REQUEST FOR INFORMATION (RFI):
HIGH MOBILITY VEHICLE GENERAL SERVICE (PRIME MOVER) WITH SEMI-TRAILER 50 TON TANK TRANSPORTER

1. The Ministry of Defence, Government of India, intends to procure approximately **53 x High Mobility Vehicle GS (Prime Mover) with Semi-Trailers 50 Ton Tank Transporter**. The vehicle and semi-trailer will be used for transportation of medium, heavy tanks weighing upto 50 Tons on metalled roads and tracks. The vehicle will be provided with 6x6 / 8x8 drive and along with the Trailer will be capable of operating in high altitude and mountainous terrain prevalent in the country within a temperature range of minimum minus 15^0C to minus 5^0C and maximum 40^0C.

2. This RFI consists of two parts as indicated below:-

(a) **Part I**. The first part of the RFI incorporates operational parameters and broad technical requirements that should be met by the equipment and the approximate quantity required to be procured. Few important technical parameters of the proposed equipment are also mentioned.

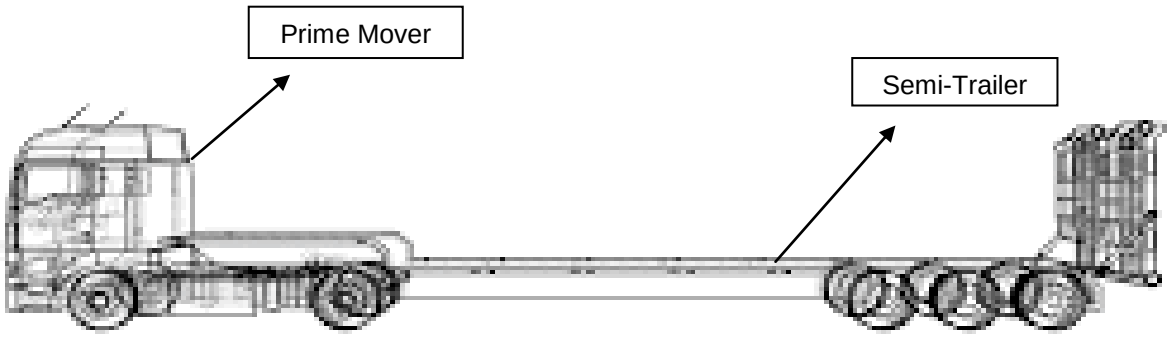
(b) **Part II**. The second Part of the RFI states the methodology for seeking response from vendors. Submission of incomplete response will render the vendors liable for rejection.

PART - I : OPERATIONAL PARAMETERS AND BROAD TECHNICAL REQUIREMENTS

3. **Operational Parameters – Prime Mover**.

(a) The vehicle will employ contemporary technology in all its systems to deliver optimum performance and reliability.

(b) **Dimensions and Weight**. The overall dimensions and weight of the vehicle should allow it to go across a bridge classification of **Class-70R of IRC : 6-2014** when towing a semi-trailer loaded with payload of 50 Ton.



(This picture is for representation purpose only)

4. **Operational Parameters – Semi-Trailer**.

(a) The trailer will be **a semi-trailer** capable of carrying a 50 Tonne payload and be able to withstand heavy wear and tear under the load of tracked vehicles, earthmoving and other heavy equipment. Payload of the trailer will not be less than 50 Ton on Metaled, Un-metaled/graveled tracks.

(b) Overall dimensions and weight of the trailer should be kept as low as possible, broadly conforming to the following specifications: -

(i) **Un-laden Weight**. Not more than 20 Ton.

(ii) **Number of Axles**. The number of axles should be such that the trailer with payload of 50 ton meets IRC standards for axle/road and bridge classification of IRC class 70-R.

(iii) **Approximate Dimensions of Payload**.

Ser No	Description	Dimensions
(aa)	Max Width with Skirt Plates	3780 mm
(ab)	Track to Track Width (External edge)	3370 mm (width of each track 580mm and inner edge to inner edge distance 2210 mm)
(ac)	Max Length (Hull Length)	6920 mm
(ad)	Length in Gun forward position	9530 mm
(ae)	Track Length in Contact	4212 mm
(af)	Max Height	2865 mm

(iv) Overall Height in Transportation Mode along with Payload : Not more than 4200 mm.

(c) A steel platform of robust construction of the dimensions given in paragraph 4 (b) (iii) above, to carry a payload of 50 Ton is required. Lashing arrangements will be provided on all four sides of the trailer to secure the equipment being transported.

(d) The trailer should be capable of operation in climatic conditions in the range between minimum temperature of minus 15^0C to minus 5^0C and maximum temperature of 40^0C. The trailer should be capable of sustained carriage of max payload for 8 hours of continuous driving on metalled roads.

(e) The turning circle diameter for the trailer should be as small as possible to enable the trailer to negotiate road bends in mountainous terrain. Steering arrangements should be provided on all axles.

(f) Trailer should provide stability of load on a gradient of not less than 7^{o} and side slope stability of not less than 9 degrees.

(g) Two winch rope guide pulleys are to be provided for loading and unloading of an unserviceable tank in conjunction with the prime mover.

(h) Marker lights with black out stop/tail lights will be provided as part of the trailer.

(j) The colour of the trailer would be notified before the issue of RFP to the vendor by the user.

(k) Routine maintenance should be minimum and easy to carry out under field conditions. All components, especially tyres, must be readily accessible for easy repair and field replacement.

5. **Broad Technical Requirements : Prime Mover**.

(a) **Engine**. The vehicle engine will have the following characteristics: -

(i) **Type of Engine**. Contemporary Turbocharged Diesel Engine meeting **BS-III / IV norms**.

(ii) **Engine Output**. The engine output will not be less than 300 KW. The engine power should enable the vehicle to haul a loaded semi-trailer with a payload of 50 Ton (Total weight including semi-trailer being 70 Ton) over a gradient of 7^{0}.

(iii) **Fuel Efficiency**. The vehicle should be fuel efficient and economical to operate when hauling a loaded trailer weighing 70 Ton (50 Ton + 20 Ton) under test conditions.

(iv) **Average Engine Life**. Average engine life should not be less than **1,50,000 km/ 11 years** whichever is earlier.

