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On priority

DI/1033/Make in India/SWIFT

01 Feb 22

INTEGRATED HEADQUARTERS OF MINISTRY OF DEFENCE (NAVY)
(MATERIEL BRANCH)

(DIRECTORATE OF INDIGENISATION)

UPLOADING OF QUESTIONNAIRE FOR
"SUPERSONIC WEAPON IMITATING FLYING TARGET (SWIFT)"
UNDER MAKE II SCHEME

1. AIP for the project was accorded on 17 Jun 21, it is requested that the Questionnaire for "Supersonic Weapon Imitating Flying Target (Swift)" for **IN** Make II project be uploaded in "Make in India" Website.

2. Details to be updated in Project Field

Project Officer: CDR Anubhav Pandey

Directorate : DSR

Email : dsr@navy.gov.in

Address : **Integrated Head Quarters, Directorate of Staff Requirements (DSR), A Block Hutments, Darashukoh Road, New Delhi 110011.**

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Last date of responses: **21 Feb 2022.** (By Hard copy and Soft copy)

3. Further please update flash message Questionnaire for **IN** project "Supersonic Weapon Imitating Flying Target (SWIFT)" with response submission by **21 Feb 22.**

4. In field details requested to add "Reply to be forwarded in soft copy preferably to be in **"MS Word format"** and **hard copy to above address.**


(Deepak Kota)
Commander
Cdr (Indigenisation)-I

Encl: - As above

DDP/POMS

**QUESTIONNAIRE: DEVELOPMENT OF SUPERSONIC WEAPON
IMITATING FLYING TARGET UNDER MAKE-II CATEGORY**

1. **Background.** The Ministry of Defence, Government of India, intends to procure **Supersonic Weapon Imitating Flying Target (SWIFT)** through Make-II procedure of DAP-2020, as a new induction.

2. **Description.** The Supersonic Weapon Imitating Flying Target is intended to simulate a supersonic anti-ship missile and would be utilised for practice firings of Air Defence systems in the Indian Navy and Indian Army. The target should be capable of being launched from both sea and land from suitably modified Expendable Aerial Targets (EATs). The target should be expendable in nature but should be recoverable for re-use in case it is not expended in flight. The trajectory of the target should be programmable to replicate trajectories of missiles, including sea skimming missiles.

3. **Prototypes.** A total of two prototypes, one each of naval and land variant.

4. **Production Quantity.**
 - (a) Indian Navy - 30.

 - (b) Indian Army - 10.

 - (c) The quantity indicated is only an indicative requirement and is not a firm commitment. The quantity has been provided so as to enable firms to arrive at economy of scale prior providing statement of cost of production.

5. Vendors are requested to furnish information as elucidated in succeeding paragraphs in order to identify prospective vendors who can undertake the said project.

6. Please provide details of the vendor in accordance with Proforma at Appendix A.

7. Please provide description of the vendor organisation in terms of research and development of aerial targets, including financial capability and technical expertise.

8. Please provide details regarding major successful projects/ products/ technologies developed/ under development involving Research and Development in the field of aerial targets, particularly ship borne aerial targets.

9. Please provide details of similar equipment manufactured by the vendor and supplied in India/ abroad.

10. Does the vendor have the capability to develop SWIFT prototype and produce the same indigenously?

11. Will SWIFT be designed and developed indigenously in India? If no, please provide details of all foreign companies with whom there is a partnership/ Joint Venture/ MoU for carrying out the design and development? Will your company finally hold the IPR of the design so generated during the prototype development phase?

12. Does the vendor have adequate infrastructure to develop, integrate, test and manufacture SWIFT? If yes, please provide details of the same. If no, what would be the timeframe for establishing the same?

13. What are the areas of uncertainty envisaged by the vendor in the design, development and production of the indigenous development of SWIFT?

14. What is the approximate indigenous content (in terms of cost percentages) at both Prototype Development Stage and Production Stage (including sub-assemblies)?

15. What are the major components/ systems/ sub-systems that will be indigenously manufactured by the vendor? What will be the source of acquisition for the remaining components/ systems/ sub-systems (details of the source firms may be specified indicating whether the source firms are domestic/ ex-import)?

