Military College of Telecommunication Engineering, Mhow, Indore MP – 453441

File No _____ Jun 2021

REQUEST FOR INFORMATION FROM VENDORS FOR RESEARCH AND DEVELOPMENT OF ELEVATED PLATFORM ESM SYSTEM AT MCTE

1. Elevated platform for gathering intelligence through Electronic Support Measures (ESM) is very important to increase ranges of interception. ESM equipment on elevated platform enhances the capability manifold as compared to same equipment operating from ground. A sensitive ESM receiver when elevated, can enhance the ranges of ESM eqpt by creating Radio Line of sight in challenging terrain an operational conditions. Similarly any radio transmission system or Electronic Counter Measures (ECM) system effectiveness can be enhanced by elevating their height through platforms capable of deploying such systems. There is a need for creating indigenous capability in this regard.

2. The main purpose of this R&D proj is to develop a prototype of “Elevated platform based ESM system”. The proposed system must have following components:-

(a) **Airborne Vehicle & Sensor System**

(i) Unmanned Aircraft.

(ii) ESM Sensor Payload.

(iii) Control System for remote control from ground station.

(b) **Ground Control Station**

(i) Communication Module for controlling Airborne Platform.

(ii) ESM System – detect, intercept, identify, locate, record, and analysis capability based on signal received from ESM Sensor

(iii) Power System

(iv) Fuel, Repair and maintenance system.

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

(a) **Part I**. The first part of the RFI incorporates operational characteristics and features that should be met by the equipment. Few important

technical parameters of the proposed equipment are also mentioned. Additional vendor requirements are also listed.

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

PART I

OP Reqmt :-

4. At present the EW systems in IA are man pack/ vehicle based, these systems have the inherent limitations with respect to deployablity, flexibility & is severely restricted by various terrain parameters (Mtns – LOS restn, Deserts and Plains – Deployment area, vulnerability to enemy air).

5. Proposed system negates the above mentioned requirements by incorporating a elevated platform (Unmanned UAV). The system will increase flexibility in deployment, reduce deployment time and various limitations imposed by terrain.

6. The QRs of the proposed system will enhance the ESM capability of IA and will enhance capability to detect, intercept, identify, locate, record, and analyze EM transmission of adversary at greater ranges.

7. This project will include the following:-

(a) **Airborne Vehicle and Sensor**

(i) **Unmanned Aircraft**. Major considerations in design and development of unmanned aircraft is as under :-

(aa) Endurance
(ab) Max Payload weight
(ac) Power Limitations
(ad) RF limitations & ESM antenna array placement
(ae) EMI from aircraft engine and rotors
(af) Vibrations
(ag) Stability with ESM payload
(ah) Sensor data link bandwidth requirements at long ranges
(aj) Counter ECM measures

(ii) **ESM payload and Control System**. The remote sensor node should be small, low power requirement, low footprint and ruggedised RF front end that is installed on elevated platform/ unmanned aircraft. The ESM payload comprises of the following :-

(aa) **Antenna Arrays**

(aaa) Monitoring Subsystem Antenna Array

(aab) DF Subsystem Antenna Array

(ab) **Receivers**

(aaa) Monitoring Receivers

(aab) DF Receivers

(ac) **Processor Units**

(aaa) Monitoring Signal Processor

(aab) DF Signal Processor

(ad) **Sensor Downlink**

(aaa) High speed low latency data radio/ Tether based system

(aab) Tracking Antenna (UAV)

(aac) Tracking Antenna (Ground)

(b) **Integrated Ground Control Station**. The integrated ground control station is located at a standoff distance and carries the following:-

(i) UAV Control and Flight operations

(ii) Sensor Control and Telemetry

(iii) Communication Node

8. Minimum specification of the various system is as under :-

(a) **Unmanned Aircraft**

(i) ESM Payload carrying capability - Minimum 15 Kgs at elevation of 200m from grnd level.

(ii) Endurance - 06hrs with payload or more

(iii) Flight Ceiling - 3000 meter.