(v) A cold starting device will be fitted for ease of starting in cold climate upto -15^{0}C at an altitude upto 5,000 mtr.

(vi) The overall design should be modular for ease of replacement.

(b) **Power Train**.

(i) The transmission system should be all time / selectable 6x6 / 8x8 **Manual / Fully Automatic / Automated Manual Transmission**. Differential lock facility will be provided on all axles. Facility of inter axle differential lock will also be provided. Engagement of high/ low gear and differential lock to be possible from the driver's cabin.

(ii) Power Take Off arrangement will be provided on the gear box/transfer case.

(iii) A winch mechanism will be provided to facilitate loading of an unserviceable tank on the semi-trailer.

(iv) A winch mechanism will also be provided for self-recovery of an unserviceable vehicle.

(c) **Brake System**. The vehicle should have a contemporary brake system with ABS. In addition to the Service brakes, Emergency, Parking and Exhaust brakes should be provided. Parking brake must be able to hold the vehicle on all gradients which it is capable of negotiating. Brakes to comply with latest IS applicable at the time of trials. A twin circuit brake system will be provided for towing the semi-trailer.

(d) **Hill Assist Feature**. A Hill Assist Feature will be provided to prevent vehicle roll back on steep gradient.

(e) **Suspension**. Suspension system will be based on semi-elliptical multi leaf springs and parabolic bogie mechanism or better system.

(f) **Steering System**. Vehicle should have Right Hand Drive with adjustable tilt and telescopic Power Steering. Emergency power steering will be provided to enable steering of vehicle when engine power is switched off.

(g) **Cabin and Body**. The vehicle cabin shall be based on fully forward control design. The cabin will be hydraulically tiltable. A self adjusting hydraulic/pneumatic seat will be provided for the driver. Co-driver seat will be manually adjustable. Three point seat belts will be provided for both the seats. A berth type seat to be provided behind the driver and co-driver seats. The cabin will be fitted with Heater and Demister system. The cabin will have provision for central locking.

(h) **Central Tyre Inflation System (CTIS)**. A Central Tyre Inflation System will be provided for real time monitoring of tyre pressure and inflation of tyres as per rated pressure. The CTIS to facilitate monitoring and inflation of tyres of Prime Mover and Semi-Trailer.

(j) **Camouflage and Concealment**. The vehicle should have as low a silhouette as the physical characteristics permit.

(k) **Stowage Facilities**. Rifle racks to be provided for driver, co-driver and crew members in the driver compartment. Stowage arrangements for two showels and pick axes, camouflage net poles, 5 litre oil can and eight x 20 litres jerricans (for spare fuel) to be provided. A 20 litre capacity Stainless Steel water tank will also be provided.

(l) **Vehicle Performance Parameters**. The vehicle to preferably have the following capability :-

(i) **Gradeability**. Not less than 7^0 when towing a loaded semi-trailer weighing 70 Ton (Re-start gradeability).

(ii) **Side-Slope Stability**. With Trailer not less than 9^0 and without Trailer not less than 24^0.

(iii) **Turning Circle Diameter**. To be kept to the minimum.

(iv) **Ford-ability**. Minimum 1200 mm (stop) and Minimum 1400 mm (pass) with preparation.

(v) **Ground Clearance**. 400 mm ± 30 mm in laden condition.

6. **Broad Technical Requirements : Semi-Trailer**.

(a) **Suspension System**. The trailer should have a modern, heavy duty hydraulic suspension system keeping in view the load factors and terrain in which it will operate. Individual axles should be provided with a stroke of ± 250mm to facilitate stability of payload.

(b) **Braking System**. The trailer should have a contemporary braking system providing effective braking in all terrains at maximum payload condition. The braking efficiency will be as per relevant CMVR Norms.

(c) **Loading Ramp**. The trailer should have two fixed width ramps at the rear to cater for width of different tracked equipment. Ramps should be operated through pneumatic/hydraulic system and should be electrically (button/lever) operated for opening and closing. The ramps should be foldable in length and provide a gradual slope not more than 20^0.

(d) Anti-skid plates should be provided on the floor of the trailer to avoid slippage of the equipment during loading/unloading.

(e) Commercially available, indigenous, cross country cum highway tyres meeting CMVR standards are to be provided in the trailer.

(f) At least four spare wheels should be provided on the trailer itself alongwith suitable stowage arrangements and winch mechanism to assist in easy lifting and lowering of spare wheels.

(g) **Central Tyre Inflation System (CTIS)**. A Central Tyre inflation system should be provided for real time monitoring of tyre pressure and inflation of tyres as per rated pressure. The CTIS is to be compatible with the Prime Mover.

(h) Adequate lashing chains/straps of suitable lengths with turn buckles must be provided.

(j) **Hazard Lights**. Hazard lights must be provided at the front, rear and sides of the trailer for driving in heavy traffic areas.

(k) **Tool Kit Box**. Tool kit box with adequate tools must be provided. It should be easily accessible and secured with locking arrangements.

7. 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'** 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) **Trials**. Post technical evaluation, the equipment will be put through a Field Evaluation Trial (FET) in India on a **'No Cost No Commitment'** basis. Trial timelines will be provided in 'Trial Directive' post issue of RFP. One vehicle will be provided for the FET. The process of FET will include: -

(i) User Trials in HAA (High Attitude Area).

(ii) MET (Maintainability Evaluation Trials).

(iii) DGQA Evaluation.

(d) A General Staff evaluation would be carried out by Service Headquarters to analyze the result of field evaluation and shortlist the equipment for introduction into service.

(e) Amongst the vendors cleared by General Staff evaluation, a Contract Negotiation Committee would decide the **lowest cost bidder** (L1) and conclude the appropriate contract.

(f) Vendors would be accountable to provide Product Support (on chargeable basis) for time period specified in the RFP, which would include spares and maintenance tools/ jigs/ fixtures for field and component level repairs / condition based repairs (as applicable).

(g) The vendor would be required to accept the general conditions of contract given in the **Standard Contract Document at Chapter-VI of DPP-2016**.

(h) **Integrity Pact (if applicable)**. An integrity pact along with appropriate Bank Guarantee is a mandatory requirement as per Annexure-I to Appendix M of Schedule-I (RFP Format) of DPP-2016.

