Tele : 011-23019605/ ASCON : 34554
Fax : 011-23019605
E-mail : **diviceinc-16@gov.in**

Combat Engineers Directorate/
Combat Engineers-4
Integrated HQ of MoD (Army)
Engineer-in-Chief's Branch
Kashmir House
DHQ PO, New Delhi-110011

57405/Sarvatra/SML/CE-4 (C Eqpt) 2023

REQUEST FOR INFORMATION (RFI) FOR PROCUREMENT OF SARVATRA BRIDGE SIMULATOR FOR INDIAN ARMY

1. Indian Army is planning to procure approximately **28 Numbers of Sarvatra Bridge Simulators**. The RFI intends to achieve aim and objectives as per Paragraphs 2 and 4 of Chapter II of DAP 2020.

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

(a) **Part I**. The first Part of RFI incorporates operational and technical characteristics and features of the Sarvatra Bridge simulators. The 'Response by Vendors' column in the tabulated sheet to be filled in by the Vendor as to whether the specified parameter is complied with or not and with any other details, as applicable.

(b) **Part II**. The second part of RFI states the conditions to be acceptable to Vendors and methodology of seeking response from Vendors. **Submission of incomplete response format will render the Vendor liable for rejection**.

(c) **Part III**. Guidelines for framing criteria for Vendor selection/ pre- qualification in Buy Indian (IDDM), Buy (Indian) and Buy & Make (Indian).

PART I

3. **Intended Use of Equipment (Operational Requirements)**. The Sarvatra bridging system was a replacement of AM-50 bridge system held with Corps of Engineers. The indigenously designed Sarvatra Bridge system consists of the bridge superstructure, trestles and accessories and is carried on a specialized version of Tatra T-815 8x8 vehicles, the chassis of which is suitably modified and strengthened for the purpose. It can be launched in a single span mode of or multiple span. The deployed bridge equipment is suitable for the crossing over a 'A" and 'B' vehicles. It is a very expensive, versatile and complex system requiring extensive hands on training and experience to fully exploit its potential and capabilities. The **simulator is to be developed with the intended usage of imparting realistic training to the crew of the bridge system to enable them to hone their skills for optimum utilization of the equipment. This would ensure adequate exposure to the nuances of the launching / de-launching and fault rectification of the system and further conserve the life of operational equipment**.

4. **Important Technical Parameters**.

(a) **Training Requirement**. The simulator is intended for the purpose of training of raw/trained drivers/commanders in familiarizing with controls of the Sarvatra Bridge system. It should provide training on the following aspects, under various conditions : -

(i) Single span / multiple span launch.

(ii) Launching / De-launching in different Terrain scenarios.

(iii) Cross – Country Driving / Reverse Driving in different Terrain scenarios.

(iv) Launching / De-launching in different obstacles like canal (cut / fill section), Ditch Cum Bund (DCB) and rivers.

(v) Driving / Reverse driving and turning in variable size Vehicle Safe Lane (VSL) and Turning Pads.

(b) **Assessment of Trainee**. In conjunction to the above training, it should have facility to access trainee performance on the following aspects. -

(i) Using the controls in prescribed manner under various driving conditions and in proper sequence.

(ii) Driving through various terrains from front and rear cabins.

(iii) Driving under various visibility / climatic conditions.

(iv) Use of special controls and driving through mine field gaps and over similar bridges for subsequent launches.

(v) Use of special controls with proper sequence and drills for launch / de-launch of bridge for a single span or multiple spans.

5. Vendors should confirm that the 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 (RFP)' would be issued soliciting the technical and commercial offers together, but in two separate sealed envelopes. The validity of commercial offer 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 equipment of all TEC cleared vendors would be put through a 'Field Evaluation Trial' in India on a 'No Cost No Commitment (NCNC)' basis. A staff evaluation would be carried out by IHQ of MoD (Army) to analyse the result of field evaluation and shortlist the equipment for introduction into service.

(d) Amongst the vendors cleared by GS evaluation, a Contract Negotiation 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.

(f) The vendor would be required to accept the general conditions of contract given in the Standard Contract Document at Chapter VI of DAP 2020 and subsequent amendments.

(g) Acceptance of terms of payment as per DAP 2020 and subsequent amendments.

(h) **Integrity Pact (if applicable)**. An integrity pact along with appropriate Integrity Pact Bank Guarantee is a mandatory requirement as per Annexure I to Appendix O of Schedule I to Chapter II of DAP 2020.

(j) **Performance-cum-Warranty Bond**. Performance-cum-Warranty Bond both equal to **10%**value of the contract inclusive of taxes and duties or as amended from time to time; is required to be submitted after signing of contract.

