REQUEST FOR INFORMATION (RFI)

NUCLEAR BIOLOGICAL CHEMICAL TRAINING FACILITY (NBCTF)

1. The Indian Navy under Ministry of Defence, Government of India, intends to procure Nuclear Biological Chemical Simulator Training Facility (NBCTF), along with associated equipment, operation, training and maintenance. The simulator will be similar to the existing facility at NBCD School, INS Shivaji, Lonavala and will be procured under Buy (Indian-IDDM) from registered Indian Vendors. The Simulator is to be delivered to **INS Vishwakarma, Visakhapatnam**. With an aim to identify probable Indian Vendors who can set-up the facility, the Vendors are requested to forward information as sought in this RFI. The aim of seeking this RFI is also to finalise the specifications for the NBCTF with inputs from Indian Vendors.

2. This Request for Information (RFI) consists of three parts as indicated below:-

(a) **Part I**. The first part of the RFI incorporates operational requirements, characteristics and features that should be met by the facility. A few important technical parameters are also mentioned.

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

(c) **Part III**. Guidelines for framing criteria for Vendor Selection/ Pre-Qualification in Buy (Indian - IDDM) category.

PART- I

3. **Intended Use (Operational Requirements)**. The facility is intended towards imparting realistic training to Naval personnel in an NBC environment. The facility will include ship modules representing most NBC relevant compartments of a ship such as upper decks, citadels, cleansing stations, alleyway, DCHQ and AHU. The compartments on upper decks should have simulated NBC environment corresponding to the likely contamination that might occur in the respective compartments. The trainees will be required to detect, monitor, survey and de-contaminate the areas using appropriate devices and cleansing material. The training scenarios created should be repeatable and consistent. The vendor will be responsible for operation, conduct of training and maintenance of the simulator for at least 10 years post-delivery. Details are placed at **Appendix A**.

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4. **Important Technical Parameters**. Important Technical Parameters are placed at **Appendix A**. Detailed specifications will be published in the RFP which will be issued to Vendors after verifying their credentials and capabilities to set-up Nuclear Biological Chemical Training Facility (NBCTF). Further Salient aspects of the envisaged facility alongwith details that are required to be submitted are as follows:-

(a) Feasibility to build Nuclear Biological Chemical Training Facility (NBCTF) as per technical/ operational parameters and specifications indicated at **Appendix A**. The Vendors 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 Vendor with suitable justification(s).

(b) **Concept Design/Capability Estimation/Alternatives for same or better Training Requirements**. A visit to the existing NBC Training Facilities at NBCD School, INS Shivaji at Lonavala may be undertaken at own expense for better understanding of user's requirement, in consultation with the NHQ/DNBCD. The following to be included in response:-

(i) Vendors to submit the concept design for the NBCTF alongwith dimensions and layout.

(ii) Option of providing upcoming technologies, if any, which will meet the intended purpose of the Training Simulator Facility and enhance its employability.

(iii) Vendor to provide inputs/recommendation with respect to any alternatives to meet the same/better training requirements.

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

(v) Past experience of Vendor in executing similar projects.

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

(c) Agreement and / or collaboration with firms with regard to design, production, monitoring and technology to be indicated and clearly highlighted in the response.

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(d) **Budgetary Quotation**.

(i) Budgetary quote is to be submitted as per format given below.

Ser	Items	Cost (₹)	Remarks
(aa)	Setting-up NBCTF including two years warranty with detailed break-up		
(ab)	Literature and Operator's Manual		
(ac)	Training Aids		
(ad)	Pre-commissioning Training 10 personnel for 10 working days excluding cost of travel/ boarding/ lodging		
(ae)	Cost for operation and training		
(af)	CMC for at least 8 years post warranty with annual break-up		
(ag)	Freight, Transit and Insurance		
(ah)	Special Maintenance Tools, Test Equipment and software		
(aj)	Miscellaneous		
(ak)	Taxes and duties		
(al)	**Total** {Total of Ser (ah) to (aj) above}		
(am)	**Foreign Exchange Component,** if any, be indicated.		

(ii) All entities factored in the costing are to be indicated in the break up. Details of export / import duties and Foreign Exchange Component, if any applicable, to be indicated separately.

(e) Information on whether the offered design is in use by any other Indian customer is also to be indicated.

(f) The Simulator will be operated and maintained by contracted manpower provided by the Vendor. Facility maintenance, post guarantee period, is to be carried out under CMC by the Vendor. The CMC package will support the following maintenance tasks for atleast 08 years post completion of warranty:-

(i) Rectification of defects as soon on reporting of the same.