(j) **Performance-cum-Warranty Bank Guarantee**. A Performance-cum-Warranty Bank Guarantee of 10% of value of the contract would be furnished by the seller in the form of a Bank Guarantee after signing of the contract.

(k) **ESP (Engineering Support Package)**. The vendor should provide an Engineering Support Package for management of repairs and spares post contract giving details of facilities and availability of infrastructure in India so that repair & service needs can be attended in the area of employment of the vehicles.

(l) **Delivery**. The tentative delivery schedule for supply of the equipment after conclusion of contract will be based on delivery at different locations within the country with numbers specified.

(m) Vendors may be advised to consider RFI as advance information to obtain requisite government clearances.

8. The parameters/broad specifications of the equipment are sought in the questionnaire attached as per **Appendix 'A'**. Vendors are required to respond for both Prime Mover and Semi-Trailer as per **Appendix 'A'**.

PART - II : PROCEDURE FOR RESPONSE

9. Vendors must respond to the Questionnaire as per **Appendix 'A'** attached giving maximum possible details. The vendors must also fill the form of response as per **Appendix 'B' of Chapter- II of DPP 2016** attached to this RFI as **Appendix 'B'**. Apart from giving details about the company, details about the specific product, generic technical specifications should also be indicated. Additional literature on the product can also be attached with the form.

10. The filled form should be dispatched at the under mentioned address: -

Directorate General of Supplies and Transport (ST-11)
QMG Branch, Room No 323, 'A' Wing, Sena Bhawan
Integrated HQ of MoD (Army)
DHQ, PO-New Delhi-110011
Tele Number – 011-23018592
NIC Mail ID – dirtpt-ihq@nic.in

Directorate General of Weapons and Equipment (WE-13/14)
General Staff Branch, Room No 441, 'A' Wing, Sena Bhawan
Integrated HQ of MoD (Army)
DHQ, PO-New Delhi-110011

Directorate General of Weapons and Equipment (RFP Cell)
General Staff Branch, Room No 444, 'A' Wing, Sena Bhawan
Integrated HQ of MoD (Army)
DHQ, PO-New Delhi-110011
Fax No : 011-23012794

Directorate General of Perspective Planning (GSQR Cell)
General Staff Branch, Room No 122, 'A' Wing, Sena Bhawan
Integrated HQ of MoD (Army)
DHQ, PO-New Delhi-110011
Fax No : 011-23014742

Technical Manager (Land System)
Room No 28, D-II Wing, Sena Bhawan
Ministry of Defence,
DHQ, PO-New Delhi-110011
Fax No : 011-23792414

11. Last date of acceptance of filled form is _____**2020** (**Six weeks** from hosting of RFI on Indian Army website through ADG PI). The vendors shortlisted for issue of RFP would be intimated separately.

12. Vendor interaction may be planned if considered necessary.

13. The Government of India invites responses to this request only from Indian OEM/Authorised Vendors. The end user of the equipment is the Indian Army.

14. This information is being issued with no financial commitment to procure the said equipment and the Ministry of Defence reserves the right to change or vary any part thereof at any stage. The Government of India also reserves the right to withdraw this RFI, should it be so necessary at any stage. The acquisition process would be carried out under the provisions of **DPP- 2016**.

Appendix A
(Refers to Para 6 of RFI)

QUESTIONNAIRE

Note: Please provide all relevant details and technical specifications to the extent possible. Compliance to relevant Automotive Industry Standards (AIS)/CMVR norms may be mentioned quoting the relevant specification/ standard number in your reply.

Sr No	Specification/Parameter	Reply
	HIGH MOBILITY VEHICLE 8X8/6X6 GENERAL SERVICE (PRIME MOVER)	
1.	**Engine**. (a) What is the type of engine provided? How many cylinders are provided? How are they arranged? Give the swept volume of the engine in cubic cm (cc)? (b) What is the max power output in KW and BHP? Specify the engine rpm at which the power output is achieved. (c) What is the maximum Torque achieved by the engine in Nm and at what rpm? (d) Is the engine power output and Torque generated adequate to haul a loaded semi-trailer weighing 70 Ton over a gradient of 7^0? (Re-start gradeability). If not, what is the engine power output and Torque recommended by you to meet this requirement? (e) What emission norms does the vehicle comply with? Can a vehicle meeting BS-III/IV emission norms be provided? (f) What is the type of fuel used? What BS norms does the fuel have to comply with? (g) List out the types/grades of coolant, oils/ lubricants and greases with quantity recommended for use in the vehicle and specify the assembly where applicable? (Specify **standard nomenclature** of grades without any brand name). (h) What is the average life of engine in years and Km? (j) What is the average service life of the whole vehicle in years and Km? (k) What is the mileage achieved by the vehicle in Km/ litre when towing a loaded semi-trailer having total weight of 70 Ton under test conditions? (l) What are the cold starting arrangements provided for ignition of engine upto -15^0C and altitude upto 5000 meters? (m) What is the design of the turbocharger keeping in mind employment of vehicle in High Altitude Area with temperature upto minus 15^0C and low oxygen at altitudes upto 5,000 meters?	

Sr No	Specification/Parameter	Reply
2.	**Transmission System**. (a) What type of transmission system will the vehicle have? Give the number of gears provided. Can high/low gear ratios be provided? How are the gear ratios activated? Elaborate. (b) What is the type of Transmission system (Manual, Fully Automatic / Automated Manual Transmission) provided? Elaborate. (c) What is the drive configuration provided in the vehicle ie 6x6 / 8x8? Is any other drive configuration suggested by you? Is the drive configuration selectable or all time? Specify. (d) If selectable drive options are provided, how are they activated? Elaborate. (e) Can liftable axles be provided? Elaborate. (f) Is a differential lock available on all axles? How is it activated? Elaborate. (g) Is an inter axle differential lock provided? How is it activated? Explain the working of the system and its advantages. (h) Can Hub reduction feature be provided in the live axles for better tractive effort in cross country driving? Elaborate. (j) Can a winch mechanism be provided to facilitate loading of an unserviceable tank on the semi-trailer? How is it operated? Specify the pulling capacity of the winch rope in KW and Ton. (k) What is the length and diameter of winch rope provided? (l) Can a winch mechanism be provided to facilitate self-recovery of an unserviceable vehicle?	
3.	**Maximum Vehicle Speed Attainable**. What would be the maximum speed attainable while towing a loaded trailer: - (a) On metaled roads (b) On un-metaled/Graveled tracks	
4.	**Steering System**. (a) What is the type of steering system provided? (b) Is there any provision of emergency power steering in the vehicle? (c) Can an adjustable (Tilt and Telescopic) steering be provided?	

