> |

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| 63. | <u>Additional Equipment</u> | <p>Additionally, the following machinery is to be provided:-</p> <p>(a) Portable welding machines viz, arc welding machine, Tungsten Inert Gas (TIG) and Metal Inert Gas (MIG) welding machines and their accessories.</p> <p>(b) Welding/cutting equipment and associated converters/rectifiers with provision for supplies at suitable place for use onboard the vessel.</p> <p>(c) Low Pressure (LP) Air compressor and Vacuum pump for Blowing/ Drying/Pressure Testing requirements.</p> <p>(d) Pipe bending machines.</p> <p>(e) Set of measuring instruments (Vernier callipers, Micro meters, Thread gauges, Feeler gauges etc).</p> <p>(f) Hydraulic bearing extraction tool and nut splitter for emergency repair.</p> <p>(g) Portable electric grinder, cutters and drilling.</p> <p>(h) Brazing equipment and accessories.</p> <p>(j) Motorised chain blocks and pulleys with lifting slings for lifting of heavy equipment and machinery.</p> <p>(k) Winding surge tester.</p> <p>(l) Electric Motor Checks (EMC).</p> <p>(m) Digital Multimeter.</p> <p>(n) Shock Pulse Meter (SPM).</p> <p>(p) Tong tester.</p> |
| 64. | <u>Basic Repair and Test Facility</u> | <p>The following repair and test facilities should be provided:-</p> <p>(a) Cutting and welding area with suitable shed/ compartment with special provisions for undertaking such hot work be provided (Fume extraction, special lighting, firefighting arrangements etc).</p> <p>(b) Motor re-winding workshop with industrial grade baking oven (capability: Upto 25 Hp). Fire resistant material used for structural fire protection and fire zone boundaries to be provided as per IMO/ SOLAS and classification Society rules and standards.</p> |

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| | | <p>(c) Hydraulic bearing renewal facility with bearing heater.</p> <p>(d) Storage facility for winding wires of various specifications and insulation material.</p> <p>(e) Starter calibration facility test bench (Capability: Upto 120 Hp).</p> <p>(f) Basic instrumentation repair facility.</p> <p>(g) Stowage arrangement requirements for cutting, welding equipment to be drawn from NO 19/08.</p> |
| 65. | <u>Specifications of Workshop Machinery</u> | Specifications of Workshop Machinery and accessories are placed at Annexure II . |
| 66. | <u>Heavy Equipment Stowage Space</u> | <p>The dedicated open deck stowage area (of 25 m²) for positioning repairable/repared heavy equipment should be provided with the following:-</p> <p>(a) Strengthened deck for up to a maximum cumulative weight of 3 tons or 200 kg/m².</p> <p>(b) Retractable canopy for wet weather protection of equipment stowed.</p> <p>(c) Stowage space with racks, cupboards for stowage of tools, spares etc. to be provisioned.</p> <p>(d) Two Jet Hand Pallets of capacity 2.5 tons for shifting of equipment/spares within the workshop to be included.</p> |
| 67. | <u>Bottle Bank</u> | Bottle banks should be provided on upper deck (01 deck), aft of the Bridge for stowage of at least 20 Oxygen, 10 Acetylene and 05 Nitrogen bottles required for pressure testing, brazing and cutting respectively. |
| 68. | <u>Disposal of Industrial Waste</u> | A separate compartment should be provided near machine shop with suitable facility for segregation and stowage of industrial waste prior disposal. |
| <u>SECTION J - MISCELLANEOUS</u> | | |
| 69. | <u>Documentation</u> | Complete inventory of spares and the relevant documentation of equipment and machinery are to be provided in hard and soft copies in Compact Disk (CD). Documents to be supplied as per Class specification. 'Ship fit' and as fitted drawings, maintenance, repairs and refit documents, Catalogue of spares/D 787 for Onboard Spars (OBS) and Base & Depart (B&D) inventory are to be provided along with the |