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(ii) Consultancy on technical issues.

(iii) Planned preventive maintenance as per recommendation of the OEM.

(iv) Onsite maintenance support by SELLER's personnel.

(v) Component and sub assembly level repairs/ replacement (as applicable) of the equipment/ sub equipment would be undertaken by the SELLER at no extra cost.

(vi) In case of malfunction of any major equipment and sub-equipment of the NBCTF, joint analysis would be undertaken by both Navy and the firm to determine whether the malfunction is attributed to operator error or material failure/ equipment breakdown.

(vii) All major equipment, sub equipment and components (including auxiliary equipment like air conditioners, diesel generators etc) fitted in the NBCTF will fall under the purview of the AMC.

(g) **O&M Training**. The SELLER would be required to provide training to naval personnel on contractual basis in coordination with the BUYER and ensure availability of training equipment and trained manpower prior commissioning of the facility. The following to be covered:-

(i) Vendors to indicate acceptance to conduct the training at OEM premises and Vendor premises for the crew and maintainers.

(ii) The SELLER will provide the Operator and Maintenance training to a team of 10 personnel for a minimum period of 05 days and not exceeding 10 days at all three locations.

(iii) The proposed syllabus of training for the above course will be forwarded by the SELLER to the BUYER for concurrence within 12 months of signing of Contract and will meet the needs of operation, repair and maintenance of the complete equipment, test set up, assemblies/ sub assemblies, trouble shooting etc.

(iv) The training for the operators and maintainers will be organized and conducted at least three months prior to installation and commissioning of the NBCTF.

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(v) Vendors would also be required to provide an operational manual with details of precautions in operation and side effects if any.

(vi) Additional literature/ equipment details may be submitted along with the response to the RFI.

(h) **Timelines**. The following to be responded to:-

(i) Tentative delivery schedule for delivery of the NBCTF to ***IN*** at **Visakhapatnam** after conclusion of contract including milestones is 24 months.

(ii) The Setting up of the facility would need to commence as per a stipulated time period post conclusion of contract.

(iii) Vendor to submit critical activities/ milestones and estimated timelines for various phases, total timeframe for implementation of the project and critical phases most susceptible to slippages.

(j) Vendors 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.

(k) Experience in building/ supply of ships or NBCD related Simulators which meets the requirement as listed in this document, along with details of customer/ clients and cost per Simulator, delivery date, etc. will have to be submitted.

(l) An Option Clause may be exercised in the procurement case as per Para 93 of Chapter II of DAP 20. Vendors must express their willingness or otherwise for Option Clause, including the duration for which the Option clause would be valid.

(m) Vendor 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 Simulator as applicable.

(n) Ability of the vendors to comply with all provisions of DAP 2020 is to be indicated. If not, then the relevant Para/ clause of DAP 20 which cannot be

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agreed to along with reasons is to be indicated. The vendors are required to indicate their willingness to the terms of payment as per DAP 2020.

(p) Vendor has to indicate inputs/ details wrt obsolescence management and upgradation of the component/ parts of equipment of the Nuclear Biological Chemical Training Facility (NBCTF) which may become obsolete during the life cycle of the simulator, as per provisions of DAP 20 and amendments thereof.

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

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

5. The Vendor 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 submission of offers.

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

(c) The requirement of Field Evaluation Trials for simulators is waived off iaw Para 67 of Chap II of DAP 20. The simulator will be accepted post completion through Delivery Acceptance Trials which will be conducted as per schedules of the approved QAP in consultation with the *IN*'s project team.

(d) Amongst the Vendors cleared by TEC, a Contract Negotiations Committee (CNC) would decide the lowest cost bidder (L1) and conclude the appropriate contract.

(e) 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.

(f) The vendor would be required to accept the general conditions of contract given in the Standard Contract Document at **Chapter VI** of **DAP 20.**

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Integrity Pact and Earnest Money Deposit (if applicable). An Integrity Pact alongwith appropriate IPBG is a mandatory requirement is to be submitted at the time of bid submission (Refer **Annexure I** to **Appendix O** of **Schedule I, Chapter II** of **DAP 20**):-

(g) **Performance-cum-Warranty Bond**. Performance-cum-Warranty Bond both equal to 5% value of the contract inclusive of taxes and duties is required to be submitted after signing of contract, as appended below:-

(i) **Performance-cum-Warranty Bank Guarantee**. Performance-cum-Warranty Bank Guarantee equal to 5% 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.