6. **Demonstration of Sarvatra Bridging System**. Sarvatra Bridging System has been developed specifically for the Indian Army. Thus, a live demonstration shall be carried out on **08 Aug 2023** (date) at **Patiala** (location) at **1100 hrs** (time) to enable the vendors to ascertain the specific requirements of the actions/drills to be simulated.

PART II

7. **Procedure for Response**.

(a) Vendors must render response as sought at **Appendices A to D** to this RFI. Apart from filling details about company, details about the exact product meeting technical specifications should also be carefully filled. Additional literature on the product can also be attached with the form.

(b) Any queries on the RFI be posted on email diviceinc-16@gov.in latest by **11 Aug 2023**.

(c) A Vendor interaction is proposed on **22 Aug 2023** at Engineer in Chief's Branch, Kashmir House, New Delhi to resolve the above mentioned queries.

(d) Last date of acceptance of all documents is **19 Oct 2023**. The Vendors shortlisted for issue of RFP would be intimated.

8. The Government of India (GoI) invites responses to this request from **Original Equipment Manufacturers (OEMs)/ authorised Indian Vendors**. The end user of the equipment is the Indian Army.

9. This RFI is being issued with no financial commitment and the Ministry of Defence (MoD), GoI reserves the right to change or vary any part there of at any stage. GoI also reserves the right to withdraw should it be necessary at any stage. The acquisition process would be carried out under the provisions of DAP 2020 and subsequent amendments.

10. The parameters in **Appendix C** are 'Operational Requirements (OR)' and **are amenable to changes based on capability of the Industry**.

PART III

11. **Criteria for Qualification in Buy Indian (IDDM)/ Buy (Indian)/ Buy & Make (Indian)**. Vendors are required to understand criteria for qualification in Buy (Indian (IDDM)/ Buy (Indian)/ Buy & Make (Indian) categories as given at Chapter I of DAP 2020. Criteria for 'Indian Vendor' shall be as at Annexure IV to Appendix A of Chapter II, DAP 2020. **Towards this, answers to specific questions as at Appendix D shall be filled in detail**.

Appendix A
(Refers to Paragraph 6 (a) of Combat Engineers Directorate letter No 57405/Sarvatra/SML/CE-4 (C Eqpt)

REQUEST FOR INFORMATION (RFI) FOR PROCUREMENT OF SARVATRA BRIDGE SIMULATOR FOR INDIAN ARMY

RFI for Sarvatra Bridge Simulator.

1. The Indian Army is planning to procure Sarvatra Bridge Simulator. With the view to identify probable Vendors who can undertake the said project, OEMs/ Authorised Vendors are requested to forward information on the product which they can offer. The parameters/ broad specifications of the equipment are mentioned in the questionnaire attached as per **Appendix C**. In addition the vendors are required to furnish details as per proforma at **Appendices B & D**.

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

3. The required information/ details may please be forwarded at the following address :-

(a) **Combat Engineers - 4**
Combat Engineers Directorate
E-in-C's Branch, Kashmir House
Integrated HQ of MoD (Army)
Rajaji Marg, New Delhi-110011
Tele : 011-23019605
ASCON : 34554
E-mail : diviceinc-16@gov.in

(b) **Directorate General of Capability Development (CD- 6)**
General Staff Branch
A Wing, Sena Bhawan
IHQ of MoD (Army)
DHQ PO, New Delhi-110011
E mail : dpack-542@gov.in

(c) **Directorate General of Capability Development (RFP Cell)**
General Staff Branch
Room No 444, Sena Bhawan
Integrated HQ of MoD (Army)
DHQ PO, New Delhi - 110011
Fax : 011-23012794

(d) **Additional Director General of Army Design Bureau (T&WS) (GSQR Cell)**
General Staff Branch 'C' Wing
Room No 16, Sena Bhawan
Integrated HQ MoD (Army)
DHQ PO, New Delhi - 110011
Fax : 011-23014742

(e) **Additional Director General Acquisition Technical (Army)**
Room No 30, D-II Wing, Sena Bhawan
Ministry of Defence, New Delhi – 110011
Fax : 011-23792414

Appendix B
(Refers to Paragraph 6 (a) of Combat Engineers Directorate letter No 57405/Sarvatra/SML/CE-4 (C Eqpt)

PROFORMA FOR REPLY TO RFI TO BE FOLLOWED
(VENDOR INFORMATION PROFORMA)

1. **Name of the Vendor/ Company/ Firm**.

_____

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

2. **Type (Tick the Relevant Category)**.

(a) Original Equipment Manufacturer (OEM) Yes / No

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

(c) Others (give specific details)

3. **Contact Details**.