Sr No	Specification/Parameter	Reply
5.	**Brakes**. (a) Elaborate upon the type of brakes provided :- (i) Service Brakes. (ii) Parking Brake. (iii) Exhaust Brake. (iv) Emergency Brake. (b) Can an Anti-Lock Brake System (ABS) be provided? (c) Is a twin circuit brake system provided for towing the semi-trailer? (d) What is the braking efficiency and braking distance with full payload at cruising speed? (e) At what gradient will the parking brake be able to hold the vehicle with full payload? (f) Can a 'Hill Assist Feature' be provided to prevent vehicle roll back on steep gradient? How is it activated? At what maximum gradient will it be effective? Will the feature be effective when towing a loaded Trailer? (g) Can a 'Hill Descent Control Feature' be provided to prevent vehicle roll down on steep slope? How is it activated? At what maximum slope will it be effective? Will the feature be effective when towing a loaded Trailer?	
6.	**Engine Cooling System**. (a) What is the type of cooling system provided? (b) What is the Ideal & Max cooling temp? (c) What is the operating temperature range?	
7.	**Suspension**. (a) What is the type of suspension system provided in the vehicle. (b) Does it comply with any CMVR norms? Please elaborate.	
8.	**Electrical System**. (a) How many batteries does the vehicle have? What is the Battery type, voltage and capacity ? Can maintenance free battery(ies) be provided? (b) Can a Battery Isolating Switch be provided? (c) What is the type of wiper motor? Can a variable speed wiper motor be provided?	

Sr No	Specification/Parameter	Reply
	(d) Is there a provision of wind screen washing? (e) Is a demister provided for the front wind screen? (f) Can an electrical and pressure horn with change over switch be provided? Can a siren/hooter be provided? (g) **Additional Lighting Arrangements**. (i) What is the type of Head Lamps provided in the vehicle? Can LED lights be provided? (ii) What is the type of Tail Light Assembly provided? (iii) Can the under mentioned lights / sockets be provided? Amplify against each : - (aa) Cabin Light. (ab) Light for Engine Compartment. (ac) Blinkers for indication of front and rear on cabin roof. (ad) Blackout head, tail & stop lamp with change over from normal to blackout driving. (ae) Fog Lights. (af) Map reading light on the dash board. (ag) Light socket in the rear for semi-trailer lights. (ah) A charging socket on the dash board. (aj) A beacon light on the cabin roof. (iv) Can the normal lighting system be made in-operative when the blackout lights are put on?	
9.	**Starting System**. What is the type of starting system provided in the vehicle?	
10.	**Towing Arrangements**. (a) What are the towing arrangements provided in the front of the vehicle to tow the vehicle in case of a mechanical breakdown? (b) What is the towing arrangement provided for towing a loaded semi-trailer with a gross weight of 70 Ton? Is the towing mechanism compatible with all commercially available semi-trailers? (c) If not, specify the requirement of the semi-trailer to make it compatible for being towed by the Prime Mover?	

Sr No	Specification/Parameter	Reply
11.	**Dimension**. Specify the Length, Width, Height and Wheel Base of the vehicle?	
12.	**Cabin and Body**. (a) What would be the design of the cabin with respect to the engine ie (fully forward/semi forward)? (b) How is the Driver's Cabin mounted on the Chassis? Specify the number of mounting points. Is there any suspension mechanism provided in the mounting? Please elaborate. (c) What Cabin tilting arrangements are provided in the vehicle? Can a hydraulic arrangement be provided to minimise effort? (d) What is the type of Windscreen provided? (e) Can a central locking system be provided? (f) How many doors will the cabin have? Can power windows be provided? (g) Explain the seating arrangements for the driver and co-driver. Can height adjustable, reclining and laterally movable seats with integrated head rest be provided? Do the seating arrangements confirm to any IS norms? (h) Can self adjusting hydraulic / pneumatic seats be provided for the driver to reduce fatigue? (j) What is the type of seat belts provided for the safety of driver/ co-driver? (k) Can bench/berth type seats be provided behind the driver and co-driver seats for driver / co-driver to sleep? How many berths can be provided? How many crew members can be seated on the berth seat? (l) What arrangements can be made to provide better ergonomics for crew comfort? Elaborate. (m) Is there a provision of observation hatch above the co-driver seat in the cabin? Are locking arrangements provided for the hatch? (n) Can a portable dry chemical powder type fire extinguisher be fitted in the driver's compartment? (o) Is the vehicle fitted with Heating, Ventilation and Air Conditioning (HVAC) system for the driver cabin? Please provide details of the system and give heating/ cooling capability with respect to the ambient temperature. Can the HVAC system carry out windscreen demisting?	

Sr No	Specification/Parameter	Reply
13.	**Tyres**. (a) What is the type and size of tyres recommended for the vehicle? (b) Are the tyres indigenous or imported? (c) **Central Tyre Inflation System (CTIS)**. Can a Central Tyre Inflation System be provided for inflation of tyres of Prime Mover and Semi-Trailer as per rated pressure? (d) How does the system facilitate monitoring of individual tyre pressure of Prime Mover and Semi-Trailer in the Driver's cabin? (e) Can a audio visual alarm system be provided to indicate low tyre pressure?	
14.	**Stowage Facilities**. (a) Can the following Stowage facilities be provided: - (i) Rifle racks for driver and co-driver and crew members in the driver compartment. (ii) 20 litre capacity SS water tank with tap and PUF insulation. (iii) Tool Box for tools and spare parts. (iv) Glove compartment / Dash board with locking arrangement. (v) Stowage arrangements for two Showels and Pick axes each. (vi) Stowage arrangements for camouflage net poles. (vii) One 5 litre Oil Can. (viii) Eight, 20 litres Jerricans (for spare fuel). (b) Explain the stowage mechanism for spare wheel?	
15.	**Vehicle Performance Parameters**. The vehicle will be utilized to tow a loaded semi-trailer weighing not more than 70 (Tank - 50 Ton and Semi-Trailer 20 Ton). In light of the above :- (a) What would be the un-laden weight of the vehicle? (b) What would be the Gross Vehicle Weight (GVW) of the vehicle? (c) What would be the time required to come into action during day and night for the vehicle? (d) **Enhanced Performance Parameters (EPP)**. What are the enhanced performance parameters / specifications that would be provided in addition?	

