Confederation of Indian Industry

SIDM
SOCIETY OF INDIAN DEFENCE MANUFACTURERS

COMPENDIUM OF PROBLEM STATEMENTS: HQ ANDAMAN & NICOBAR COMMAND

आज़ादी का अमृत महोत्सव

प्रमुख रक्षा अध्यक्ष
CHIEF OF DEFENCE STAFF

MESSAGE

1. The Andaman and Nicobar Command (ANC), as the premier Tri-Service Command is prepared to meet challenges spanning air, land, maritime and underwater domains. The ever-looming threat of cyber warfare further complicates this complex operational environment. I commend the ANC for identifying these critical issues and compiling this "Compendium of Problem Statements" as a strategic response.

2. This compendium is a testament to the Indian Armed Forces unwavering commitment to innovation and self-reliance. As technology reshapes the battlefield, our resolute focus is on developing indigenous, cutting-edge solution to maintain strategic advantage.

3. Modern warfare demands a nimble and robust force equipped with state-of-the-art technology. The Army Design Bureau (ADB), Directorate of Aerospace Design (DAD), Naval Innovation, Indigenisation Organisation (NIIO), and the Directorates of Indigenisation (DOI) of the three services have been instrumental in fostering collaborations between academia, industry and start-ups. This synergistic approach accelerates the development of homegrown solutions, enhancing our operational capabilities and advancing the vision of Atmanirbhar Bharat.

4. This compendium presents problem statements meticulously identified through extensive engagement with stakeholders in the strategically vital Andaman and Nicobar Islands. These are not merely challenges but opportunities for innovators, SMEs and start-ups to contribute to our defence ecosystem. By addressing these, we can develop world class equipment and technologies tailored to the specific needs of our forces.

5. Let us team up in our pursuit of a self-reliant India and a technologically superior Indian Armed Forces.

Jai Hind!

(Anil Chauhan)
General
Chief of Defence Staff

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''शंघे शक्ति''

MESSAGE

The Andaman & Nicobar Command being the spearhead Tri Services Force of the country is poised to rapidly transform to meet complex future challenges and be a formidable pillar of national security. Leveraging technological advantage remains central to all our perspective plans undertaken for modernization of the armed forces. We look forward to harness the efforts of our vibrant industrial base to create indigenous solutions to complex operational challenges in a maritime environment.

Over the last few years, the Indian Defence Industry has matured and made tremendous progress in acquiring design and manufacturing capabilities, using niche technology of international standards. The Indian Industry is all fired up to go the extra mile in providing the armed forces with indigenous design and development of weapons / systems through collaborative approach and joint venture.

I am confident that this compilation of 'Compendium of Problem Statements' being released today would further catalyse the indigenous efforts for finding tailor-made solutions to the felt requirements of the Andaman & Nicobar Command. It will facilitate a comprehensive insight into the challenges faced by the armed forces and further assist all the stakeholders to synergise their efforts in developing capabilities and tailor-made solutions, thus propelling the nation's defence on the path of true self-reliance.

''जय हिन्द''

(Saju Balakrishnan)
Air Marshal
Commander-in-Chief

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MESSAGE

The Ministry of Defence's positive policy reforms have ushered in a new era of innovation and self-reliance in India's defence sector. Over the past decade, the Indian defence industry has come a long way, now standing at the forefront of providing state-of-the-art technologies and solutions to our armed forces. This transformation reflects our nation's commitment to enhancing its strategic autonomy and operational capabilities.

The compendium of Problem Definition Statements from the Andaman and Nicobar Command (ANC) represents a significant step towards aligning our industry's capabilities with the specific needs of our armed forces, particularly in the strategic island territories.

The challenges outlined in this compendium span a wide spectrum of operational needs, from advanced drone technologies to sustainable energy solutions. Each problem statement presents an opportunity for innovation, inviting our brightest minds in the Indian defence industry to develop cutting-edge solutions tailored to the unique requirements of the ANC.

This compilation serves as a bridge between the operational realities of our armed forces and the technological capabilities of our industry. It provides a clear roadmap for research and development, encouraging focused innovation that directly addresses the needs of our defence personnel.