16. What is the modus operandi for Transfer of Technology (ToT) of the imported technology to achieve self-reliance?
17. What are the anticipated timelines for development of the prototype (including Quality Assessment Tests) and production of bulk quantities? Specify the timelines separately for each.
18. What is the quantity that can be manufactured per year during production?
19. Does the vendor have the ability to provide product support for complete life cycle of SWIFT?
20. How will the vendor ensure continuous supply of spares for the system, especially for those components being procured ex-import, if any?
21. What are the vendor's recommended list of Special Maintenance Tools (SMTs), Special Test Equipment (STE), Test Jigs (TJs) and fixtures that would be required for maintenance support of its life cycle?
22. What would be the likely cost of AMC in terms of percentage of the cost of procurement?
23. What are the likely design and development costs for SWIFT prototype?
24. Is the vendor ready to undertake development on No Cost basis in accordance with Make-II scheme including requisite type tests?
25. What will be the approximate budgetary cost for manufacture of 30 naval and 10 land variant of SWIFT, with a requirement of 10 targets annually? Please provide an estimated budgetary quote as per **Appendix B**.
26. What are the proprietary technologies incorporated in the system being developed? Are the proprietary technologies indigenous or ex-import? If ex-import, will the foreign vendor transfer the technology? Clarify the Intellectual Property Rights (IPR) for SWIFT.
27. Is the vendor willing to transfer the technology to any DPSUs in future? If yes, will the ToT include the proprietary technologies?

28. Does the vendor have a valid Government Industrial License for design, development and manufacture of SWIFT, including its accessories and associated equipment in India?

29. Please provide compliance to industry standards, including quality control.

30. Will the vendor provide upgrades to the product being developed?

31. Will the vendor also carry out necessary R&D on the future generations of SWIFT?

32. Any additional details in respect of the proposed development carried out may be provided.

33. Please provide details on technical/ operational parameters as follows:-

Ser	Technical Specification/ Operational Parameter
(a)	<p><u>Flight Profile.</u></p> <p>(i) Please provide details of flight profiles that may be programmed in the target.</p> <p>(ii) Please provide Dispersion levels in terms of position and manoeuvrability in tracking flight of target.</p> <p>(iii) Can the SWIFT mimic supersonic cruise missiles?</p> <p>(iv) If SWIFT can mimic sea skimming missiles, what is the minimum sea skimming altitude with respect to Sea State? Please specify minimum and maximum Mach number during sea skimming.</p> <p>(v) Please provide details of flight modes like fully autonomous, semi-auto mode, loiter mode, target following mode, camera guided mode, manual mode and return to home (RTH) mode.</p> <p>(vi) Will telemetry data of flight like rates and accelerations and other flight parameters be available for post flight analysis?</p>

Ser	Technical Specification/ Operational Parameter
(b)	<u>True Air Speed</u> . What is the maximum speed (True Air Speed) of SWIFT and the corresponding flight altitude?
(c)	<u>Altitude</u> . What is the maximum and minimum flight altitude of SWIFT? What is the maximum duration/ range of flight at minimum altitude?
(d)	<u>Endurance</u> . What is the maximum endurance of SWIFT at: - (i) Maximum speed. (ii) Economical Speed.
(e)	<u>Manoeuvrability</u> . What is the manoeuvrability of the target at different altitudes and speeds?
(f)	<u>Radar Cross Section</u> . (i) What is the mean RCS of the target? (ii) Can the target be detected on E, F, I and Ka band at ranges of at least 20 km? (iii) Is there any provision for enhancing/ reducing the mean RCS by using a payload? If yes, then please explain how it will be done. Also, provide details of variation of RCS with payload.
(g)	<u>Launch Method and Recovery</u> . (i) Can the target be launched from both ship and land? (ii) What is the type of launcher (booster/ catapult/ pneumatic etc.) used by the target? Please provide details (including dimensions) of the launcher, ground support equipment and other associated equipment required for launching and recovery. (iii) What will be the launch speed of the target? (iv) How will the target be recovered post completion of flight? Please provide detailed methodology of target recovery.