Postal Address

City:_____ State :_____

Pin Code:_____ Tele:_____

Fax:_____URL/Website:_____E-mail._____

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

Name and Address
:_____
_____

Pin Code :_____Tele:_____Fax : _____

E-mail_____

5. **Financial Details**.

(a) Category of Industry (Large/ Medium/ Small Scale) : _____

(b) Annual Turnover: _____ (in INR).

(c) Number of Employees in Firm : _____

(d) Details of Manufacturing Infrastructure: _____

(e) Earlier Contracts with Indian Ministry of Defence/ Government Agencies:

Contract Number with Date	Equipment	Quantity	Cost

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
GeM			
DGQA/DGAQA/DGNAI			
OFB			
DRDO			
Any other Government Agency			

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

Name of Organisation	Membership Number

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

(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) Also specify if the supplied equipment is the COTS variant or bring out details of modifications. _____

(k) Estimated price of the equipment _____

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

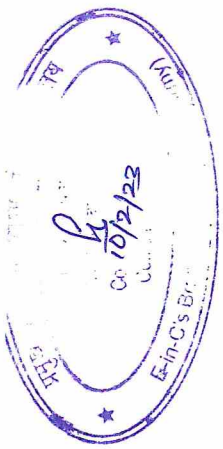
11. Any other relevant information:_____

12. **Declaration**.

(a) It is certified that the above information is true and any changes will be intimated within five (05) working days of occurrence.

(b) This information is being issued with no financial commitment and the Ministry of Defence, Government of India 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 necessary at any stage. The acquisition process would be carried out under the provisions of Defence Acquisition Procedure (DAP) 2020 and subsequent amendments.

(***Authorised Signatory***)



Appendix C
(Refers to Paragraph 6 (a) & 9 of Combat Engineers Directorate letter No 57405/Sarvatra/SML/CE-4 (C Eqpt)

REQUEST FOR INFORMATION (RFI) : SARVATRA BRIDGE SIMULATORS

Ser No	Specifications/ Parameters	Vendor Response
	OPERATIONAL PARAMETERS	
1.	**Operating Environmental Conditions**.	
	(a) **Temperature**. (i) Minimum Range - (-) 5^0C to 5^0C. (ii) Maximum Range - 40^0C to 50^0C.	
	(b) **Storage Temperature**. (i) Minimum Range - (-)10^0C to 5^0C. (ii) Maximum Range - 40^0C to 55^0C	
	(c) **Altitude**. Up to 3000 Metres above Mean Sea Level (MSL).	
2.	**Equipment Composition**. The Sarvatra Bridge Simulator shall comprise of the following sub systems:-	
	(a) **Mock-up**. The Simulator should cover the following major aspects:-	
	(i) Functional controls which effect the driving of the vehicle by the driver. Steering effect for both front and rear cabins should be as in original.	
	(ii) Front Cabin to have soft panels to depict the instrument gauges. All relevant controls with interfacing electronics and controller will also be provided. Front cabin to also have arrangement for engagement of Power Take Off (PTO) valve to simulate start of the hydraulic system.	
	(iii) Rear cabin to be akin to original equipment with scenario to be projected on a curved Video Projection System (VPS) screen.	

	(iv) Commander training console consisting of vehicle Professional Valve Group (PVG) - 32 valve bank and two remotes connected to it as in original bridge for launch and pier operation will be placed in between front cabin & rear cabin as in original equipment. Two VPSs with curved screen will be provided for Commander training. One curved screen will show the launch procedure up to 90 degree and subsequently on the second screen up to final placement of bridge. It should have the facility to simulate failure of joystick remotes and force the Cdr to launch the Bridge from PVG 32 itself. To depict the failure of joystick remote of pier system deployment and train the crew to continue with launch from the pier valve bank, the system should have additional facility of an inclined platform with pier valve bank placed akin to the original equipment and a display associated with it.	
	(b) **Instructor Station**	
	(i) Interactive Instructor station (IIS) with multiple (minimum 4) monitor mountings and sufficient racks / trays for all equipment.	
	(ii) Connectivity of sound system for Prime Mover with all-wheel drives and steer with turbo-charged engine.	
	(c) **Power Source**. The entire system should be able to operate on single phase 230V, 50 Hz AC power supply. Robust power management and protection features need to be built in, with specific feature to cater for power failures and frequency variations. Wires and electrical connection to be of 'Marked Teflon' (or better) wire with proper layout around mock up by casing.	