(ii) **Performance Bank Guarantee for CMC**. A Performance Guarantee by the way of a Bank Guarantee of a sum equal to 5% of the total price of CMC for contracted duration is required to be submitted after signing of contract as per current rate promulgated by Ministry of Defence (MoD). However, the final amount of BG 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 Simulator will be as per DAP 20, and accordingly Vendors are required to submit the details regarding Indigenous Content (IC). The categorisation for the procurement is intended to be under Buy (Indian - IDDM). The Simulator must meet the minimum IC parameters in accordance with Para 21 of Chapter I of DAP 20 and MoD ID NO. 5(07)/2023/DAC Sectt dated 15 Jan 24. The Vendor 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 cost of AMC /CMC/ After Sales Service) will be as under:-

Category	IC
Buy (Indian-IDDM)	Indigenous design and ≥ 50% Minimum 50% of overall IC as stipulated for all categories of procurement cases to be in the form of material/ components/ software that are manufactured in India.

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PART-II

6. **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)** of this document. Apart from filling details about company, details about the exact product meeting our generic technical specifications should also be carefully filled. Additional literature on the design and construction of NBCTF can also attached with the form. The Vendor 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. Any other relevant additional literature or document on the NBCTF can also be attached with the RFI response form.

(b) The filled form should be dispatched at under mentioned address:-

ADG Acquisition Technical/Cmde (DNBCD)
Directorate of NBCD
Naval Headquarters, Ministry of Defence
Room No 205, D Block Defence Office Complex Africa Avenue
New Delhi 110023
Fax: 011 26771564
Email ID: dnbcd@navy.gov.in

(c) Last date of acceptance of filled RFI response is 08 weeks **(DD/MM/YY)**. The Vendors short listed for issuance of RFP would be intimated.

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

8. This information is being issued with no financial commitment and the Ministry of Defence reserves the right to change or vary any part the NBC Training Facility at Visakhapatnam 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 2020.

9. **Vendors, if required, can communicate to the Project Officer of DNBCD with below mentioned contact details for seeking clarification/ information on**

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the documents (such as Navy Order (NO), Naval Construction Document (NCD), etc) mentioned in this document:-

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Room No 205, D Block Defence Office Complex Africa Avenue
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Fax: 011 26771564
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10. Apart from the information sought as per the Appendices, the Vendors may also forward technical details/brochure/preliminary design/literature, etc, as deemed appropriate.

PART- III

Guidelines for Framing Criteria for Vendor Selection/ Pre-qualification iro Nuclear Biological Chemical Training Facility (NBCTF) under Buy (Indian-IDDM) Category

11. The guidelines prescribed for short-listing/ pre-qualification of Indian vendors in case of extant case are detailed in **Annexure IV to Appendix A to Chapter II of DAP 20**.

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

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Appendix A
(Refers to Para 4 of RFI)

OPERATIONAL / TECHNICAL SPECIFICATIONS FOR NUCLEAR BIOLOGICAL CHEMICAL TRAINING SIMULATOR (NBCTF)

SECTION A – GENERAL

Ser	Description		Vendor Response
1.	Aim	RFI for procurement of a Nuclear Biological Chemical Training Simulator intended to impart realistic training to Naval personnel in an NBC environment at **INS Vishwakarma, Visakhapatnam**. The training facility will include ship modules representing relevant compartments of a ship such as upper decks, citadels, cleansing stations, alleyway, DCHQ and AHU. The case should include setting-up, operation, training and maintenance of the NBCTF Specific requirement of ***IN*** to be applied during design/ construction of the simulator in addition to the rule requirements.	
2.	**Functions**	Impart training in NBC defence focusing on following aspects: - (a) **Collective Protection**. Training on following to be imparted:- (i) **Citadel**. A two deck ship structure with AFU capability to demonstrate Citadel closing down and ships operations in NBC Environment. (ii) **Cleansing Station**. A cleansing station with Undressing, Stripping, Cleansing and Monitoring Area with trap doors to demonstrate Citadel in/ out procedure.	

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		(iii) **Hot Spot Monitoring Area**. Space on super structure will be provisioned for marking, monitoring and cleansing of hot-spots. (iv) **Pre-wetting**. Pre-wetting will be installed for demonstration purpose. (v) The facility will also have a training area for Immediate Action Drill and Self Aid Drill undertaken by individuals during Nuclear fallout and Chemical attack respectively. (vi) Shelter Station (b) **Individual Protection**. The facility will have classrooms/demonstration areas for following:- (i) NBC Permeable and Non-Permeable Suits along with associated accessories. (ii) Individual Protection Kits – Type I and II. (iii) Dosimeters, Portable Chemical Agent Monitors, etc (iv) Cut Sections of various NBC Filters. (c) **Detection Devices**. Working models of following NBC detection devices with stimulants:- (i) Ship Installed Radiac System. (ii) Ship Installed Chemical Agent Detection System. (iii) Biological Agent Detection System.	
3.	**General Remarks**	(a) Facility comprises of an NBC simulator and associated training building.	