Ser	Technical Specification/ Operational Parameter
	(v) Please specify space requirement for stowage onboard ship and deck area required for both launching and recovery.
(h)	<p><u>Launch Envelope.</u></p> <p>(i) Please specify any limitations/ restrictions of wind speed, roll/ pitch and atmospheric pressure for launch of the target from ship and land.</p> <p>(ii) Can the target be launched from all azimuths if launched from sea or land?</p>
(j)	<p><u>SWIFT Design.</u></p> <p>(i) Please provide envisaged dimensions and airframe/ fuselage form.</p> <p>(ii) Please provide details of power and propulsion system (engine type/ battery/ hybrid).</p> <p>(iii) Please provide details of material planned to be used in fabrication of SWIFT.</p> <p>(iv) Please specify types, numbers and configuration of payloads.</p> <p>(v) What would be the weight of the target in different payload configurations?</p> <p>(vi) Please elaborate methodology for scoring of weapon fired at SWIFT. How will miss distance be calculated?</p> <p>(vii) Please provide details of planned external and internal paint schemes to be used on the target and associated equipment.</p>

Ser	Technical Specification/ Operational Parameter
(k)	<p><u>Control and Guidance.</u></p> <p>(i) What is the method of target control during its flight and up to what range?</p> <p>(ii) Can the flight path of target be planned on the control station with the target thereafter following the flight path autonomously?</p> <p>(iii) Can the operator intervene/ make corrections to the flight path of the target in mid-flight?</p> <p>(iv) Does the target need to remain constantly in contact with the ship control station via data/ radio link?</p> <p>(v) Is there a provision for changing the Cruise Mach Number mid-flight? What will be the Mach number variation possible with respect to altitude?</p>
(l)	<p><u>Control Station and Data Link.</u> Please provide following details of both Ship Control Station and Ground Control Station:-</p> <p>(i) Dimensions.</p> <p>(ii) Type of transmission.</p> <p>(iii) Display features.</p> <p>(iv) Capability of handling single/ multiple targets in flight.</p> <p>(v) Recording capability.</p> <p>(vi) What kind of data encryption will be included to ensure information security?</p> <p>(vii) Any other mission planning features.</p>
(m)	<p><u>Interconnectivity.</u> Will the system be a standalone system or will it require interfacing with ship's systems?</p>

Ser	Technical Specification/ Operational Parameter
(n)	<u>Flight Termination System.</u> Does the target system have an independent Flight Termination System? If yes, what is its philosophy of operation?
(p)	<u>Automated Test Equipment.</u> What are the types of Automated Test Equipment available with the target system?
(q)	<p><u>Life of SWIFT.</u></p> <p>(i) What is the projected shelf life of the target (including pyrotechnics if any) and its associated system?</p> <p>(ii) What would be the life of target with respect to number of landings?</p> <p>(iii) Please elaborate methodology for re-deploying each variant of SWIFT. How will a recovered SWIFT be made serviceable for next flight? Also provide estimated time between two consecutive flights.</p>
(r)	<u>Integrated Logistic Support.</u> What is the scope and depth of Manufacturer Recommended List of Spares? What is the Mean Time Between Failure (MTBF) and Mean Time to Repair (MTTR) of the target system?
(s)	<u>Transportability.</u> Can the entire system be transported to ship in container mounted on vehicles?
(t)	<p><u>Quality Assurance.</u></p> <p>(i) The target and other components should be compatible with relevant MIL STD 810G or latest JSS 55555 (for ground equipment). They should also qualify as per DDPMAS Ver 1.0.</p> <p>(ii) All software (target and GCS) should be verified/ certified for Independent Verification and Verification (IV & V) as per DDMAS Ver 1.0.</p> <p>(iii) What are the QA standards that the equipment (including components) will comply to? Please state the MIL standards of compliance.</p>

Ser	Technical Specification/ Operational Parameter
(u)	<u>Operational Limits.</u> Are there any environmental temperature/ humidity limits for operating SWIFT in Indian atmospheric conditions? Please provide limits and their impact on performance of target.
(v)	<u>Infrastructure (Operational and Maintenance).</u> Is there a need for building infrastructure for stowage of targets and control station ashore and onboard ship? What is the area/ facilities required onboard ship for stowage of equipment, operation and maintenance/ repairs?
(w)	<u>Engineering Support Package.</u> Would the vendor provide customer support in terms of a Comprehensive Annual Maintenance Contract?
(x)	<u>Training.</u> Please provide details of simulator/ simulation software for training operators without flying the target.