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| | | Vessel. Documentation of equipment and machinery are to be provided in IETM Level II format. |
| 70. | <u>Test Equipment</u> | <p>The following test equipment are to be provided:-</p> <p>(a) AC/DC Clamp Meter - 06 Nos.</p> <p>(b) Digital insulation Tester - 02 Nos.</p> <p>(c) Hand Held Digital Oscilloscope - 01 No.</p> <p>(d) Electric Motor Checker - 01 No.</p> <p>(e) Shock Pulse Monitor - 01 No.</p> <p>(f) Power Supplies - 01 No.</p> <p>(g) Soldering Station - 02 Nos.</p> <p>(h) Battery Capacity Checker - 01 No.</p> |
| 71. | <u>Spares and Support Requirement</u> | Requirement of OBS for two years, B&D spares for five years as well as requirement of AMC for COTs equipment (optional to be availed by Buyer) for five years be included. |
| 72. | <u>Pest Control</u> | Latest anti-rodent/ anti-cockroach/ anti-flies & mosquito repellent devices to be provided in all accommodation areas, dining halls, galley and store rooms. These compartments should also be provided with anti-rodent paint scheme. |
| 73. | <u>Weather Covers</u> | Two sets of light weight waterproof PVC coated nylon fabric shall be supplied for all weather deck fittings, openings and machinery/ items. |
| 74. | <u>Facilities for Overseeing Team</u> | Necessary furnished air conditioned office space with associated office support arrangements and transport shall be provided to the overseer and representative of the Buyer till completion of all Contractual liabilities/ obligations. |
| 75. | <u>Training</u> | Training is to be imparted to the crew of the Vessel and maintainers, by the OEM/ OEM reps/ seller, for the operation and maintenance of machinery and equipment installed onboard. |
| 76. | <u>Project Monitoring</u> | The latest techniques of Project Monitoring are to be employed by the Seller to ensure phased and planned construction of the Vessel. The plan and progress of the project including all the correspondence, drawings and documents shall be available online for exchange. A comprehensive application for exchange of information with all agencies like IHQ MoD(N), Seller/ Shipyard, Overseeing team, etc., shall be made available by the Seller. |

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| 77. | <u>Onboard and Outfit Spares</u> | The seller shall ensure supply of onboard spares for all main equipment, consumable items like lamps, fuses, relays, gaskets, etc., sufficient for scheduled servicing & maintenance of all electrical, engineering and hull equipment for a duration of 02 years. |
| 78. | <u>Noise & Vibration</u> | Noise and Vibration standards are to be met as per Classification Society rules and standards. |
| 79. | <u>B&D Spares</u> | B&D spares for 05 years usage from the respective makers of equipment to be provided. |
| 80. | <u>Product Support</u> | The Bidder would be bound by a condition in the contract that they would be in a position to provide product support in terms of maintenance, materials and spares for a minimum period of <u>30</u> years and <u>10</u> years for electronic items. Towards this the Bidder is to obtain contractual commitments from the various equipment manufacturers/ vendors to provide product support for the said period from the date of delivery of the Vessel at the Buyer's designated Naval base port. Even after the said mandatory period, the Bidder would be bound to give at least 02 years notice to the Buyer prior to closure of the said production line, to assess the requirement of life time buy of all spares before closure of the said production line. This said aspect would also form an integral part of the Contract. This, however, shall not restrict the Buyer from directly sourcing sub-equipment/sub-assembly and spares from their respective OEMs/sub-vendors on completion of warranty. In case the sub-equipment/sub-assembly/parts require tuning/calibration/integration by the Bidder prior replacement, the same is to be undertaken by the Seller at fair and reasonable cost. |
| 81. | <u>Material Specifications</u> | Materials Specifications of various systems are placed at Annexure III. |

Annexure I to Appendix A
(Refers Para 33 of Appendix A)

EXTRACT OF COLOUR SCHEME - 1 OF NO 53/16

| <u>Sl. No.</u> | <u>OEM</u> | <u>Type of Coat</u> | <u>Pattern No</u> | <u>No of Coat x DFT(μ)</u> | <u>Surface Preparation</u> |
|---|---|---------------------------------------|-------------------------|--|--|
| <u>Radar Absorption Paint (RAP)</u> | | | | | |
| PS 67 | NMRL | NMRL RAP | NMRL Supply & Apply | 1000 | -- |
| <u>Decks of Compartment Exposed to Seawater (eg Bow Door Void Space)</u> | | | | | |
| Same as PS 51 | | | | | |
| <u>Colour Scheme for External Above Water Area of Yardcraft (CS 1)</u> | | | | | |
| <u>Sl. No.</u> | <u>Vessel</u> | <u>Colour Scheme (Above Boot-Top)</u> | | | |
| | | <u>Hull</u> | <u>Superstructure</u> | <u>Funnel</u> | <u>Mast</u> |
| (a) | Tugs, Ferry Crafts, Accommodation barges and dredgers | RAL 9011 (black) | RAL 9010 (White) | RAL 9011 (black) and/or RAL 9010 (White) | RAL 9011 (black) and/or IS 5/358 (Buff colour) |
| (b) | Fuel, Water, Ammunition, Missile, Torpedo, Sewage, Sullage and other barges utilized for carrying general solid and liquid cargo | | IS 5/ 358 (Buff colour) | And/or IS 5/ 358 (Buff colour) | |
| (c) | Colour scheme for misc. & special purpose vessels be formulated based on extant National/ International/ IHQ MoD(N) regulation/ policy. | | | | |