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		(b) The simulator is to be built as per IHQ MoD(N) approved Classification Society Rules. A certificate is to be provided by the Classification Society confirming that 'Class Notations have been provided for all functional requirements indicated in RFP'. **Proposed class notations to be indicated in RFI response.** (c) The facility should have the training capacity of training 5000 trainees annually with average class strength of 50 trainees per class. (d) The facility should have a warranty of atleast 2 yrs, operation and training for atleat 10 yrs and CMC for atleast 08 yrs. (e) Materials used should be appropriate for their intended use, and should be able to withstand rigours of the training environment, which includes various chemical applications, higher humidity and water applications during the training. Selected materials should not produce any harmful toxic effects by products.	

SECTION B – NBC SIMULATOR

Ser	Description		Vendor Response
4.	**Structure**	(a) NBC Simulator will be **two deck ship like structure**, to conduct simulated NBC drills for detection of NBC agents in hot spots, decontamination and training on SOPs for operating in a contaminated environment. (b) An operational pre-wetting system os included to simulate the ship's entry into a fall out area, necessary for initiating the decontamination process. Further, the NBC simulator will have a functional DCHQ with Ship Installed Radiac System (SIRS) and Ship Installed Chemical Agent Detection System (SICADS). The simulator also	

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		includes cleansing and shelter stations akin to those onboard ships.	
5.	**Dimension/ Material**	(a) The dimensions of the ship like structure for the existing facility is 28 m length and 10 m width with hull thickness ranging from 8-12mm and is capable of handling training load of 25-30 personnel /class. The new facility will be required to be scaled up accordingly. (b) The NBC Simulator and related supports should be fabricated of Steel grade DMR 249 A or Lloyds Grade B steel/ equivalent/ IS 2062.The floors shall be fabricated from steel plate formed to create the drains and cambered surface. Down water pipes and gutters are to be fitted where essential.	
6.	**Deck 1**	(a) Cleansing Stations. Two cleansing stations (one on each side consisting of Air Lock, Undressing, Stripping, Cleansing and Monitoring Area) from the respective 'Catwalks'. Each section of the Cleansing Station is to have 'Glass fitted View Port to facilitate instructors to monitor the trainee / activities. (b) Alleyway. Alleyway along the 'Fore and Aft' Centre line with two hatches leading to No.2 Deck. (c) Upper-deck, Foxle, Quarter-deck and Catwalks on either side with guardrail along the Ship's Side. (d) Gangway Entry. Gangway entry point on one side.	
7.	**Deck 2**	(a) AHU. Air Handling Compartment, housing one Air Treatment Unit (ATU) and Air Filtration Unit (AFU) each is to be set up. Trunkings are to be fitted with Solenoid Operated Quick Closing Valves (SOQCV) for changing over from the ATU to AFU during close down condition and vice-versa. The SOQCVs also should have local as	

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		well as remote control from DCHQ. Air-conditioning and ventilation is required to be provided in all the compartments including alleyways iaw NES 102. (b) <u>NBC Store Room</u>. NBC Store Room should also be catered for housing NBC Stores required for training. (c) <u>Engine Room</u>. Engine Room will also include an MCR within the compartment. The LP air compressor for the pneumatic controls for SOQCVs and HWTCs be housed inside the Engine Room Compartment. (d) <u>DCHQ</u>. The NBC simulator will have a functional DCHQ with Ship Installed Radiac System (SIRS) and Ship Installed Chemical Agent Detection System (SICADS). (e) <u>DC Post</u>. DC Post is to be provided for stationing of the NBC Team during Action Stations. Each DC Post to accommodate atleast 20 personnel (trainees + instructors). (f) <u>Mess Deck</u>. The compartment should comprise a classroom with adequate training aids for a capacity of 40 students demonstrating shelter station. (g) <u>Ops Room</u>. The Ops Room should contain drawing tables and chairs for conduct of 'NBC Hazard Prediction'.	
8.	**DCHQ**	The DCHQ should house the following:- (a) Ship Installed Radiac System (SIRS) console. (b) Ship Installed Chemical Detection System (SICADS) console.	