The diversity of challenges presented here – ranging from AI-based systems and IoT solutions to environmental sustainability and infrastructure development – underscores the complexity of modern defence operations. It also highlights the immense potential for cross-sector collaboration and technological integration.

The upcoming 'ANTECH' seminar and exhibition, organized in collaboration with the ANC, serves as a pivotal platform for addressing these challenges. This event will facilitate direct interactions between military end-users and industry innovators, fostering an environment of collaborative problem-solving and technological advancement.

SIDM is committed to facilitating this crucial dialogue between the armed forces and the industry. We believe that by addressing these challenges head-on, we can not only enhance the operational efficacy of the ANC but also drive technological advancements that will benefit the entire Indian defence ecosystem.

I encourage all stakeholders to approach these problem statements with creativity, determination, and a spirit of innovation. Together, we can develop solutions that not only meet the immediate needs of the ANC but also contribute to India's broader goals of technological sovereignty and defence preparedness.

Jai Hind!

Rajinder Singh Bhatia
President, SIDM

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MESSAGE

The compendium of Problem Definition Statements from the Andaman and Nicobar Command (ANC) marks a significant milestone for the maritime sector. As the Chairman of the SIDM Committee on Marine Systems, I view this initiative as a crucial step in leveraging our industry's capabilities to tackle the challenges encountered by our naval forces in this strategically important region.

The compendium spans cutting-edge technologies to critical infrastructure needs. Advanced systems like SAMVAD AI and Software Defined Radios highlight the need for next-generation communication and intelligence capabilities. Simultaneously, basic infrastructure requirements such as Hydraulic Dock Blocks, Jetty Cranes, and Loading Ramps underscore the importance of robust support systems. Innovative solutions for surveillance and concealment, including Multispectral Camouflage nets and Long-Range Tactical Drones, demonstrate the ANC's focus on enhancing operational effectiveness. Virtual Reality/Mixed Reality training aids for close-quarter battles reflect a forward-thinking approach to force preparation.

Sustainability is a prominent theme in challenges like meeting freshwater needs through a 500 TPH RO Plant and implementing comprehensive waste management systems for ANFLOT. Infrastructure challenges, such as constructing Modern Workshop Buildings in a seismic zone and developing the Lane Slipway in Port Blair, present opportunities for innovative engineering solutions.

The integration of ANC Island radar systems into a common AIR-SEA-LAND operating picture and the need for anti-drone systems address critical surveillance and security requirements. Other areas include:

- Developing stable designs for cost-effective force multipliers.
- Improving steering gear systems.
- Creating sustainable energy solutions.

The 'ANTECH' seminar and exhibition provides an invaluable platform for our marine systems industry to engage directly with ANC end-users, refining our understanding of their operational requirements.

I call upon all stakeholders in the marine systems sector to view these problem statements as a springboard for innovation. Let us leverage our expertise to develop solutions that not only meet the ANC's requirements but also position India as a global leader in maritime defence technologies. Together, we can unite our efforts and resources to address these challenges and achieve our shared mission.

Jai Hind!

Pankaj Chadha
Chairman
SIDM Committee on Marine Systems

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MESSAGE

The release of this compendium of Problem Definition Statements from the Andaman and Nicobar Command (ANC) marks a pivotal moment in our ongoing efforts to strengthen India's defence capabilities. This initiative aligns perfectly with our nation's vision of 'Atmanirbhar Bharat' in the defence sector. By clearly articulating the challenges faced by the ANC, the compendium provides a roadmap for our defence industry to develop targeted, effective solutions that enhance our strategic capabilities in this crucial region.

The Problem Definition Statements encompass a wide array of technological domains, from advanced surveillance systems and communication networks to sustainable energy solutions and logistical innovations. This diversity reflects the complex, multifaceted nature of modern defence operations, particularly in the unique geographical context of the Andaman and Nicobar Islands.

For our industry partners, this compendium represents more than just a list of challenges; it is an invitation to innovate, collaborate, and contribute directly to our nation's security. Each problem statement is an opportunity to showcase the ingenuity and technological prowess of Indian manufacturers and researchers.