TECHNICAL SPECIFICATIONS OF WORKSHOP MACHINERY

| 1. | <u>Technical Specification of Pedestal Grinding Machine</u> | <table border="1"> <thead> <tr> <th data-bbox="618 436 695 478"><u>Ser</u></th> <th data-bbox="695 436 1138 478"><u>Description</u></th> <th data-bbox="1138 436 1409 478"><u>Value</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="618 478 695 520">(a)</td> <td data-bbox="695 478 1138 520">Wheel size</td> <td data-bbox="1138 478 1409 520">300 X 500 mm</td> </tr> <tr> <td data-bbox="618 520 695 562">(b)</td> <td data-bbox="695 520 1138 562">Wheel centre distance</td> <td data-bbox="1138 520 1409 562">610 mm</td> </tr> <tr> <td data-bbox="618 562 695 604">(c)</td> <td data-bbox="695 562 1138 604">Centre height</td> <td data-bbox="1138 562 1409 604">940 mm</td> </tr> <tr> <td data-bbox="618 604 695 646">(d)</td> <td data-bbox="695 604 1138 646">Motor</td> <td data-bbox="1138 604 1409 646">2 HP/1.5 kW</td> </tr> <tr> <td data-bbox="618 646 695 688">(e)</td> <td data-bbox="695 646 1138 688">Power supply</td> <td data-bbox="1138 646 1409 688">415V, 3 Phase</td> </tr> <tr> <td data-bbox="618 688 695 730">(f)</td> <td data-bbox="695 688 1138 730">Spindle speed</td> <td data-bbox="1138 688 1409 730">1500 RPM</td> </tr> <tr> <td data-bbox="618 730 1409 747"> </td> <td data-bbox="695 730 1409 747"> </td> <td data-bbox="1138 730 1409 747"> </td> </tr> </tbody> </table> | <u>Ser</u> | <u>Description</u> | <u>Value</u> | (a) | Wheel size | 300 X 500 mm | (b) | Wheel centre distance | 610 mm | (c) | Centre height | 940 mm | (d) | Motor | 2 HP/1.5 kW | (e) | Power supply | 415V, 3 Phase | (f) | Spindle speed | 1500 RPM | | | |
|-------------------|--|--|-------------------|--------------------------------|---------------------|-----|------------|--------------|-----|-----------------------|--------|-----|---------------|--------|-----|-------|-------------|-----|--------------|---------------|-----|---------------|----------|--|--|--|
| <u>Ser</u> | <u>Description</u> | <u>Value</u> | | | | | | | | | | | | | | | | | | | | | | | | |
| (a) | Wheel size | 300 X 500 mm | | | | | | | | | | | | | | | | | | | | | | | | |
| (b) | Wheel centre distance | 610 mm | | | | | | | | | | | | | | | | | | | | | | | | |
| (c) | Centre height | 940 mm | | | | | | | | | | | | | | | | | | | | | | | | |
| (d) | Motor | 2 HP/1.5 kW | | | | | | | | | | | | | | | | | | | | | | | | |
| (e) | Power supply | 415V, 3 Phase | | | | | | | | | | | | | | | | | | | | | | | | |
| (f) | Spindle speed | 1500 RPM | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. | <u>Technical Specification of Bench Vice</u> | <table border="1"> <tbody> <tr> <td data-bbox="618 747 695 789">(a)</td> <td colspan="2" data-bbox="695 747 1409 789">Opening between the jaws - 06"</td> </tr> <tr> <td data-bbox="618 789 695 886">(b)</td> <td data-bbox="695 789 1138 886">Jaw width</td> <td data-bbox="1138 789 1409 886">- 04"</td> </tr> </tbody> </table> | (a) | Opening between the jaws - 06" | | (b) | Jaw width | - 04" | | | | | | | | | | | | | | | | | | |
| (a) | Opening between the jaws - 06" | | | | | | | | | | | | | | | | | | | | | | | | | |
| (b) | Jaw width | - 04" | | | | | | | | | | | | | | | | | | | | | | | | |