3.	**Software Features.**	
	(a) **Computer Generated Imagery (CGI) Module.**	
	(i) To be based on Unity Gaming and Rendering Engine for high quality rendering of the scenario for real time driving and bridge operation experience.	
	(ii) To have dedicated channel outputs for all views.	
	(iii) For front cabin driving the driver should have a feel of aligning the vehicle on setting out tape while seeing the obstacle and tape through the rear view mirror. When aligning the vehicle on the tape the driver is required to be guided for correct alignment. This is to be done automatically using Artificial Intelligence. The driver should also gain experience in driving vehicle in customise sized marked VSL and turning of vehicle inside customised 'Turning Pad'.	
	(iv) For rear cabin driving, the driver should gain experience in driving vehicle in customise sized marked VSL and turning of vehicle inside 'Turning Pad'. The assessment of skill for driving from rear cabin should be able to judge the precision of driving through VSL as well as show error message / corrections when driver drives over the unsafe area of minefield i.e. outside the VSL / Turning Pad. Driving cues also need to be supplied to the seat jerker for providing jerks as per the lay of the terrain.	
	(a) **Terrain Depiction**	
	(i) The terrain should be customizable. Each type of terrain should have multiple options of approach to obstacle and multiple obstacle profiles i.e. canal, DCB and rivers.	
	(ii) Customised Vehicle Safe Lane, Turning Pad and mine field to be part of the different terrains.	
	(iii) Option for selection of exercise scenario from the mix of terrain and obstacle profile to be provided.	

	(c) **Water Obstacle**. Following features of water obstacles to be include :-	
	(i) Cut section/fill section of canal/gap including dimensional changes.	
	(ii) Width of clear gap.	
	(iii) Bank height.	
	(iv) Water depth.	
	(v) Water current.	
	(vi) Bearing pressure of soil on banks and canal/ DCB/ river bed of gap.	
	(vii) Slope of banks, whether lined canal/unlined canal.	
	(viii) Bed profile of the gap.	
	(ix) Effect of water current to be simulated along with regular water effects.	
	(d) **Environment Selection**. Facility to set time of day, weather condition (clear, rain, storm, fog), sky condition (clear, overcast, various types of cloud formation) to be provided.	
	(e) **Multiple Span Launches**. Facility for launch of single and multiple spans (up to five spans) to be incorporated. To cater for shift in Centre of Gravity of the bridge, built in alert system in case bridge is unstable / topples.	
	(f) **Performance Module**. Should have the following capability :-	
	(i) Archiving trainee performance data so as to qualitatively evaluate trainee performance in the next training session vis-à-vis his previous sessions and also enable instructor in setting of trainee specific exercises.	
	(ii) Report generation at the end of the exercise.	

	(g) **Interactive Instructor Station (IIS) Module**. Should have the following capability :-	
	(i) To enable the instructor to monitor the performance of the trainee, and for controlling and monitoring the simulator. It would also be used for introduction of faults.	
	(ii) Facility for creating various categories of users like Administrator, Instructor &Trainee.	
	(iii) **Trainee Registration**. To fill in trainee particulars and save them to the database.	
	(iv) Soft panels for viewing the trainee parameters.	
	(v) Create, Edit, Run and Save exercises for further reuse when required.	
	(vi) **Familiarization module**. For the purpose of trainee familiarization with the equipment as well as various features of the simulator.	
4.	**Other Provisions**.	
	(a) **Admin & Security Features**. Provision of password protected User Interface for Admin, Instructor & Trainee.	
	(b) **Trainee and Instructor Interface with the Simulator**.	
	(i) **Trainee**. Trainee should be able to operate the driving controls from the Front/Rear Driver Cabin and can perform the launching/de-launching operations from PVG-32 Valve Bank, Remote Controls as well as incline bench assembly.	
	(ii) **Instructor**. Instructor should be able to register the trainee database, Exercise creation, Run Exercise, monitor trainee actions during run time exercise, Run time fault inductions and generate performance evaluation report of trainee after completion of each exercise.	

	(c) **Trainee & Instructor Console features**.	
	(i) **Trainee**. Enable the trainee, to perform launching/ de-launching operations as well as driving in various scenarios.	
	(ii) **Instructor**. Enable instructor, monitoring performance of trainee and to control and monitor the simulator. It would also be used for introduction of faults. Pop up alert / signal to alert any mistake done by trainee.	
	(d) **Realism in Replication of Control System & Instruments**. Driving/ operational controls in the simulator should be exact replica of original operator console/controls in the original equipment.	
	(e) **Type of Control Instrument Sys Required as Active & Dummy**.	
	(i) All the driving/operational controls should be active.	
	(ii) Replication of original dashboard of vehicle with soft panel based dashboard on the simulator.	
	(f) **Movement of Objects**.	
	(i) The time required for launching / de-launching operations on the simulator should be as per originals.	
	(ii) Simulation of objects and scenarios to provide realistic feel to the trainee.	
	(g) **Video Projection System (VPS)**.	
	(i) Front Cabin with curved screen for projecting scenario from a VPS.	
	(ii) Rear Cabin with curved screen for projecting scenario from a VPS.	
	(iii) Perspective view for projecting scenario from a VPS	
	(h) **Sounds Required**. To be able to produce realistic sounds of vehicle like Engine Starting, PTO Engagement, Cradle/Winch Operations.	