Sr No	Specification/Parameter	Reply
	(e) **Gradeability at Full load**. What would be the Gradeability of the vehicle when towing a loaded semi-trailer with a gross weight of 70 Tons? (i) **Running Gradeability**. (in degrees) (ii) **Re-start Gradeability**. (in degrees) (f) **Side-Slope Stability**. What is the side-slope stability of the vehicle? (Give figures in degrees). (g) **Vehicle Speed**. What would be the maximum vehicle speed on level metalled highway with loaded trailer (total towed payload 70 Ton)? (h) **Range of Operation**. (i) How many fuel tanks does the vehicle have? Give their capacity. Can the fuel tanks be provided with integrated locking mechanism? (ii) Can a Polymer based Fuel tank be provided? Enumerate advantages and disadvantages. (iii) What is the fuel consumption of the vehicle in Km/litre :- (aa) In Prime Mover role when towing a loaded semi-trailer weighing 70 Tons. (ab) When moving single ie without semi-trailer. (iv) What is the maximum distance covered by the vehicle on full fuel tank :- (aa) In Prime Mover role when towing a loaded semi-trailer weighing 70 Tons. (ab) When moving single ie without semi-trailer. (j) **Turning Circle Diameter**. What is the turning circle diameter of the vehicle? What is the TCD of the veh when towing a semi-trailer? (k) **Ford-ability**. What is the fording capability of the vehicle without any preparation? (l) **Ground Clearance**. What is the ground clearance of the vehicle in fully laden condition? (m) **Angle of Approach**. What is the angle of approach? (n) **Angle of Departure**. What is the angle of departure? (o) **Power to Weight Ratio**. What is the power to weight ratio in KW/ Ton?	

Sr No	Specification/Parameter	Reply
16.	**Weather Proofing**. Will all sub assemblies of the vehicle be capable of withstanding extreme weather conditions in the temperature range of minimum minus 15^0C and maximum 40^0C? What measures will be provided to withstand high humidity and dust?	
17.	**Outside Rear View Mirror**. What are the type of outside rear view mirrors provided in the vehicle? Can the ORVM be provided with side indicators? Can additional mirrors be provided to reduce 'Blind Spots'? Specify.	
18.	**Air Bags**. Are air bags mandatory for this category of vehicle as per CMVR norms. Can air bags be provided for the driver and co-driver?	
19.	**Instrument Panel**. (a) What is the type of instrument panel provided? (b) What are the types of switches provided? (c) Can a Trip Meter be provided? (d) Specify the gauges / meters that will be provided in the instrument panel? (e) Can audio / visual alarm be provided on the instrument panel to indicate the following aspects:- (i) High Coolant Temperature. (ii) Low Oil Pressure. (iii) Low Air Pressure (for Brake System). (iv) Low Fuel Level. (v) Hand Brake operation. (vi) Door Ajar Indicator. (vii) Seat Belt usage. (viii) Battery not charging.	
20.	**Tools and Accessories**. List out the tools and accessories provided with the vehicle.	
21.	**Maintenance Philosophy**. (a) What would be the Maintenance philosophy for repair and maintenance of the vehicle? Can it be aligned with the system of unit and Field level repairs prevalent in the Defence Services? (b) Would the vehicle have interoperability with the present fleet of in-service vehicles? Please elaborate.	

Sr No	Specification/Parameter	Reply
	(c) What would be the infrastructure & skill sets needed for maintenance. (d) What would be the training requirement for maintenance of the vehicle at unit and field level? (e) Will you be providing spares, Special Maintenance Tool and Special Test Equipments for carrying out component level repair? (f) Will you be providing AMC for repair and calibration cover for Special Maintenance Tools and Special Test Equipment? (g) **Upgradation Philosophy**. (i) What would be the upgradation philosophy with respect to the vehicle? (ii) Elaborate upon the frequency and nature of upgrades recommended by you. (iii) Will software upgrades/patches be provided whenever required? (h) **Product Support**. (i) What kind of 'Product Support' will you ensure? What will be 'Time Period'? (ii) Does the company have major repair and overhaul facility for major assemblies and component level repair? (iii) Can ESP (Engineering Support Package) compromising of MRLS (Manufacture Recommended List of Spares), SMT (Special Maintenance Tools) / STE (Special Test Equipment), Technical Manual / Documents, Training Material including Sectionised Models, Training Charts and CBT (Computer Based Test) packages be provided? (iv) What type of AMC can be provided by you? What would be the likely Cost? (v) What life time support can be provided by the vendor?	
22.	**Oil & Lubricants**. (a) List out the types/grades of coolant, oils/ lubricants and greases with quantity recommended for use in the vehicle and specify the assembly where applicable? Specify **standard nomenclature** of grades without any brand name as per table below :-	

<table>
<tr><th>Sr No</th><th>Specification/Parameter</th><th>Reply</th></tr>
<tr><td></td><td>
<table>
<tr><th>Ser No</th><th>Purpose Oil/Lubricants required for</th><th>Compliance with IS specification</th><th>ISO/SAE Grade of Oil/Lubricant</th><th>API Performance Level</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
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*Equivalent grade available with oil PSUs may be suggested.
*Proprietary products are not to be recommended.

(b) Are the oil and lubricants commercially available indigenously?
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<tr><td>23.</td><td><u>Training</u>.

(a) Can training be provided for the drivers / personnel carrying out repair and maintenance of the vehicle?

(b) What is the recommended training period of maintenance and QA persons and user/crew?