(iv) Max take off/ Landing wind speed – upto 40kmph

(v) Collision Detection and Avoidance System

(vi) GNSS – GPS/IRNSS

(b) **ESM payload and Control System**

(i) **Monitoring Receiver**

(aa) Freq Range ESM Payload - 09 Khz to 06 Ghz or more

(ab) No of Channels - 16

(ac) Tuning Resolution - 1Hz
(ad) Modulations - AM, AMS/DSB, CW, LSB, USB, ISB, FM, PM, FMW, FSK, Digital IF-IQ
(ae) Minimum Detectable Signal Time - Less than 1 micro sec with 100% probability of intercept
(af) Displayed Average Noise Level - -139dBm.HZ _1.1dB/GHz
(ag) Hopper Detection capability - min 1000 hops per sec
(ah) Antenna - Omnidirectional and Directional Antenna
(ai) Max Wt - Less than 15 Kgs

(ii) **DF Sub System**

(aa) Freq Range - 100 Mhz to 06 GHz & 30Mhz to 100Mhz
(ab) DF Method - Phase Interferometry DF/ Watson Watt
(ac) DF antenna - Multi band multi element DF array antenna
(ad) No of simultaneous DF processing channels - 16 channels
(ae) Bearing accuracy - <1 Deg RMS
(af) Bearing resolution - 0.5 deg
(ag) Signal Type - FF, FH, Analog and Digital Signals including burst transmissions
(ah) Azimuthal Coverage - 360 Degrees
(ai) Map Display - GIS based
(aj) Weight - Less than 15 Kgs

9. **Vendor Parameters**. The vendor should be a registered company in India. It should have a Registered Office, Operations and Maintenance support team in India. The OEMs of the proposed product and services must also have their registered office, operations, maintenance and repair infrastructure in India. The vendor and the OEMs must be technically competent, financially sound and should have adequate infrastructure to set up, maintain and support the proposed networks as per following criteria :-

(a) The vendor and OEMs should have a strong financial base. Balance sheets and Profit/Loss statements for the past three years should be submitted, clearly highlighting the annual turnover.

(b) Vendor and OEM Should have a well-established base and technically competent maintenance and repair facility to maintain the system. Submit the support and repair escalation matrix along with maintenance methodology as asked in the RFI with additional details as relevant.

(c) The responder shall sign an agreement with OEM to manufacture / distribute the offered equipment in India and supply of spares for at least 10 years after commissioning of the system. Any obsolescence of product or plan to close the support for the product shall be mentioned.

(d) Vendor shall confirm that copy of all agreement that he shall be signing with OEMs/ Sub vendors for execution of the Turnkey solution to deliver the desired SLAs will be discussed with user and submitted to the user on conclusion of the same. OEMs shall also confirm that the proposal has been well communicated to them and that they comply with the requirements as projected in the RFI or later(RFP, Contract/ any other time) during all clarifications given before the issue of RFP.

(e) Vendor must have capability to offer comprehensive onsite warranty of two years and 08 years comprehensive support under AMC on expiry of warranty for a minimum period of eight years.

(f) Vendor and OEM of all major components must be an ISO accredited company.

(g) Vendor must confirm that there are no Patent / legal issues that might become hindrance in implementation of the solution at later stages.

(h) Must highlight and obtain the Government clearances as applicable.

(j) The following will be the minimum Pre-Qualification Criteria (PQC). Responses not meeting the minimum PQC will be summarily rejected and will not be evaluated further.