	(j) **Special Effects — Software and Physical**.	
	(i) Use of special controls and specialized driving through mine field gaps and over similar bridges for subsequent launches.	
	(ii) Use of special controls with proper sequence and drills for launch/de-launch of bridge for a single span or multiple spans.	
	(iii) Software to be based on 3-D Unity Gaming and Rendering Engine for high quality rendering of the scenario for real time driving and bridge operation experience as realistic.	
	(iv) Alert signal should be incorporated to alert the trainee when electric harness on the trestle leg approaches the max permissible depth of water launch of bridge.	
	(k) **Features in Scene Editor for Scenario/ EX Creation**. Exercise creation, modify exercise, Delete Exercise & save exercise features should be incorporated in software.	
	(l) **Obstacles Characteristics**. Features to include Cut section/fill section of canal/gap including dimensional changes, Width of clear gap, Bank height, Water depth, Water current, Bearing pressure of soil on banks and in bed of gap, Slope of banks, whether lined canal / unlined canal, bed profile of the gap. Effect of water current should be simulated along with regular water effects.	
	(m) **Preparatory & battle drills to be incorporated**. Customised VSL and Turning pads to be incorporated in mine field.	
	(n) **Types of Reports, After Action Review and What All Needs Storage**. Performance evaluation report based on:-	
	(i) Driving (Front / Rear) drills performed during exercise (Starting, Marching & stopping)	
	(ii) Launching / de-launching drills.	
	(o) **Performance Assessment Methodology**. Trainee Performance evaluation based on drills/actions performed during exercise.	

	(p) **Any Other Feature Desired By The User**.	
	(i) To be able to monitor shift in Centre of Gravity (CG) of bridge and alarm/light indicators for indication toppling of bridge during launch of multiple span bridge.	
	(ii) To be able to monitor placement of subsequent span vehicles on already laid spans and indicate error for variation.	
	(iii) Incorporation of motion system to give a realistic feel to the user with degree of motion along x, y & z axes.	
	(iv) Instructor override facility.	
5.	**Number of Work Stations Required**. Minimum two, one for trainer & one/multiple station(s) for trainee(s). Alternate architechture (if any) may be stated.	
6.	**Life Expectancy**. 21 years with two overhauls at seven and 14 years.	
	(a) **Contemporary Technology**. Real Time data communication between trainee and instructor station.	
	(b) **Networking Technology**. Real time data communication between Front Cabin, Rear Cabin, PVG 32, PTO Valve Bank, Pier Valve Bank assembly and instructor station using File Transfer protocol.	
	(c) **Hardware Configuration**.	
	(i) Use of Commercially of the Shelf hardware.	
	(ii) Latest configuration based desktop Personal Computers for simulation software with upgradable hardware to meet future requirements and facility for upgradation of software.	
	(iii) VPS for Front, Rear & Side projection.	
	(iv) Sound system for realistic sounds of vehicle, Winch/Cradle operation	
	(d) **Operating System, Data base Aspects**.	
	(i) Minimum Windows 10 32/64 bit or latest version of Operating System with capability to be upgraded.	

10/2/23

	(ii) Minimum SQL Server 2019 for database or latest version.	
	(iii) In built Anti-Virus software to be provisioned.	
	(iv) Archiving training data for future reference.	
	(e) **Graphic User Interface (GUI) features**. Following minimum features to be incorporated on Graphics User Interface (GUI):	
	(i) Login.	
	(ii) Create/Edit/Delete Exercise	
	(iii) Run Exercise	
	(iv) Save Exercise	
	(v) Calibration	
	(vi) Diagnostics	
	(vii) Familiarization	
	(viii) Performance Evaluation Report	
	(ix) Help	
7.	**Architecture & Design Aspects**.	
	(a) **Mock-up or Strap-on or Desktop Version**	
	(i) Functional controls which effect the driving of the vehicle by the driver to have electronics inbuilt into them such that the output is integrated via Hardware and Software.	
	(ii) Steering effect for both front and rear cabins as in original..	
	(iii) Front Cabin to have soft panels to depict the instrument gauges. All relevant controls with interfacing electronics and controller will also be provided. Front cabin to also have arrangement for engagement of PTO valve to simulate start of the hydraulic system.	
	(iv) Rear cabin to be akin to original equipment.	