34. Please submit MSME/ Start Up certificate with validity.
35. Please enclose an undertaking for indigenous design which the firm will be required to submit at EOI stage.
36. Any other information which the vendor would like to submit before the Feasibility Study may be provided.

Appendix A
(Refers to Para 6)

VENDOR INFORMATION PROFORMA

1. **Name of the Vendor/Company/Firm.** (Company profile including share holding pattern, in brief, to be attached)

2. **Type.**

- | | |
|---|----------------|
| (a) Original Equipment Manufacturer (OEM) | Yes/No |
| (b) Authorised Vendor of foreign Firm
details, if yes) | Yes/No (attach |
| (c) Others (give specific details). | |

3. **Contact Details.**

Postal Address:

City: _____ State: _____

Pin Code: _____ Tele: _____

Fax: _____ URL/Web Site: _____

Email: _____

4. **Local Branch/Liaison Office/ Agent (If Any).**

- (a) Name and Address.
- (b) Pin code.
- (c) Tel.
- (d) Fax.
- (e) Email.

5. **Financial Details.** Category of Industry (Large/ Medium/ Small Scale):_____

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 Licence Number.
 - (f) Indigenous component of the product (in percentage).
 - (g) Status (in service/design & development stage).
 - (h) Production capacity per annum.
 - (i) Countries/agencies where equipment supplied earlier (give details of quantity supplied).
 - (j) Estimated price of the equipment.
10. Any other relevant information.
11. **Declaration.** It is certified that the above information is true and any changes will be intimated at the earliest.

(Authorised Signatory)

Appendix B
(Refers to Para 25)

STATEMENT OF COST FOR PROTOTYPE DEVELOPMENT
(ONE EACH NAVAL AND LAND VARIANT)

Ser	Items	Qty	Imported components cost (i)	Indigenous components Cost (ii)	Approximate Unit Cost in Rupees (i) + (ii)	Any other Details Please mention specific IC content that will be achieved
	Cost of basic equipment					
A.	(i) Fully formed SWIFT target. (ii) Launcher. (iii) Ship/ Ground Control Station. (iv) Ground Support Equipment. (v) Payloads.	1				
B.	Cost of any special maintenance Tools or special test equipment	1				

Ser	Items	Qty	Imported components cost (i)	Indigenous components Cost (ii)	Approximate Unit Cost in Rupees (i) + (ii)	Any other Details Please mention specific IC content that will be achieved
C.	Cost of simulator (if being provided separately)					
D.	Project Monitoring and Admin costs	-				
E.	Cost of ToT if any	-				
F.	Any Other Costs (please specify head)					
		Total				

**STATEMENT OF COST FOR PRODUCTION GRADE VERSION
(30 NAVAL SWIFT AND 10 LAND VARIANT SWIFT)**

Serial	Items	Qty	Imported Components Cost (i)	Indigenous Components Cost (ii)	Approximate Unit Cost in Rupees (i) + (ii)	Any Other Details
	Cost of basic equipment					
	(i) Fully formed SWIFT target (give breakdown of components).					
	(ii) Launcher.					
A.	(iii) Ship/ Ground Control Station.					
	(iv) Ground Support Equipment.					
	(v) Payloads.					
B.	Cost of any special maintenance Tools or special test equipment					
C.	Cost of recommended MRLS					
D.	Cost of simulator (if separate)					
E.	Cost of documentation					
F.	Any other costs					
	Total					

Note: The quantity indicated for production is only an indicative requirement and is not a firm commitment. The quantity has been provided so as to enable firms to arrive at economy of scale prior providing statement of cost of production.