This initiative also aligns with our broader goal of positioning India as a global hub for defence manufacturing. By developing solutions for the unique challenges faced by the ANC, we are not only enhancing our domestic capabilities but also creating exportable technologies that could be valuable to other nations with similar strategic environments.

The upcoming 'ANTECH' seminar and exhibition will serve as a crucial platform for bringing these challenges to life. At SIDM, we are committed to supporting this journey from problem identification to solution implementation.

I call upon all our member companies to view these problem statements as opportunities for innovation and growth. Let us approach these challenges with creativity, technical expertise, and a deep understanding of the operational context. Together, we can turn these challenges into opportunities for innovation, growth, and enhanced national security.

Jai Hind!

Ramesh K
DG, SIDM

SUMMARY OF PROBLEM STATEMENTS: HQ ANDAMAN & NICOBAR COMMAND

1 (Indian Army)	Precision drones with higher payloads for delivering stores.
2 (Indian Army)	Suitable clothing for operating in hot & humid weather condition.
3 (Indian Army)	Rapidly deployable Mob Operation Theater (OT).
4 (Indian Army)	Beach obstacles for delaying enemy Mechanized columns.
5 (Indian Army)	Surveillance System to Detect Intrusion by Foreign /Illegal Ships Dinghies.
6 (Indian Army)	Portable Floating Jetty via Gemini Rubber Inflatable Boat
7 (Indian Army)	Portable Desalination Plant for Armed Forces
8 (Indian Navy)	CMMS and DART
9 (Indian Navy)	Stable design for a Strong, Reliable, Cost –Effective Forces Multiplier
10 (Indian Navy)	Virtual Reality/ Mixed Reality training aids for close quarter battle training.
11 (Indian Navy)	Software Defined Radios
12 (Indian Navy)	Multispectral Camouflage nets and fabric
13 (Indian Navy)	Long Range Tactical Drones for Surveillance
14 (Indian Navy)	Tethered Drones
15 (Indian Navy)	There is a large gap in requirement and availability of fresh water needs at ANC
16 (Indian Navy)	Unavailability of Jetty Crane
17 (Indian Navy)	Unavailability of Loading Ramp at ANC
18 (Indian Navy)	The existing methods adopted and machinery utilized for surface preparation of external underwater areas of docked vessels poses challenges of dust / pollution, cumbersome protective enclosures and low productivity.
19 (Indian Navy)	Construction of Modern Workshop Buildings since AN is in seismic Zone
20 (Indian Navy)	Cleaning and maintaining of bilge hygiene
21 (Indian Navy)	Calibration of test and trials equipment
22 (Indian Cost Guard)	03 Lane Slipway, Port Blair
23 (Indian Air Force)	Design and develop an Automatically Inflatable Surface Inflatable targets, which can be air dropped from helicopters and deploy automatically on contact with Water.
24 (Indian Air Force)	Fully automated remotely controlled skid Drop mechanism in Helicopters
25 (Indian Air Force)	Design and develop a GPS navigated parachute for para-dropping payload at earmarked GPS co-ordinates
26 (Indian Air Force)	Designing the software for operational management of transporting of load and detailment of AC/ load carrier accordingly
27 (Tri Services)	AI based Construction Tools.

28 (Tri Services)	IOT based smart inventory system.
29 (Tri Services)	Garbage disposal compactor for ANFLOT
30 (Tri Services)	Design and development of modular wharf.
31 (Tri Services)	Design and development of 500 TPH RO Plant (Non-Propelled).
32 (Tri Services)	Integration of ANC Island all radars system into a common AIR-SEA-LAND operating picture (COP) for enhanced maritime domain awareness (MDA).
33 (Tri Services)	Development of new age power development technologies for sustainable and decentralized energy solution.
34 (Tri Services)	Setting up of anti-drone systems for warships onboard and operational centers.
35 (Tri Services)	Sub-optimal performance of steering gear system.
36 (Tri Services)	Comprehensive waste management system for ANFLOT.