		(v) PVG 32 valve bank and two remotes connected to it as in original bridge for launch and pier operation will be placed in between front cabin & rear cabin as in original equipment.	
		(b) **Individual, Crew or Team base**. Front, Rear Driver Cabin & PVG -32, PTO Valve Bank for 01 x Trainee and crew drill to be performed in simulation software.	
		(c) **Wireless or Wired Communication with External Nodes**. Wired communication between Front Cabin, Rear Cabin, PVG-32, PTO Valve Bank, Incline Bench and instructor station.	
		(d) **Non-Scalable or Scalable**. Scaled as original.	
		(e) **Transferability**. Wheel based cabin/units for easier mobility for shifting/relocation of simulator from one location to another on rare occasions.	
		(f) **Packaging & Instln**.	
		(i) Screw mounting based fitted computer hardware for easy assembling / dismantling.	
		(ii) Portable wheel-based cabin / units.	
		(iii) 230V AC, 50Hz operated hardware.	
		(g) **Software Upgradability**. Yes	
		(h) **Indigenous Design & Development**. Yes	
		(j) **Dimensions**.Dimensions fo simulator to facilitate indoor usage. Dimensions be specified including those of modular parts (if any).	
	8.	**Electrical Power Supply**.	
		(i) The simulator should be able to run on 230V AC, 50Hz.	
		(ii) UPS Facility for Uninterrupted Power Supply on AC Mains failure.	
		(iii) **UPS/Power Conditioner**. Should be able to provide minimum one hour uninterrupted Power supply as backup in case of failure of AC mains.	

9.	**Ruqqedisation**.	
	(a) High Quality fabricated driver cabin, PVG 32 Valve bank & Instructor station.	
	(b) All hardware to be military grade.	
10.	**Endurance for Daily Operation**. At least 12 Hours with half hour gap post six hours.	
11.	**Ergonomic Parameters**.	
	(a) **Calibration Module**. It should be able to calibrate all pedals and levers.	
	(b) **Diagnostic Module**. Requirement of Diagnostics Module to check serviceability of various hardware components fitted.	
	(c) **Metrication**. The proposed equipment and its components should conform to metric standards including for screw, threads and gears.	
	(d) **Ergonomics**. The design of the simulator should be:-	
	(i) Front Cabin based on driver seat, Soft panel based instrument cluster, Gear Box and switches/controls for easy operation as in original..	
	(ii) Rear Cabin based on driver seat, Gear Box and switches/controls for easy operation as in original.	
	(iii) Functionality of PVG-32 Valve bank assembly as in original..	
	(iv) User friendly simulation software	
	INDIGENOUS CONTENT/ PRODUCTION	
12.	Will your product meet Buy (Indian)/ Buy (Indian-IDDM) specifications as per DAP 2020. Specify with details including Indigenous Content.	
13.	Can the Sarvatra Bridging Simulator be produced indigenously? If yes, what will be the Indigenous Content provided & verification process?	
14.	What is the overall percentage of indigenisation for the Sarvatra Bridging Simulator in terms of cost?	

	CRITICAL TECHNOLOGIES	
15.	If your firm is not the OEM, is the OEM willing to provide transfer of critical technologies? If yes, what are the critical technologies which your industry has taken from global partners or Joint Venture (JV), if any? Or what are the essential critical technologies that can be provided (depth and range also to be qualified)?	
16.	How much time will the start up/ JV take to start production?	
17.	Does Indian Industry have the capacity to design develop, manufacture, test and integrate the system including the critical technology?	
18.	How much time is required by the Industry to deliver the Sarvatra Bridging Simulator with Accessories/ platform with the stipulated indigenous content, post trials/ contract for operational use?	
19.	Please furnish details of IPR documentation/ patents/ design resignation/ copyright etc registered with the authorised agency in respect of the Sarvatra bridging system?	
20.	Is complete set of design and production drawing and source code for all software applications/ programmes available with your company? Can they be produced for verification?	
21.	Is there any Transfer of Technology (ToT) involved? If so, specify complete details including qualifying terms and conditions if any.	
22.	How and in what 'Time Frame' will you ensure the ToT?	
23.	If the equipment is of foreign origin then, what is the capability of the Indian Vendor to indigenously design and develop the required equipment?	
	TRIALS/ PROTOTYPE/ COTS	
24.	What will be the time penalty and fall out if addl features/higher technology is asked in the prototype? OR if the equipment is to be fielded in 04 months/06 months, what level of technology (or type of prototype) would be made available?	