Ser No	**Point**	**Clause**	**Supporting Document**
(i)	Legal Entity	Service provider (SP) should be a company registered under Indian Companies Act 1956.	Incorporation Certificate
(ii)	Documents	The financial documents will be made available.	1. Copy of certificate from CA 2. P&L Account 3. Balancer Sheet
(iii)	Financial Position	The positive Net Worth in Indian Rupees for last year should be minimum net worth 10 Crores.	Copy of certificate from CA

(iv)	Company Presence	The company should be providing EW related services in India for at least the last five (5) financial year ending 31st March 2021.	Self-Undertaking with documentary proof.
(v)	Blacklisting	Bidder should not be debarred/ blacklisted by any Government / PSU in India as on date of submission of the Bid.	A self-certified letter signed by the Authorized Signatory of the Bidder.
(vi)	Experience	Service Provider should have successfully implemented / commissioned at least 3 project.	Purchase order/ Lol as per the format provided in RFI
(vii)	Compliance (att as **Appendix 'A'**)	Service provider should provide a certificate valid copy of ISO 9001 Service Provider should have technical staff on its payroll having on EW certifications/ Skillsets The technical staff should be a Bachelor/ Master in Cyber Security / Computer Science/ IT	Copy of valid Certificate Copy of valid certificates of proposed resources. Provide a matrix of these qualifications and certifications in these and other domains.

10. 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 submitting 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 trial evaluation at a suitable location nominated by the buyer on a "No Cost No Commitment" basis. A staff evaluation would be carried out by SHQ 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 Negotiations Committee would decide the lowest cost bidder (L1) and conclude the appropriate contract.

(e) Vendor would be bound to provide product support for the entire life span of the Elevated platform based EW system, which includes technical support, spares and maintenance tools/ software.

(f) The vendor would be required to accept the general conditions of contract given in the Standard Contract Document at Chapter VII of DAP placed on www.mod.nic.in.

(g) An integrity pact along with appropriate IPBG is a mandatory requirement in the instant case (Refer Annexure 'I' to Appendix 'O' of Schedule (I).

(h) Performance-cum-Warranty Bond both equal to 5% value of the contract is required to be submitted after signing of contract.

(j) ToT (if applicable) as applicable to categorisation would be need to be confirmed by Vendors.

PART – II

11. Procedure for Response

(a) Response to RFI (**Appendix 'B'**) will be submitted at under mentioned address

Commander, FCC&EW
Military College of Telecommunication Engineering,
Mhow, Indore
MP – 453441
Ph No :- 8437269771
Email No :- suresh.236f@gov.in

(b) In addition to providing details about company, details about the exact product meeting other generic technical specifications should also be carefully filled. Additional literature on the product can also be attached with the form.

(c) Last date of intimation of willingness to participate and acceptance of filled form **(Appendix 'B')** is two weeks from date of issue of RFI.

(d) In accordance with the provisions of the DAP 2020 a vendor interaction will be conducted with all interested parties subsequent to receipt of proposal. Exact date and time of the vendor interaction will be intimated to all participants.

12. The Government of India invites responses to this request only from Indian Vendors who have tie ups with Original Equipment Manufacturers (OEM)/ Authorised Vendors/Government Sponsored Export Agencies (applicable in the case of countries where domestic laws do not permit direct export by OEMs). The end user of the equipment is the Indian Armed Forces (name of user service).

13. This information is being issued with no financial commitment and the Ministry of Defence reserves the right to change or vary any part thereof at any stage. The Government of India also reserves the right to withdraw it should it be so necessary at any stage. The acquisition process would be carried out under the provisions of DAP-2020.

14. The Evaluation Committee reserves the right to reject any or all proposals. The RFI Proposal will be evaluated based on the documentary evidences provided.

Brigadier Rajeev Ohri, VSM

Commander, FCC &EW
Miltary College of Telecommunication
Engineering, Mhow, Indore
MP - 453441

Appendix 'A'
(Ref Para 9 (j) (vii))