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		(c) CCTVs to monitor upper deck activities from DCHQ. (d) Pneumatic Control Console for operation of SOQCVs and HWTCs. (e) Seven Information Boards (f) Central Broadcast System with microphone, speaker and intercom located at both the alleyways and the DCHQ.	
9.	**Prewetting System**	Prewetting system to be provided for the two-deck structure should confirm to Section 8 of NES 118, with regard to flow rate, coverage of the superstructure and material used for fabrication of the system. The prewetting water from the ship structure is to be collected and directed to an underground sump of 100 Tons capacity, suitable located within the premises. The water collected is to be re-used after treatment. The prewetting water collected in the sump is to be treated by a closed loop filtration/ treatment plant to maintain fresh water standards specified by WHO. A stand-by prewetting pump should also be provided. The drain for the upper deck, where decontamination solution is used and for the lab, is to be taken separately to a sump of suitable capacity, for treatment and disposal.	
10.	**Dummy equipment**	Model hawsepipe, dummy cable incorporated on both sides of the Foxle, dummy capstan/ winch (provided by the ***IN)***, for fitment on foxle (approx wt – 1.5T)	
11.	**Other desirables**	The NBC Simulator (Ship-like structure) is required to be mounted on a suitable elevated structure. Further, the following are required to be incorporated internally: - (a) The bulkheads and decks exposed to the atmosphere are required to be lagged internally, for heat insulation and effective air conditioning. (b) Macrotech flooring or equivalent need to be provided for all compartments.	

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		(c) All doors and hatches will replicate water tight ship doors and hatches as fitted onboard ships conforming to NCD 1447/1448. (d) Safety doors are to be provided with mechanisms that retain them in the closed position without locking to ensure they are always available for emergency exits.	

SECTION C – NBC TRAINING FACILITY BUILDING

12.	**Description**	The laboratories, classrooms and other utility spaces will be located beside the NBC Simulator. The NBC Training Facility Building is required to be provided as part of the facility and will comprise of the following:- (a) AC classrooms, to accommodate 50 trainees with furniture and training aids viz, Electronic Smart Boards, computers, rostrums, intercom connections etc. (b) AC Office spaces for accommodating 04 (indicative) staff and Officer-in-Charge, with suitable furniture, cupboards and other office fittings/ items. (c) Nuclear Training Lab, Biological & Chemical Lab. (d) Equipment Room housing pumps, switchboards, water treatment plant and intercom exchange. (e) Two change rooms each for male and female trainees with toilets, urinals, washbasins and lockers for 50 trainees. (f) An MI room with appropriate fittings, equipment and furniture for first aid treatment.	

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		(g) A separate DG room with DG and suitable acoustic enclosure for the DG.	
13.	**Boundary/ rain proofing**	(a) To achieve a minimum required physical security necessary for the safety of the facility, a concrete wall of height 3m, is to be constructed around the NBCTF. The perimeter wall is to be of masonry construction and chain link fence with concertina at the top. (b) To provide a rain-shelter to the Simulator, Aluminium roofing, supported by vertical trusses, is to be constructed over the 3m height boundary wall on three sides (except the front side where the civil structure is located). The vertical trusses between the boundary wall and the Aluminium roofing should be of 6m height. (c) Further sheltering from rains should be achieved by fitment of Aluminium sheets of 3m height dropped down from the roof on all four sides. This would result in adequate ventilation as a result of the open space (of height 3m) between the 3m boundary wall and the Aluminium sheet on the three sides.	
14.	**Chemical/ Biological lab**	The laboratory facilities will be designed to include all safety systems and other structures necessary for the handling and analysis of CBRN material. The main functions of the lab will include:- (a) Analysis of environmental samples (solid, liquid, gaseous and aerosols) to detect chemical and biological contamination. (b) Detection and identification of hazardous material. (c) Detection and identification of biological toxins.	

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		(d) Detection and quantification of alpha beta and gamma radiation from different sample matrices. (e) Drinking water analyses in respect to the presence of chemical, biologically hazardous compounds or radiation. (f) Testing of PPE material.	