Annexure III to Appendix A
(Refers to Para 81 of Appendix A)

RECOMMENDED MATERIAL SPECIFICATION FOR
01 x TECHNICAL SUPPORT CRAFT

| <u>Ser</u> | <u>System</u> | <u>Description</u> | <u>Recommended Material</u> <u>(Meeting all Rules and Standards of</u> <u>Classification Society as applicable)</u> |
|-------------------|----------------------|---------------------------|--|
| 1. | Fresh Water System | Pipes | Copper/SS 316L |
| | | Fittings | GM to BS 1400 LG 4C / SS to AISI 316 |
| | | Flanges | GM to BS 1400 LG 4C / SS to AISI 316 |
| | | Fasteners | - |
| | | Valves | GM to BS 1400 LG 4C / SS to AISI 316 |
| 2. | Sea Water System | Pipes | 90/10 Cu-Ni |
| | | Fittings | Gunmetal as per Rules and Standards of Classification Society |
| | | Flanges | Gunmetal as per Rules and Standards of Classification Society |
| | | Fasteners | SS 316 with Teflon Coating |
| | | Valves | Gunmetal as per Rules and Standards of Classification Society |
| 3. | Deck Scupper Drain | Pipes | MS (Gal) Pipe as per ASTM A 106 Gr. B |
| | | Fittings | Mild Steel (Galv) as per ASTM A234M WPB |
| | | Flanges | BQ Plate to IS 2002/Steel to IS 2062 |
| | | Fasteners | Steel (Galv) Dimension as per IS 1364 Material as per IS 1367 Bolt grade 8.8 Nut grade 8 |
| | | Valves | Carbon Steel (Galv) ASTM A 216 Gr WCB/A 105 |
| 4. | Greywater | Pipes | MS (Gal) Pipe as per ASTM A 106 Gr. B |
| | | Fittings | Mild Steel (Galv) as per ASTM A234M WPB |
| | | Flanges | BQ Plate to IS 2002/Steel to IS 2062 |
| | | Fasteners | Steel (Galv) Dimension as per IS 1364 Material as per IS 1367 Bolt grade 8.8 Nut grade 8 |
| | | Valves | Carbon Steel (Galv) ASTM A 216 Gr WCB/A 105 |
| 5. | Blackwater | Pipes | STP Discharge Cu-Ni 90/10 Balance BW lines. Galv Steel |
| | | Fittings | STP Discharge Cu-Ni 90/10 Balance BW lines. Galv Steel |
| | | Flanges | STP Discharge: GM to BS 1400 LG4C Balance BW lines: BQ Plate to IS 2002/ Steel to IS 2062 |
| | | Fasteners | Steel (Galv) Dimension as per IS 1364 Material as per IS 1367 Bolt grade 8.8 Nut grade 8/ Stainless steel |

| <u>Ser</u> | <u>System</u> | <u>Description</u> | <u>Recommended Material</u> <u>(Meeting all Rules and Standards of</u> <u>Classification Society as applicable)</u> |
|------------|---------------|---|---|
| | | Valves | STP Discharge : GM to BS 1400 LG4C Balance BW lines : Carbon Steel |
| 6. | Fuel System | Fuel Filling Pipes Outside Storage tanks | Non-Galvanized Mild Steel Conforming to BS 3602 Parts 1 and 2. |
| | | Fuel Filling, transfer and stripping pipes inside storage tanks | Externally Galvanised Carbon Steel Conforming to BS 3602 Parts and 2 Or 90/10 Cu-Ni (for water compensated tanks/frequently ballasted tanks) |
| | | Fuel Filling Pipes in Bilges | 90/10 Cu-Ni conforming to rules and Standards of Classification Society |
| | | Air Vent | Galvanised Mild Steel eternally |
| | | Sounding Tubes | Non-galvanised Mild Steel |
| | | Fittings | Gunmetal as per Rules and Standards of Classification Society |
| | | Flanges | Gunmetal as per Rules and Standards of Classification Society |
| | | Fastener | Steel (Black/Galvansied) as per IS 1367 Bolt Grade 8.8, Nut Grade 8. Dimensions as per IS 1364 |
| | | Valve | Valves to comply to rules and standards of Classification Society Carbon Steel ASTM A 216 Gr WCB/A 105 - Fire Safe Valves in Air Escape pipes and Sounding tubes as per rules and standards of classification Society |