25.	What is the likely time period reqd by the industry to field the prototype for trials post intimation of clearance in TEC? This date should factor in time for clearance, transportation etc.	
26.	Whether vendor certification can be given for maj parameter eg op temp and weather conditions etc?	
27.	Whether vendor is ready to provide the EUT (one set) as per the provisions?	
28.	Transportability should be mentioned in the physical & tech parameters	
29.	**Time Schedule**. What is the earliest time by which deliveries can be made? Suggest part supply programs also?	
30.	Is the prototype readily available or has to be designed/ manufactured?	
31.	In what time frame can the prototype of Sarvatra Bridging Simulator be fielded for trials post issue of RFP? This data should factor time for transportation etc.	
32.	Specify the parameters (including parameters from JSS 55555) which can be certified by NABL accredited laboratories along with the details of such laboratories.	
33.	Elaborate on the infrastructure and logistics aspects of conduct of trials and suggested location of trials.	
34.	Is the proposed equipment readily available as COTS? If so what quantities have been sold to various agencies (Govt/ otherwise) in the last five years? Details to be furnished.	
35.	Will you/ OEM be willing to participate in trials as per DAP 2020 in India on NCNC basis?	
36.	Will you be providing the crew required for operating the equipment for trials?	
	PRODUCT SUPPORT	
37.	What is the warranty period offered for the Sarvatra Bridging Simulator (in years and hours of operation)?	
38.	Have you supplied similar Simulator to any other firm in India/ abroad? If yes, furnish details of the supply, including quantity.	
39.	Does your firm have major repair and overhaul facility for major assemblies and component level repairs?	
40.	What is the likely 'Service Life' of the Sarvatra Bridging Simulator produced by your company?	

41.	Is there a requirement of periodic calibration of any Special Machine Tools/ Special Test Equipment (SMTs/ STEs)? If yes, will you provide capability to undertake calibration, as part of Engineering Support Package?	
42.	What kind of Engineering Support Package will you be offering? Please also mention cost implications, if any.	
43.	Will the Engineering Support Package cater for repairs of Special Test Equipment (STEs) also, to include spares, technical literature, training etc? If not, then what is your proposal for sustenance of Special Test Equipment's (STEs)?	
44.	What life time support can be provided by the vendor?	
	MAINTENANCE/ REPAIR/ UPGRADATION PHILOSOPHY	
45.	What would be the Maintenance Philosophy for repair and maintenance of the Sarvatra Bridging Simulator? Can it be aligned with the system of unit and Field level repairs prevalent in the Defence Services?	
46.	Are you ready to provide on-site AMC/ CMC for the equipment?	
47.	Please provide inputs, including costs (as a percentage of basic cost of the main equipment) for on-site Comprehensive AMC and AMC without spares separately?	
48.	Are you willing to provide Maintenance Transfer of Technology (MToT) for sustenance of equipment as per requirements given at Appendix H to Schedule I to Chapter II of DAP 2020?	
49.	What is the type of product support and period for which you commit the product support for sustenance of equipment in terms of supply of spares/ AMC/ calibration etc?	
50.	How many sub vendors are involved in the manufacturing of product? Is product support from all sub vendors also assured for the same period, as committed by you?	
51	What would be the infrastructure & skill sets needed for maintenance?	
52.	Does your Sarvatra Bridging Simulator have Built in Test Equipment (BITE) to support diagnostics and repair through modular replacement?	
53.	Is there any software applicable to your Sarvatra Bridging Simulator? If yes, can it be restored in field in case of any fault?	

	Is it upgradable? Whether open paper license is available or not?	
54.	Does your equipment or any of its sub system have counter to display cumulative usage to facilitate usage based preventive/ period maintenance?	
55.	What would be the training requirement for maintenance of the Sarvatra Bridging Simulator at field level?	
56.	List out the speial maintanence required for storage at lower / higher operating and storage temperature ranges.	
57.	List out the tools and accessories provided with the Sarvatra Bridging Simulator.	
58.	Is there any automatic diagnostic equipment available to check the health of engine, Hydraulics and sensors?	
59.	What would be the upgradation philosophy with respect to the Sarvatra Bridging Simulator.	
60.	Elaborate upon the frequency and nature of upgrades recommended by you.	
61.	Will software upgrades/ patches be provided whenever required?	
62.	Is the equipment modular in construction to facilitate repairs in field by replacing defective module? What is the Mean Time to Repair (MTTR) for repairs through replacement?	
63.	What is Mean Time Between Failure (MTBF) for equipment and its main assemblies?	
64.	Please provide details of inspection standards to ascertain serviceability of equipment as well as its modules/ components.	
65.	Please provide details of Indian origin generators and batteries to be provided with your equiment, where applicable.	
66.	Please provide details of Indian equivalents of oil and lubricants used with your equipment?	
	TRAINING	
67.	Will you be able to offer Sectionised/ Cut Models, 3D models CDs for training? Please elaborate the scope/ components covered and the indicative cost of training in terms of basic cost of the equipment.	