(c) Can sectionised cut models of major assemblies, CBT packages, Training Charts and other Training related reference material be provided ? Please specify.

(d) What are the facilities available at OEM/ Vendor premises to conduct training?

(e) Will you provide soft copies of the ‘User Handbook’ and other manuals including technical manuals along with the CBT for training?

(f) Will you be providing Interactive Electronic Training Manuals (IETMs) as part of technical literature? If yes which class?

(g) Will the engineering support package be provided exclusively by you or you would be sourcing the same through sub-vendors?</td><td></td></tr>
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<tr><td>25.</td><td><u>Indigenous Content/ Production</u>.

(a) Elaborate upon the capability to indigenously design, develop and manufacture the equipment (IDDM capability)? If yes, what will be the percentage of Indigenous Content provided & verification process?

(b) What are the critical technologies which the industry has taken from their global partners or Joint Venture, if any? Or what are the essential critical technologies which are required to be obtained?

(c) How much time will the startup / Joint Venture take to start production?</td><td></td></tr>
</table>

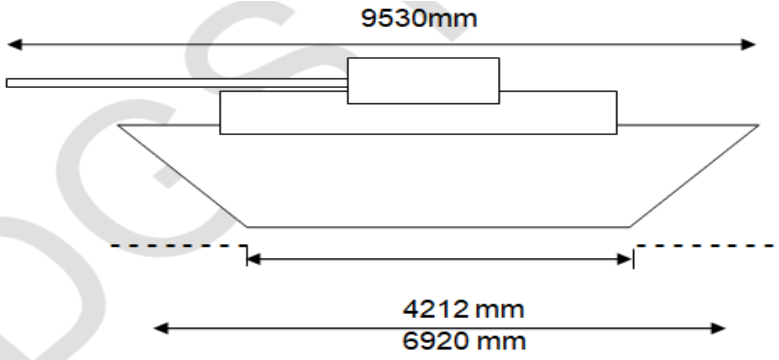
Sr No	Specification/Parameter	Reply
	(d) Does the Indian Industry have the capability to design, develop, manufacture, test and integrate the system including the critical technology? (e) Do you have Industrial Licenses for the production of the vehicle? If not, have you applied for the same and when (date) and by which it is likely to be granted? (f) How much time is required by the Industry to deliver the equipment / platform with the stipulated indigenous content, post trials/ contract for operational use?	
26.	**<u>Trials/ Prototypes.</u>** (a) Is the prototype readily available or has to be designed / manufactured ? (b) What will be the time penalty and fall out if additional features / higher technology is asked in the prototype? **OR**, If the equipment is to be fielded in 4 months/ 6 months, what level of technology (or type of prototype) would be made available? (c) What is the likely time period required to field the prototype for trials post intimation of clearance in TEC? This date should factor in time for clearance, transportation etc. (d) Are you willing to participate in trials as per DPP-2016 in India on 'No Cost No Commitment (NCNC)' basis? (e) What is the suitability of equipment for deployment in various types of terrains in India? Specify separately for deserts, plains, mountainous, High Altitude Area. (f) Whether crew required for operating the equipment for user trials shall be provided by the vendor? (g) Whether vendor certification can be given for major parameters eg operating temperature and weather conditions etc?	
27.	Please furnish details of IPR documentation / patents / design resignation / copyright etc registered with the authorised agency in respect of the vehicle.	
28.	Is the 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?	
29.	**<u>Standards</u>.** (a) What US Military Standards are being conformed to by the equipment produced by the OEM/Vendor? **OR** What standards does your equipment conform to / Does it follow US Military standards? (b) What Joint Service Specifications (JSS)/ Joint Service Guidelines (JSG) are being conformed to by the equipment produced by the	

Sr No	Specification/Parameter	Reply
	OEM/Vendor? (c) Which accredited laboratory (Indian/International) has certified your equipment?	
30.	**Option Clause**. Are you willing to accept the Option Clause? Give the duration for which the clause would be valid?	
31.	**Commercial Terms / Cost.** (a) Specify the elements which need to be structured in the costing of the vehicle (including comprehensive maintenance / product support package). (b) What will be the estimated price of the complete Prime Mover? (c) What will be the estimated cost of the 'Equipment Support Package (ESP)' recommended by the OEM / Vendor? (Refer Para 21 (h) (iii)). (d) Elaboration of Total cost indicating following aspects :- (i) Basic Cost per unit (ii) ESP @ 15% (iii) Total (a+b) (iv) GST @ ___% of basic cost of veh (v) **Total Cost per unit (including above)** (e) What INCOTERMS 2010 are suitable/ preferred by your company and for what reasons? (f) What is your preferred mode of shipment of vehicle – rail, road, sea or air/ or a combination?	
32.	**Production Capacity**. (a) What is your annual production capacity? Is it likely to increase? (b) How much time is required by you to deliver the equipment after conclusion of contract?	
33.	**Vendor Selection Criteria**. (a) Is the applicant entity an Indian Company as defined under the Companies Act 2013? (b) Has the applicant entity or any of its allied entities ever been banned or suspended by the MoD/SHQ or any Government Department or Organisation? Details of vigilance action viz ongoing investigations by any department/ agency of Central Government may be provided.	

Sr No	Specification/Parameter	Reply
	(c) Is the applicant entity a Manufacturing Entity or System Integrator or a Trading Company? (d) 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. (e) Specify the turnover and net worth of your Company in the last three (03) years. (f) Is your company under insolvency resolution as per Indian Bankruptcy Code? (g) What is the Credit Rating of your Company equivalent to CRISIL rating? (h) Does your Company qualify under Start Up or MSME Category ?	
34.	**Miscellaneous**. (a) What is the Service Life of the Prime Mover? (b) Is the Prime Mover in use in the Defence/Para Military Forces in the country and since when? (c) What are the specification(s) of the Prime Mover being provided? (d) What is the minimum quantity based on which OEM would be willing to offer ToT (Transfer of Technology)? (e) Any other relevant information in terms of specifications/terms of reference, the OEM/Vendor would like to share. (f) What is the preferred categorization as per DPP-2016 for provision of the Prime Mover?	
	SEMI-TRAILER 50 TON TANK TRANSPORTER	
1.	**Loading Platform**. (a) What is the material used for construction of the loading platform? Specify the IS grade of steel used in different parts of the trailer. (b) Does the platform have any provision for avoiding slippage of equipment during loading/unloading? (c) Will the Semi-Trailer platform have any gap between treadways? (d) Can a gapless platform be provided to facilitate loading of variable track width equipment?	