PROBLEM STATEMENT - 1 (ARMY)

Organisation Name	Army
Problem Statement/ Challenge Title	Precision drones with higher payloads for delivering stores.
Challenge Domain	Operational & Logistics.
Challenge brief/ definition	(a) **Statement of Problem**. 108 Mountain Brigade is located in a remote area and its units operate over the entire chain of A & N Island. Poor connectivity in these areas necessitates ferrying of loads using Air/Ship which is time consuming and resource intensive and sometimes uneconomical. (b) **Evaluation of the Problem**. Carriage of war fighting administrative stores till Platoon/Section deployed or small body of troops operating in various islands in ANC is contingent upon availability of air/naval resources which are limited in numbers. Therefore, there is a requirement of unmanned drones / multi-copter-based solution with capability to airlift minimum 50 kgs. The system should rely on GPS based control system to overcome limitations of navigation.
Details of innovation to be done by the startup and expected deliverable at the end of the project	The issue is presently addressed using the use of air lift and of ships which are vulnerable to weather conditions and not an economical solution. In absence of adequate resources and unfavorable conditions, movement of resources is undertaken manually over extremely difficult terrains to address extreme criticalities.

PROBLEM STATEMENT - 2 (ARMY)

Organisation Name	Army
Problem Statement/ Challenge Title	Suitable clothing for operating in hot & humid weather condition.
Challenge Domain	Operational and Administrative
Challenge brief/ definition	(a) **Statement of Problem**. 108 Mountain Brigade is located in A & N Island. The troops deployed face extreme hot & humid climate conditions which has direct bearing on the efficiency of troops. Currently issued clothing is generic and does not cater for local climate conditions. Suitable clothing tailor made for local hot & humid climates condition will help in ensuring better efficiency of troops. (b) **Evaluation of the Problem**. Troops of this formation are deployed for prolonged duration in hot & humid environments. It takes a toll on the physical and mental capability of the troops. There is a requirement to develop clothing which is suitable for hot and humid environments, like ECC clothing being utilized in HAA.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Currently, standard clothing issued/available does not mitigate the requirement.

PROBLEM STATEMENT - 3 (ARMY)

Organisation Name	Army
Problem Statement/ Challenge Title	Rapidly deployable Mob Operation Theater (OT).
Challenge Domain	Administrative
Challenge brief/ definition	(a) **Statement of Problem**. Troops of 108 Mountain Brigade operate over 836 Island stretched over 850 kms with extremely limited road and other transmission infrastructure. Similarly, availability of medical infrastructure is limited only to very few places. To cater for medical emergencies requiring minor operation, which are appreciated to be common necessities in such an operational environment, rapidly deployable mob op theatres may be explored. (b) **Evaluation of Problem**. Problem has been well acknowledged during various operational Exercise in the past.
Details of innovation to be done by the startup and expected deliverable at the end of the project	At present, INHS Dhanvantri located at Port Blair is the only option for life saving surgery. This requires evacuation of patients by air/ship from site of casualty to Port Blair.

PROBLEM STATEMENT - 4 (ARMY)

Organisation Name	Army
Problem Statement/ Challenge Title	Beach obstacles for delaying enemy Mechanized columns.
Challenge Domain	Operational
Challenge brief/ definition	(a) **Statement of Problem**. 108 Mountain Brigade is deployed to defend probable landing sites. Presently the conventional obstacle system of mines & wire obstacles is not effective due to paucity of space & effectiveness of obstacles in terrains. (b) **Evaluation of Problem**. There is a requirement to develop an obstacles system which can be rapidly deployed on beach/landing sites.
Details of innovation to be done by the startup and expected deliverable at the end of the project	The issue is presently planned to be addressed using hedgehogs & wire obstacles. These are not economic & effective solutions.

PROBLEM STATEMENT - 5 (ARMY)

Organisation Name	Army
Problem Statement/ Challenge Title	Surveillance System to Detect Intrusion by Foreign/ Illegal Ships Dinghies.
Challenge Domain	Operational
Challenge brief/ definition	(a) **Statement of Problem**. A & N Group of Island comprises of 836 Islands spread over 850 kms from North to South. Most of the Islands are not inhabited and the continuous presence of police/troops in these Islands for surveillance is extremely limited. Taking advantage of poor/ limited surveillance and driven by poverty/ difficult humanitarian conditions prevailing in Myanmar, repeated attempts for ingress to A & N Group of Island by Myanmarese for habitation/ poaching has become a common phenomenon. Existing measures for surveillance of the coastline/EEZ/international water through ac/naval means have paid limited results. (b) **Evaluation of the Problem**. There is the need to develop a surveillance system for timely detection of ingress/egress/movement of foreign ships/dinghies in our EEZ.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Presently the issue is being partially addressed by using aircraft and ship-based surveillance with limited success. Undetected/Illegal movement of foreigners has direct bearing on safety and security of our sovereignty.