VENDOR INFORMATION PROFORMA

1. **Name of the Vendor/ Company/ Firm and Unique ID (if any).**

(Company profile including Share Holding pattern, in brief, to be attached). In the eventuality of the firm emerging as L1, Contract will be concluded in the name and address of the firm, as indicated here). Vendors are to undertake that any subsequent proposal for change in name of firm or address, will be intimated to IHQ MoD(N) at the first available opportunity and supporting documents be furnished accordingly within five working days of their approval by the competent authority.

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.**

Postal Address: _____
 City: _____ State: _____
 Pin Code: _____ Tele : _____
 Fax: _____ URL/Web Site: _____
 Email: _____

4. **Local Branch/ Liaison Office in Delhi (if any).**

Name & Address: _____
 Pin code: _____ Tel : _____ Fax: _____ E mail : _____

5. **Financial Details.** Category of Industry (Large/ medium/ small Scale): _____

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

| <u>Name of Agency</u> | <u>Certification</u> | <u>Applicable from (Date &Year)</u> | <u>Valid till (Date &Year)</u> |
|------------------------------|-----------------------------|--|---|
| | | | |

7. **Details of Registration.**

| <u>Agency</u> | <u>Registration No.</u> | <u>Validity(Date)</u> | <u>Equipment</u> |
|-----------------------------|-------------------------|-----------------------|------------------|
| DGS&D | | | |
| DGQA/DGAQA/ DGNAI | | | |
| OFB | | | |
| DRDO | | | |
| Any other Government Agency | | | |

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

Name of Organization: _____

Membership Number: _____

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

(a) Name of Product : _____
 (IDDM Capability be indicated against the product)
 (Should be given category wise for e.g. all products under night vision devices to be mentioned together)

(b) Description (attach technical literature): _____

(c) Whether OEM or Integrator : _____

(d) Name and address of Foreign collaborator (if any): _____

(e) Industrial License Number : _____

(f) Indigenous component of the product (in percentage): _____

(g) Status (in service / design & development stage): _____

(h) Production capacity per annum: _____

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

(k) Estimated price of the equipment _____

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

11. Any other relevant information: _____.

12. **Declaration**

(a) It is certified that the above information is true and any changes will be intimated at the earliest.

(b) It is certified that in the past that _____ (name of firm) has never been banned/debarred for doing business dealings with MoD/ Gol/ any other Government Organization and that there is no inquiry going on by CBI/ED/any other Government agency against the firm.

(Authorised Signatory)

ADDITIONAL INFORMATION PROFORMA
(INDIAN SHIPYARDS)

| | | | | | | | | |
|-----|--|--|-----------------------|-----------------|-------------------|-------------------------|-----------------------------|--------------------------|
| 1. | Year Established | | | | | | | |
| 2. | Type of Organisation size/Classification of Yard | | | | | | | |
| 3. | Organisation setup and availability of skilled Manpower | | | | | | | |
| 4. | Details of design, planning and production facilities/infrastructure including slipways/ dry docks and wet basin/water front (attach brochures etc.) | | | | | | | |
| 5. | Annual build capacity (in tonnage) | | | | | | | |
| 6. | Details of future expansion and business development planned | | | | | | | |
| 7. | Vessels delivered in last 05 years. (attach previous order copies for Technical Support Craft/Similar Vessel only) | | | | | | | |
| | <u>Yard</u> | <u>Customer</u> | <u>Type of vessel</u> | <u>Dwt,grt</u> | <u>Order date</u> | <u>Start production</u> | <u>Contractual delivery</u> | <u>Actual delivery</u> |
| | | | | | | | | |
| 8. | Orders in hand (attach order copies for similar ships/ Vessels only) | | | | | | | |
| | <u>Yard</u> | <u>Customer</u> | <u>Type of vessel</u> | <u>Dwt, grt</u> | <u>Order date</u> | <u>Start production</u> | <u>% completed</u> | <u>Expected delivery</u> |
| | | | | | | | | |
| 9 | Financial information (in INR for Indian vendors and in US dollars for foreign vendors) | | | | | | | |
| | (a) | Annual turnover in the last three financial years (year wise) | | | | | | |
| | (b) | Profits made | | | | | | |
| | (c) | Net Worth = equity+ reserves | | | | | | |
| | (d) | Debt/Equity ratio | | | | | | |
| | (e) | Quick Ratio = (current assets long term debts)/current liabilities | | | | | | |
| (f) | Attach copies of certified published annual report showing turnover and financial status in support of above information | | | | | | | |