Sr No	Specification/Parameter	Reply
	(e) What is the provision for assisting in loading/unloading of different tracked equipment on to the platform? Explain the design of the ramp provided in your trailer. Is a hydraulic/pneumatic ramp provided? How does it draw the requisite power for operation? Does it require a separate power pack? (f) Does the operation of the ramp (hydraulic/pneumatic) have the facility of manual over ride? (g) What is the slope of the loading ramp in degrees? (h) Will winch guide rollers and winch rope guide pulleys be provided with the trailer to facilitate loading and un-loading of an unserviceable tank in conjunction with the prime mover? (j) What safety measures are incorporated in the platform design for carrying out loading/unloading during blackout conditions? (k) What lashing arrangements have been provided on the platform for securing the equipment while being transported? Specify the lashing chains/straps provided and the availability of lashing points on the trailer.	
2.	**Tyres**. (a) How many axles are provided in the Semi-Trailer? (b) What is the number and size of tyres being provided in your trailer? (c) Are the tyres indigenous or imported? (d) How many wheels are provided as spares and what are the stowage and handling arrangement for them? (e) Are there any steering arrangement provided in the rear axles to reduce the maximum turning circle diameter for the trailer? (f) Does the trailer meet the IRC standards for axle/road and bridge classification of IRC class 70-R? (g) Will the tyres be able to undertake sustained carriage of max payload for 8 hours of continuous driving on metaled roads? (h) **Central Tyre Inflation System System**. (i) Can a Central Tyre Inflation System be provided in the 50 Ton Semi-Trailer? (ii) Give the specifications of the system and explain the working mechanism. (iii) Will it be able to ensure real time/dynamic monitoring and inflation/deflation of the tyres of the trailer?	

Sr No	Specification/Parameter	Reply
	(iv) What arrangements would be provided in the Driver Cabin and Tyres as part of the system? (j) Is it possible to lift the wheels of a single/multiple axles in case of un-laden trailer to minimize wear and tear of tyres and enhance fuel efficiency?	
3.	**Suspension**. (a) The trailer would have to operate with full payload on metaled/unmetaled tracks. Keeping the road and load conditions in mind, please provide details of the suspension system provided on each axle. (b) Can a trailer with hydraulic suspension system be provided? (c) Can individual axles be provided with a stroke of ± 250mm. Please specify. (d) Keeping in view the hydraulic suspension system and the ability to move individual axles by ± 250mm, is there a requirement of providing jacks to replace tyres in a hydraulic trailer?	
4.	**Brakes**. What is the type of Service, Parking and Emergency brake system provided? Specify the CMVR norms with which the brake system is compliant.	
5.	**Electrical System**. (a) What is the type of Electrical System provided in the trailer? (b) What is the arrangement for drawing power from the Prime Mover?	
6.	**Lights/Sockets**. Elaborate upon the Lights provided in the trailer (a) Front Flasher Light (b) Hazard Lights (c) Guide Lights (d) Indicator Lights (Front, Middle and Rear) (e) Combination Tail Lights including Brake Light, Tail Light and Indicator Light. (f) Parking Lights (g) Blackout Lights (h) Inspection Lamp/Light	

Sr No	Specification/Parameter	Reply
	(j) Navigation Lamp (k) Width Indicator Lamps	
7.	**Physical Dimension**. The trailer will be utilized to transport a payload (Tank) with the following dimensions (Refer the following diagram): - (a) Max length of tank in Gun Forward Position : 9530 mm (b) Hull length : 6920 mm (c) Track length : 4212 mm (d) Width of tank incl Skirt Plates : 3780 mm (e) Individual track width : 580 mm (f) Inner track distance (Inner edge of track to inner edge of track) : 2210 mm (g) Total Track Width : 2210+580+580=3370 mm (h) Height of tank : 2865 mm  (j) In view of the above, specify the following dimensions (in mm) of the trailer :- (i) Bed Length (ii) Overall Length. (iii) Bed Width. (iv) Height of Platform from ground level. (iv) Overall Height in Transportation Mode along with Payload.	
8.	**Payload Capacity**. Will the trailer be able to carry a payload of not less than 50 Ton on metaled, un-metaled/graveled tracks?	
9.	**Unladen Weight**. What is the maximum unladen weight of the trailer in Tons?	

Sr No	Specification/Parameter	Reply
10.	**Maximum Speed Attainable**. What would be the maximum speed attainable by a loaded semi-trailer:- (a) On metaled roads. (b) On un-metaled/Graveled tracks.	
11.	**Stability**. Can the trailer provide stability of load on a gradient not less than 7^0 and side slope stability of not less than 9^0?	
12.	**Turning Circle Diameter**. What would be the minimum Turning Circle Diameter?	
13.	**Ground Clearance**. What is the ground clearance of the trailer in laden condition?	
14.	**Fordability**. What is the fordability of the trailer without preparation?	
15.	**Enhanced Performance Parameters (EPP)**. What are the Enhanced Performance Parameters / Specifications that can be provided in addition to the requirements mentioned in the RFI?	
16.	**Accessories/Special Fittings**. Provide details of the following accessories/special fittings provided with the trailer :- (a) Tool Box (b) Chocks (c) Lashing Equipment (d) Can a fixed front scotch be provided in the front of the trailer to cover entire treadway?	
17.	**Towing Arrangement.** (a) Specify the towing arrangement provided in the trailer and method of attaching the same to the Prime Mover. (b) Is the towing arrangement universally compatible with all commercially available Prime Movers? (c) If not, specify the requirement of the Prime Mover to make it compatible for towing the trailer.	
18.	**Stowage Facilities**. Can the following stowage facilities be provided :- (a) Stowage facilities for spare wheels. (b) Stowage arrangements for lashing equipment. (c) Tool Box for tools and spare parts.	