SECTION D – FUNCTIONALITY

16.	**Control Systems within NBC simulator**	(a) The centralized control of NBC simulators and all other related controls are to be provided in the DCHQ. The complete exercise is set up and controlled from this position. (b) The control system for the NBC simulator should incorporate the use of a computerized, programmable logic controller (PLC) which handles all operations and safety interlocks and an operator console with switch controls and a screen for monitoring and alarm, located in the DCHQ. (c) The control system should be capable of carrying out self-diagnostic checks prior starting the system. It should incorporate daily operational readiness tests to confirm satisfactory operation of the entire system prior to the start of daily training. (d) A diagnostic menu shall be incorporated in the control system which should give alarm if any source is left unshielded. These should include water detectors and air diagnostics for presence of toxic gas /irritants. (e) In the event of an emergency in the unit or should the safety staff notice a problem with the trainees necessitating termination of the	

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		exercise, emergency stop devices are to be provided. On operation of emergency stop the unit lighting should come on including the emergency lights, ventilation fans to start and all doors should open.	
17.	**Electrical Engineering System**	(a) Receipt and Distribution of Power. Incoming main electric power supply of 22KV is to be received from an existing 22 KV HT line. The transformer area should cater for adequate area maintenance and fenced with suitable gate. All safety requirements as per mandatory guidelines are required to be considered for installation of the transformer and associated equipment. Suitable shelter/ protection is to be provided. (b) Captive Power Generation. In the event of failure of the incoming state electricity power supplies, the provision has to be made for automatic switching over to own generated power supply. The power supply to the NBCTF as well as all its associated machineries is be provided from this generator. The captive DG should cater for 20% overload to meet future requirements. Necessary cables and switching arrangement are to be provided. (c) Provision for Various Installations. (i) Supplies to all equipment is provided through fixed wiring. In addition, an emergency supply system is also to be installed. This should also enable the simulation of emergency supply connection to the prewetting pump in the event of mains failure. (ii) A 115 V, 50 Hz single phase is also to be provided for battery operated automatic emergency lanterns.	

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(iii) Installation onboard the two deck training structure is to follow the requirements of NES 502 with particular attention to earthing of supplies and equipment.

(iv) Earthing for lightening Protection is to be made in accordance with BS 6651:1992 for the various buildings.

(d) Lighting.

(i) The lighting in the compartments should be designed to achieve 100 lux at floor level.

(ii) The lighting arrangements in the simulator should also cater to the following:-

(aa) Standard fluorescent and bulkhead fittings as per the Naval standards to be provided on the two-deck training structure.

(ab) Lock switching to be provided throughout the two-deck training structure.

(ac) Patternised Automatic Emergency Lanterns (AELs) to be installed on board the two-deck training structure to enable escape routes to be visible.

(ad) Photo-luminescent stickers/indicator are also to be provided to supplement the AEL's.

(e) Broadcast System. To facilitate a coordinated training through instructions/sitreps, a Central Broadcast System with atleast 01 microphone and

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		speaker each is to be located at both the alleyways and the DCHQ. (f) Communications. Intercom system for 2-way communication is to be provided comprising single line communication assemblies. (g) Close Circuit Television System. Suitable CCTVs are to be fitted in the DCHQ, Foxle, Quarter Decks, alleyways, AHUs, Engine Room. The system will enable the operator to switch between cameras and view multiple camera inputs simultaneously. The system should enable the operator to switch between the cameras and also to record the coverage directly on a compact disc if desired for future playback. The system should have video capture facility and be capable of storing the same over a period of 30 training days.	
18.	**Civil works**	The civil works involved in the erection of the NBC Training Facility (simulator and buildings) would need to be designed keeping the following factors in mind:- (a) Earthquake resistance and monsoons prevalent at Visakhapatnam. Requirement would exist to design easy drainage of rain water, seepage resistance and shelter for all doors and windows. (b) Load Bearing capacity of the soil at the proposed site. (c) Static loading of the simulator and the civil structure. (d) Further, all civil works are to incorporate anti-termite treatment and water proofing to basements/ foundation and bathrooms/ toilets.	

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		(e) The following civil works (indicative) are involved for the operation of the NBC Training Facility (i) NBC simulator foundation. (ii) Water Sump. (iii) Toilets, Equipment handling room. (iv) Nuclear Training lab and B & C Lab. (v) Office rooms and class rooms. (vi) RCC foundation for the supports of two portal frames. (vii) Lateral Roads and Leveling of Ground. (viii)Boundary wall with gates. (f) Detailed designs/drawing of all the above works are to be made after carrying out soil testing, survey work and analyzing various forces on structure. **All the civil works, structural design and drawings are to be approved by a recognized mutually agreed 3rd party.** (g) The firm is to undertake the demolition of structures for the purpose of site clearance and erection of NBC Simulator, if required. The assessed value of the building material is to be credited to the government. (h) Prewetting Pump. An electrically driven vertical self-priming centrifugal Pump is to be provided to take suction from the sump. The pump is to have a capacity of 100 m3/hr (100 tones/hr) at 20 meters head. The pump is	