| | | |
|----|---|--|
| 10 | Detailed specifications of Technical Support Craft offered to meet the specified requirements and build period from date of order | |
| 11 | Detailed specifications of commercially off the shelf (COTS) Technical Support Craft, if available for outright purchase, if any | |

(Authorised Signatory)

**GUIDELINES FOR FRAMING CRITERIA FOR VENDOR SELECTION/
PREQUALIFICATION IN RESPECT OF 01 x TECHNICAL SUPPORT CRAFT
UNDER BUY (INDIAN-IDDMM) CATEGORY**

1. The guidelines prescribed for short-listing/ pre-qualification of Indian vendors in this instant case of 01 x TSC under Buy (Indian-IDDMM) category is enumerated in the succeeding paragraphs. **Paragraph 2** deals with the parameters that may be considered for short-listing of vendors, whereas **Paragraph 3** amplifies the process for applying selected parameters to the process of Vendor Short listing.

2. **Parameters**

(a) **General Parameters.**

(i) Applicant Entity should be an Indian Vendor as defined at Paragraph 20 of Chapter I of DAP 2020.

(ii) 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 Defense, D(Vigilance) MoD ID No 31013/I/2006-D (Vig) Vol II dated 21 Nov 2016). None of the Promoters and Directors of applicant entity should be a wilful defaulter.

(iii) “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.

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

(b) **Technical Parameters.**

(i) Vendor shall be a manufacturing entity or a system integrator of defense equipment and not a trading company, except in cases where the OEM participates only through its authorized Vendors.

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

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

(c) **Financial Parameters.** For RFI of Shipbuilding cases (acquisition of Ships, Yardcraft & Submarines), financial parameters stipulated at Annexure II to Appendix C, Chapter XII, DAP-20 shall be followed.

(d) **Other Parameters.**

(i) **Industrial License (IL).** Vendors should be either holding a valid defense 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).

(ii) **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.

3. **Stipulations for Applying Parameters.**

(a) **Areas like manufacturing/ electronics/ explosives etc.** referred at Paragraph 2(b)(ii) should be defined in each case of procurement.

(b) 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.

(c) 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:-

(i) 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.

(ii) 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.

- (iii) 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.
 - (iv) The Holding Company and Subsidiary Companies (as defined under the Companies Act) of the Applicant Entity.
- (d) The Applicant entity may be a single entity or a group of entities (the “Consortium”), coming together to implement the project. In such case:-
- (i) The credentials of only those members or their related entities may be counted, who have at least **26%** equity stake in the Consortium.
 - (ii) Each Consortium should have a designated Lead Member.
 - (iii) For Technical Parameters, **any of the Consortium members or their Group Companies** may meet the criteria.
 - (iv) 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 **all the financial Parameters**.
- (e) Vendors should provide all necessary self-authenticated documentation in support of their achievement of criteria. Such documentation should inter-alia include:-
- (i) Details of projects/ supply orders successfully executed in the last two years.
 - (ii) Annual reports for three years of applicant entity, parent and associate companies, consortium and JV partners.
 - (iii) Details of shareholders, promoters, associated, allied and JV companies.
 - (iv) 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.

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

(Note: If a vendor is already a supplier to MoD and/ or has already provided the above documents in such cases, it should be necessary for the vendor to resubmit only such documentations as is necessary to update the above).

(f) Any vendor furnishing false information will be liable for action as per existing guidelines.

(g) Based on these generic parameters, more specific criteria should be evolved by the SHQ with regard to Technical and Financial parameters {Paras 2(b) and 2(c) above} in each procurement case depending upon requirements peculiar to each case keeping in view the overall need to ensure wider vendor participation. The specific criteria evolved by the SHQ for each case, as per these guidelines, may be got approved by the competent authority before including the same in the RFPs.

4. The criteria for vendor selection shall be clearly stipulated in RFPs so as to maintain transparency. Care shall be taken to ensure that the stipulated criteria are not open to subjectivity and arbitrary interpretation.