

**BRIEF OF PROJECT : AUTONOMOUS SURVEILLANCE
AND ARMED SWARM DRONES (A-SADS)
FOR HIGH ALTITUDE AREA**

1. **Name of the Proposal.** Autonomous Surveillance and Armed Drone Swarm (A-SADS) for High Altitude Area.
2. **Use Directorate in SHQ.** Directorate General of Armed Corps (AC-3)
3. **Brief Description.**



(a) The Swarm of Drones displayed during Army Day 2021 projected Indian Army on the global scene for indigenous Swarm technology capability. Drone Swarms are in various stages of R & D world over, due to the fluid state of technologies involved. However, they are yet to be deployed for military tasks. The massed drone attacks executed in the recent past must not be construed as swarming by drones. With all Drones as Leaders in a Drone Swarm, each Drone is independent and autonomous having the capability to carry out individual as well as collective tasks.

(b) A group of drones operating in conjunction with the ground manoeuvre forces will provide an aerial manoeuvre capability during both offensive and defensive operations, thereby enhancing the combat potential of the ground forces. The numbers employed would overwhelm the enemy forces, provide flexibility of employment and enhanced survivability with favourable cost and achieve operational dominance in the tactical battle field area.

4. **Operational Justification.**

(a) The shaping of battlefield can be greatly influenced by Drone Swarms, thereby allowing preservation of decisive columns of Mechanised Forces initially and application at place and time of own choosing. If applied in correct time and space matrix, it can yield dividends out of proportion. Hence, there is a requirement to direct all efforts, towards reaping the benefits of this Niche Technology.

(b) With a substantial force level deployed in High Altitude Areas at altitudes exceeding 4500 mtr AMSL, Swarm Drones would be a great Force Multiplier compensating for limitations of ground based surveillance vectors in terms of time taken to mobilise and relocate, line of sight restrictions, terrain configuration and adverse weather conditions. Similarly the manned aerial platforms face limitations while operating under adverse weather conditions in High Altitude Areas.

(c) The inherent advantages of affordability, flexible employability, redundancy, precision, software domination, reduction in mission costs, Beyond Line of Sight (BLOS) attack capability and risk of Human casualties make the Swarm Drones a potent option for employment in conventional as well as non-conventional operations.

5. **Approximate Quantity.** 200 drones (04 x Missions of 50 drone swarms).

6. **Board Technical Parameters.**

<u>Specifications</u>	<u>Tech Specs</u>
Configuration	Multicopter / Fixed Wing/ Rotary Wing
Launch Mechanism	VTOL / Tube Launched
Power	IC Engine/ Battery/ Hybrid
Altitude of Operation	Minimum 4500m AMSL
Operating Altitude	Upto 01 km AGL
Range of Operation	Upto 50 kms
Endurance	01 Hour
Operating Temperature	(-) 20 to (+) 20°C
Payload (Multiple Payload Handling Capacity)	
Explosive Payload (Preferably Guided/ Glide/ Gravity)	Minimum 02 Kg
Sensor Payload	Day & Night Sensors
Misc	-
Swarming Algorithm, Heterogeneous capability, Autonomous GCS, AI on Edge, Object Recognition, ADR, GCS Display Capabilities, RVT, EW Payload.	
Anti Jamming Feature, Secure Comms (AES 256)	
GPS/ GLOSNASS/ IRNSS enabled navigation	
Operate in GPS/ GLOSNASS/ IRNSS denied environment	

7. **Indigenous Content.** 50% as per Buy Indian IDDM category of procurement for Make-II.

8. **Additional Information.** This is a niche technology for which Services are undertaking R&D, as peculiar to their role and employment philosophy, with the indigenous industry, mostly MSMEs for past two years. Opportune time to start design & development of this technology for early adoption as a Nation. The D&D will itself take over two years including upto and beyond issue of a PSO, prototype development and trials. Multiple firms have already started investing in this technology and adequate capability exists with them for progressing this case.

9. **Contact Details.**

Col Sumeet Bhat
Dte Gen of Armed Corps (AC-3)
Sena Bhawan, IHQ of MoD (Army)
New Delhi -110011
Tele - 33564
Email - ddgmf.qmg-ihq@nic.in