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		to be provided with local and remote stop/start control. (j) Water Sump. The sump is to be constructed in RCC with suitable foundation and glazed tiling and access for cleaning. A drain pipe of suitable diameter and length alongwith an isolating valve is to be provided to the sump tank pump discharge line so as to enable complete draining 100 tons of water from the sump tank for maintenance purposes. (k) Steel Portal Frame & Foundation. The portal frames supporting the simulator to be fabricated out of Steel grade DMR 249 A or Lloyds Grade B steel/ equivalent/ IS 2062. The portal frames will be designed by finite element techniques in the static condition for a fully laden simulator load. The structure is to be designed as per the mechanical properties of IS 2062 or equivalent steel and the structural design drawing with supporting calculations are to be approved by IRS prior to forwarding it to Navy for final approval. (l) The plates/sections are to be cut to the required lengths and the edges prepared as per IRS approved drawings. The steel surface is sand blasted to SA 2.5 surface finish and is to be coated with red oxide primer to a DFT of 45 microns. The external surface is to be painted with light gray exterior grade paint as applied to the surface ships. The flooring inside the simulator is to have Macrotech / equivalent protective coatings. (m) Lateral Roads and Leveling of Grounds. Lateral roads and leveling of ground after surveying and laying of tar road around unit is to be carried out. An access road of width 3m to the site of NBCTF is to be constructed. The total length of the road including inlay	

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		inside the perimeter wall would be approximately 50m. The ground at the site needs to be leveled prior to commencement of civil works. (n) Site. The tentative site comprises of an area measuring approximately 2850 sqm.	

SECTION E – OPERATION, TRAINING, MAINTENANCE

19.	**Operator Training**	The crew of the NBCTF will be required to be trained on the operation of systems, machinery and equipment installed in the NBCTF. The vendor shall arrange to provide training to the staff for the operation of equipment, systems and units as part of the NBCTF during trials and prior to commissioning of the NBCTF for approx **ten personnel** for a period of **ten working days**. The operators are required to be trained for the operation of the various systems individually and with the operation of the entire system. The training should also encompass protection, relevant procedures and safeguards with respect to operation/ usage of equipment/ systems/ machinery that would be a part of the training facility.	
20.	**Annual Training**	The operation of the training facility and the conduct of training at the NBCTF will be conducted by a team provided by the Vendor, under the supervision of the staff of *IN* unit. The operation and training will be contracted with the vendor for at least 10 yrs from date of commissioning of the simulator.	
21.	**Warranty**	The NBCTF delivered shall carry a warranty for at least 24 months from the date of commissioning.	
22.	**AMC**	(a) The general concept of repair and maintenance of NBCTF, to be catered through CMC. The vendor will be required to submit proposal for post warranty **CMC for** at least **08 years**, **inclusive of all spares**. The CMC proposal must be submitted separately by the	

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		vendor with technical aspects being included in the technical offer and commercial aspects being included in the commercial offer. The same will be taken cognizance of, while deciding the L1. (b) The CMC will include, but will not be limited to all corrective and preventive maintenance of the systems, equipment and machinery in satisfactory working order and will include 'Planned Preventive Maintenance' (PPM), repairs, servicing, calibration and replacement of defective parts, sub-assemblies, equipment, as applicable. (c) The vendor will be required to provide Itemized Spare Parts Price List (Prices to be indicated only in the commercial offer), list of optional equipment and the likely consumption rate of the spares based on the exploitation pattern of the equipment. (d) The vendor would have to finalise the terms for the life time product support in the main contract only.	
23.	**Product Support**	The vendor would be bound to provide product support in terms of maintenance, materials and spares for a minimum period of 20 years.	
24.	**Technical Literature**	The technical literature to be provided during delivery and may include detailed description of the NBC Training Facility, operators cum exploitation manual, comprehensive manual laying down description, exploitation and operating procedures of equipment pertaining to various systems with reference to locations and systems, design details and inspections reports pertaining to construction of civil structure including labs, NBCTF exercise manual, guarantee certificates, safety procedures and other relevant documents	
25.	**Training Aggregates**	Computer based training package based on interactive multimedia and training aids like Charts, Slides, Training Brochures, Training Work Models, Blow up diagram, Video films	

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26.	**Acceptance Trials**	The requirement of Field Evaluation Trials for simulators is waived off iaw Para 67 of Chap II of DAP 20. The simulator will be accepted post completion through Delivery Acceptance Trials which will be conducted as per schedules of the approved QAP in consultation with the *IN*'s project team.	