68.	Have you developed a class room trainer and a Computer Based Training (CBT) package for training? If Yes, what would be the indicative cost of CBT in terms of basic cost of the equipment.	
69.	Will you be able to provide IETM Version 4 or higher? If Yes, what would be the indicative cost of IETM Version in terms of basic cost of the equipment.	
70.	What are the facilities available at OEM/ Vendor premises to conduct training?	
71.	How will you assist in carrying out training for user, maintenance personnel and QA personnel?	
72.	What is the recommended training period of maintenance and QA personnel and user/ crew?	
73.	Can a user bilingual hand book, repair and maintenance manual and spare parts catalogue be provided with each Sarvatra Bridging Simulator?	
	COMMERCIAL TERMS/ COST	
74.	Please provide list of all the elements which need to be structured in the costing of the equipment system (including comprehensive maintenance/ product support package)	
75.	What will be the estimated price of the complete Sarvatra Bridging Simulator? Also mention the Minimum Order Quantity for the price quoted.	
76.	What is the approximate cost of the Sarvatra Bridging Simulator as defined above in Indian Rupees (including taxes and duties)?	
77.	Please provide inputs on the cost of Engineering Support Package {which shall include Manufactured Recommended List of Spares (MRLS) for three to five years post warranty, Special Machine Tools (SMT)/ Special Test Equipment (STE), Training Aggregates, Technical Literature and Training} as a percentage of the cost of the main equipment along with details of taxes & duties applicable.	
78.	Please provide an approximate cost (to include taxes and duties) of a similar commercial off the shelf version of the equipment, if it exists?	

79.	Please provide a list of the features, included in this RFI which are not included in the commercial version along with the approximate cost implication for each individual feature?	
80.	What INCOTERMS 2020 are suitable/ preferred by your company and for what reasons? If the case is being processed under the ibid category, specify the number of years (from three to five years) MRLS will be provided along with the equipment?	
	TIME SCHEDULE	
81.	What is your annual production capacity for the Sarvatra Bridging Simulator? Is it likely to increase? What is the recommended 'Delivery Schedule?	
82.	What is the earliest timeframe by when the Sarvatra Bridging Simulator can be delivered after placing of order?	
	MISCELLANEOUS	
83.	Are you an OEM of the equipment or an authorised vendor? If OEM, then forward your company profile?	
84.	Will your firm be willing to supply the Sarvatra Bridging Simulator to Indian Army under provisions of DAP-2020?	
85.	What are the enhanced parameters/ specifications of Sarvatra Bridging Simulator which can be offered?	
86.	Are you willing to accept the Option Clause? Give the duration for which the clause would be valid?	
87.	Have you supplied similar equipment as defined above to Border Roads Organisation, Central Armed Police Forces, Para-Military Forces or any other Ministry of Defence Agencies (if yes, please provide details of year of supply, quantities and specifications of product. Also specify if the supplied equipment is the COTS variant or bring out details of modifications)?	
88.	Any other relevant information in terms of specifications/ terms of ref, the OEM/ Vendor would like to share.	

Appendix D
(Refers to Paragraph 6 (a) of Combat Engineers Directorate letter No 57405/Sarvatra/SML/CE-4 (C Eqpt)

QUESTIONNAIRE ON GUIDELINES FOR VENDOR SELECTION/ PRE-QUALIFICATION FOR INDIAN VENDORS

1. Is the Applicant Entity an Indian Company as defined under the Companies Act 2013?

2. Has the Applicant Entity of any of its allied entities ever been banned or suspended by MoD/ SHQ of any Government Department of Organisation? Details of vigilance action viz ongoing investigations by any Department/ agency of Central Government may be provided.

3. Is the Applicant Entity a Manufacturing Entity or System Integrator or a Trading Company?

4. Does your Company have any previous experience/ expertise in this field? Specify the field of expertise/ experience of your company and the duration of experience in years.

5. Specify the turnover and net worth of your Company in the last three (03) years.

6. Is your Company under insolvency resolution as per Indian Bankruptcy Code?

7. What is the Credit Rating of your Company equivalent to CRISIL rating?

8. Does your Company qualify under Start Up or MSME Category?