COMPLIANCE SHEET

SL No	Enclosure description	Enclosed (Yes/No)	Annexure/ Attachment/ Page No/ Envelope No of the enclosure
1.	Copy of certificate of incorporation of Company of registration Firm		
2.	Copy Goods Service Tax Registration		
3.	Copy of PAN no allotted by income Tax Department		
4.	Copies of Annual audited accounts statements (P&L and Balance sheets last three FY certified by a chartered Accountant)		
5.	Application letter		
6.	ISO 9001 ISO 27001 ISO 20000-1 ISO 22301 CMMI Level V SOC1, SOC2 and SOC 3		
7.	Particulars of the Applicant (**Annexure 'I'**)		
8.	Self Declaration that the applicant hasn't been black listed . performance issues by any Govt / PSU		
9.	Acceptance of Terms & Conditions Contained in the RFI Document (**Annexure 'II'**)		
10.	Project Experience (**Annexure 'III'**)		
11.	Resource Certificates as mentioned in PQC		
12.	Technical Staff Details as mentioned in RFI		
13.	Signed RFI Document		
14.	Signature with Date & Seal		
15.	Name		

Annexure 'I'
(Ref para 7 of
Appendix 'A')

PARTICULARS OF APPLICANT

(a)	Name of the Organisation	
(b)	Organisation Status of Registration	
(c)	Address of Corporate Office	
(d)	Telephone No	
(e)	Email Address	
(f)	Website	
(g)	Registration of the Certificate of Incorporation and Date	
(h)	Permanent Account Number of Income Tax & Date of Regn	
(j)	No if years of proven experience of providing similar services	

Annexure 'II'
(Ref para 9 of
Appendix 'A')

ACCEPTANCE OF TERMS AND CONDITIONS

RFI No_____ Date _____ Location _____

Dear Sir/ Madam,

I have carefully gone through the Terms & Conditions Contained in the RFI No _____ regarding RFI < _____>

I declare that all the provisions of this RFI Documents are acceptable to my Company. I further certify I am an authorized signatory of my company and am, Competent to make this declaration

Signature of the Applicant

Date :

Place :

Company Seal

Annexure 'III'
(Ref para 10 of Appendix 'A')

LIST OF PREVIOUS WORKS

EOI No _____ Date _____

SL No	Name of Client Contact Person, Telephone No Mobile No, Physical Address	Name of the project	Project start Date and End Date Brief of Project	Project Cost	Scope of Project (Hosting, Development or SOC services)	Status (Complete/ In Progress/ Delay)

The information provided in the above table must supported by copies of relevant work order and completion certificate.

Signature of the Applicant

Date :

Place :

Commander, FCC & EW
Military College of Telecommunication
Engineering, Mhow, Indore
MP – 453441

Appendix 'B'
(Refer to Para 11 of RFI)

INFORMATION PERFORMA

(INDIAN VENDORS)

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

_____

_____

(Company profile, 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) Other (give specific details).

_____

3. **Contact Details**.

Postal Address:_____

_____

City : _____ State : _____

Pin Code : _____ Tele : _____

Fax : _____URL/Website : _____

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

Name & Address : _____

_____

Pin Code _____ Tele : _____

Fax _____

Appendix 'B' Continued

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 Organization**.

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

7. **Details of Registration**.

Agency	Registration No	Validity (Date)	Equipment
DGS&D			
DGQA/DGAQA			
OFB			
DRDO			
DRDO Any other Govt Agency			

Appendix 'B' Continued

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

Name of Organistion	**Membership Number**

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

(a) Name of 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 Licence Number : _____

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

(g) Status (in Service/Design development state) : _____

(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 within five (05) working days of occurrence.

13. Additional details reqd is att as Annexure 'I'

(Authorised Signatory)

Annexure 'I'
(Refer Para 13 of
Appendix 'B')

ADDITIONAL DETAILS REQD

Q1. What are the technical parameters of the DF Receiver held on being proposed as part of he R&D project?

Q2. What are the tech parameters of the elevated platform being planned to be used in the project?

Q3. Briefly explain the integration between the ESM Receiver, the elevated platform and its data transfer structure.

Q4. Comments on the efficiency of this Sys to be dply in High altitude conditions.

Q5. Explain the maintenance schedule proposed by the firm as part of the project.

Q6. Explain the Trg being imparted and association of the student officers to the R&D proj.