SECTION F – MISCELLANEOUS

27.	**Dummy Equipment**	*IN* will provide old equipment from representative class of ship as free issue materials (FIL) for the purpose of dummy equipment for mock up, which will need to be installed by the Vendor.	
28.	**Spares**	The spares for all the equipment and system is to be supplied by the Vendor and the recommended list is required to be forwarded to the Navy for vetting.	
29.	**Standarisation**	The equipment and systems installed in the NBC Training Facility should conform to the standard range used by the Navy to facilitate commonality and ease of maintenance. The source of the standard item should be obtained from the Navy prior to ordering.	
30.	**Design**	The Vendor will execute all works in relation to detailed design, material and equipment procurement/ supply, installations, inspection and tests, operation and training of the offered systems.	
31.	**Recommended Specifications**	Recommended Specifications to be followed:- (a) Pumps:IS 8418, NES 327 (b) Water Tight Doors & Hatches:IS 7048, IS 4384, NES127 (c) Fire Hydrant, Fire Protection:IS 908, NES 119 (d) Welding:ASME IX	

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		(e) Pressure Vessels:ASME VIII (f) Safety Systems:IEC 61508 (g) Fasteners: NES 862 (h) Valves: NES 375 (j) Painting of Surfaces:NES 758, 759 (k) AC & Ventilation :NES 102, 103 (l) Compressed Air System:NES 314 (m)System Pipes:NES 743, 797 (n) Prewetting System :NES 118	

SECTION G - ADDITONAL INFORMATION SOUGHT

Ser	Information Required	Vendor Response
32.	Can you design, supply, manufacture, install, Set to Work & commission a NBC Training Facility to the Indian Navy? If yes state your company profile, Technical Expertise, and registrations.	
33.	Is the entire system certified by IRS/LRS and by a reputed fire test laboratory/Agency? If yes, provide details and copy of certification.	
34.	Have you provided any similar system/ ship to any of the establishment in India/other countries? If yes, provide purchase orders and references.	
35.	Has your system been certified by any other Navies/militaries of the world? If yes, provide copy of certification.	
36.	In case you have your own pre designed NBC training facility kindly provide the design philosophy.	
37.	In case you have a pre engineered system, what are the various modes of operation of the fire simulation?	
38.	How many personnel can be trained on NBCTF simultaneously?	

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Ser	Information Required	Vendor Response
39.	Does your system have an audio and visual alarm in case of emergency in the compartment?	
40.	Provide the details of display unit provided along with the system being provided in the DCHQ? (Including all features)	
41.	Comment on the AHU/AFU that you can provide	
42.	What is the total current and voltage rating of the entire system? Provide breakup for sensor, display, system etc., separately.	
43.	Can your facility provide dummy/ mock up equipment/ platforms to adequately populate the compartments and increase the degree of difficulty as felt onboard ships	
44.	Can your firm provide all consumables as part of AMC to run the facility? Provide the list of consumables required to run the facility.	
45.	What power of DG will be required to run the facility?	
46.	Does your facility caters for a battery backup for minimum of 10 minutes for all support systems essential to cater for time lag in DG taking over power supply load.	
47.	What mode of communications will be provided to effectively communicate with the trainees during the conduct of exercise?	
48.	What type of storage area will be provided for storing Lab material?	
49.	Can your facility provide all training aids for the facility and class room training? If yes, what all training aids will be provided?	
50.	Can you provide a sickbay and ambulance alongwith driver for medical emergencies?	
51.	Can arboriculture be provided around the facility?	
52.	Can your facility provide adequate no. of fire points in civil structure i.a.w National Building Code Regulation	

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Ser	Information Required	Vendor Response
53.	Can your firm provide training aids and annual training to Naval personnel? If Yes, elaborate.	
54.	Is your firm capable of producing the facility indigenously? What is the % content of foreign equipment? Provide details.	
55.	What is the minimum area (Sqm) required for you to set the facility? Provide layout drawing	
56.	Can you provide 52 seater transport vehicle alongwith driver for movement of personnel to the simulator from respective ships?	

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Appendix B
(Refer to Para 7(a) of RFI)

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): _____

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

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

7. **Details of Registration.**

Agency	Registration No.	Validity(Date)	Equipment
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

(i) Overall IC (in percentage):

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

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(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 _____

(l) Indigenously produce subsystems, Line Repair Units, software and critical spares of the product: _____

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

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

10. Alternatives to meet the objectives of the equipment/ better operational requirements 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/ GoI/ any other Government Organization and that there is no inquiry going on by CBI/ED/any other Government agency against the firm.

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(Authorised Signatory)

(Vinit Singhal)
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