Sr No	Specification/Parameter	Reply
	(d) Stowage arrangements for Camouflage Net and Poles. (e) Stowage arrangements for four showels and pick axes each. (f) Stowage arrangement for Chocks.	
19.	Will the trailer be compatible with all commercially available Prime Movers or any other in-service prime mover at the time of trial?	
20.	**Service Life of the Semi-Trailer**. What is the likely Service Life of the equipment produced by your company?	
21.	**Operating Temperature Range**. Is the trailer capable of operating in the temperature range of minimum minus 15^0C and maximum temperature of 40^0C?	
22.	**Maintenance Philosophy**. (a) What would be the Maintenance philosophy for repair and maintenance of the Trailer? Can it be aligned with the system of unit and Field level repairs prevalent in the Defence Services? (b) Would the trailer have interoperability with the present fleet of in-service trailers? Please elaborate. (c) What would be the infrastructure and skill sets needed for maintenance. (d) What would be the training requirement for maintenance of the trailer at unit and field level? (e) Will you be providing spares, Special Maintenance Tool and Special Test Equipments for carrying out component level repair? (f) Will you be providing AMC for repair and calibration cover for Special Maintenance Tools and Special Test Equipment? (g) **Product Support**. (i) What kind of 'Product Support' will you ensure? What will be the 'Time Period'? (ii) Does the company have major repair and overhaul facility for major assemblies and condition based repair? (iii) Can 'Engineering Support Package (ESP)' comprising of MRLS (Manufactured Recommended List of Spares), SMT (Special Maintenance Tools) / STE (Special Test Equipment), Technical Manuals / Documents, Training Material including Sectionised Models, Training Charts and CBT (Computer Based Training) packages etc be provided? (iv) What type of AMC can be provided by you? What would be the likely cost?	

<table>
<tr><th>Sr No</th><th>Specification/Parameter</th><th>Reply</th></tr>
<tr><td></td><td>(v) What life time support can be provided by the vendor?</td><td></td></tr>
<tr><td>23.</td><td><u>Oil & Lubricants</u>.

(a) List out the types / grades of oils / lubricants and greases with quantity recommended for use in the Trailer and specify the assembly where applicable? Specify standard nomenclature of grades without any brand name as per table below :-

<table>
<tr><th>Ser No</th><th>Purpose Oil/Lubricants required for</th><th>Compliance with IS Specification</th><th>ISO/SAE Grade of Oil/Lubricant</th><th>API Performance Level</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
</table>

*Equivalent grade available with oil PSUs may be suggested.
*Proprietary products are not to be recommended.

(b) Are the oil and lubricants commercially available indigenously?</td><td></td></tr>
<tr><td>24.</td><td><u>Training</u>.

(a) Can training be provided for the drivers / personnel carrying out repair and maintenance of the vehicle?

(b) What is the recommended training period of maintenance and QA persons and user/crew?

(c) Can CBT packages, Training Charts and other Training related reference material be provided ? Please specify.

(d) What are the facilities available at OEM/ Vendor premises to conduct training?

(e) Will you provide soft copies of the ‘User Handbook’ and other manuals including technical manuals along with the CBT for training?

(f) Will you be providing Interactive Electronic Training Manuals (IETMs) as part of technical literature? If yes which class?

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28.	Please furnish details of IPR documentation / patents / design resignation / copyright etc registered with the authorised agency in respect of the vehicle.	
29.	Is the 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?	

Sr No	Specification/Parameter	Reply
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31.	**<u>Option Clause</u>**. Are you willing to accept the Option Clause? Give the duration for which the clause would be valid?	
32.	**<u>Commercial Terms / Cost.</u>** (a) Specify the elements which need to be structured in the costing of the vehicle (including comprehensive maintenance / product support package). (b) What will be the estimated price of the complete Prime Mover? (c) What will be the estimated cost of the 'Equipment Support Package (ESP)' recommended by the OEM / Vendor? (Refer Para 22 (g) (iii)). (d) Elaboration of Total cost indicating following aspects :- (i) Basic Cost per unit (ii) ESP @ 15% (iii) Total (a+b) (iv) GST @ ___% of basic cost of veh (v) **Total Cost per unit (including above)** (e) What INCOTERMS 2010 are suitable/ preferred by your company and for what reasons? (f) What is your preferred mode of shipment of vehicle – rail, road, sea or air/ or a combination?	
33.	**<u>Production Capacity</u>**. (a) What is your annual production capacity? Is it likely to increase? (b) How much time is required by you to deliver the equipment after conclusion of contract?	

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34.	**<u>Vendor Selection Criteria</u>**. (a) Is the applicant entity an Indian Company as defined under the Companies Act 2013? (b) Has the applicant entity or any of its allied entities ever been banned or suspended by the MoD/SHQ or any Government Department or Organisation? Details of vigilance action viz ongoing investigations by any department/ agency of Central Government may be provided. (c) Is the applicant entity a Manufacturing Entity or System Integrator or a Trading Company? (d) 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. (e) Specify the turnover and net worth of your Company in the last three (03) years. (f) Is your company under insolvency resolution as per Indian Bankruptcy Code? (g) What is the Credit Rating of your Company equivalent to CRISIL rating? (h) Does your Company qualify under Start Up or MSME Category ?	
35.	**<u>Miscellaneous</u>**. (a) What is the Service Life of the Semi-Trailer? (b) Is the Prime Mover in use in the Defence/Para Military Forces in the country and since when? (c) What are the specification(s) of the Prime Mover being provided? (d) What is the minimum quantity based on which OEM would be willing to offer ToT (Transfer of Technology)? (e) Any other relevant information in terms of specifications/terms of reference, the OEM/Vendor would like to share. (f) What is the preferred categorization as per DPP-2016 for provision of the Prime Mover?	

-----xxx-----

Appendix 'B'

INFORMATION PROFORMA (INDIAN VENDORS)

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:_____

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

Name &Address : _____

_____

Pin Code :_____ Tele :_____

Fax :_____

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	Equipment	Quantity	Cost

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

Name of Agency	Certificate	Applicable from (Date and Year)	Valid Till (Date & Year)

7. **Details of Registration**.

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

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

(a) **Name of Organisation**

(b) **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 and 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 RFI.

11. Any other relevant information : _____

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

(Authorised Signatory)

(As per DPP-2016)