PROBLEM STATEMENT - 6 (ARMY)

Organisation Name	Army
Problem Statement/ Challenge Title	Portable Floating Jetty via Gemini Rubber Inflatable Boat
Challenge Domain	Operations & Administrative
Challenge brief/ definition	Routine patrolling, anti-poaching operations (aid to civil authorities) require disembarking of troops on uninhabited island in Andaman & Nicobar Islands. Due to unavailability of jetty/ wharf on these uninhabited islands, troops along with stores disembark from mother ship to Gemini rubber inflatable boat. Further, troops along with weapons & loads disembark in shallow water from Gemini rubber inflatable boat and move landwards.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Troops disembark on Gemini rubber inflatable boat from mother ship and are then ferried to island. Disembarkation happens in shallow water and further move takes place to land.
Future Expectations from Prototype / Tech Development	Saving considerable time if large party is being launched and reduced turn around for subsequent replenishment.

PROBLEM STATEMENT - 7 (ARMY)

Organisation Name	Army
Problem Statement/ Challenge Title	Portable Desalination Plant for Armed Forces
Challenge Domain	Operational & Administrative
Challenge brief/ definition	Army patrols are mandated to dominate island territories like Andaman and Nicobar Islands, Lakshadweep Islands and the coastal areas, by patrolling and setting up of temporary bases. The logistics of maintaining the troops on ground for the period of patrols (ptls) /Temporary Operating Bases (TOBs) therefore gain importance. The troops varying from 10-12 persons in a small patrol to 20-25 persons in a large patrol, must be self-contained as there are no local resources that can be exploited. **Potable water** is one of the major issues which affects the endurance of such patrols/ TOBs. There is abundance of sea water, but **potable water is almost non-existent** on most of the islands and available only during rains and in very limited quantity.
Details of innovation to be done by the startup and expected deliverable at the end of the project	There is a need for development of a manually operated, portable, man-pack system designed to desalinize and purify sea water/ brackish surface water in adequate quantities and make it safe for drinking by troops for prolonged periods, thereby increasing the endurances of period of patrols/ TOBs on islands and reduce logistics.
Future Expectations from Prototype / Tech Development	The desired system need to fulfill the following requirements: (a) It should be **manually operated**, **man-portable** and **ruggedized**. (b) The following variants are required to be developed: - (i) One-man portable backpack type and manually operable sea water purifier to meet the drinking **water** requirement of section strength of **10-12 soldiers** i.e. **minimum 30 ltrs/day**. (ii) Two men portable hybrid DG & solar powered, modular sea water purifier which is suitable to meet the **water requirement** of **20-25 soldiers** i.e. **around 700-900 ltrs/day**. (c) It should be able to desalinize sea water and give output in terms of permissible TDS and increased quantity. (d) It should be made of a corrosion free **composite material**. (e) The system needs to be put through exhaustive field trials post development.

PROBLEM STATEMENT - 8 (NAVY)

Organisation Name	Navy
Problem Statement/ Challenge Title	CMMS AND DART
Challenge Domain	Developing an artificial intelligence base module for forecasting defects and predicting the residual life of critical machineries onboard naval platforms. The module should extract historical defect data from the comprehensive maintenance and management system (CMMS) and real time equipment parameters, intriguing information from defect and repair transaction (DART) table. Additionally, it should incorporate test parameters from trial agencies and reliability data from Naval Technical Group (NTG) to create a robust predictive model using contemporary technology.
Challenge brief/ definition	(a) The current approach of predicting defect and residual life for critical naval machinery lacks an integrated data driven solution, resulting in reactive maintenance practices. (b) The evolution of problem arises from the increasing complexity of naval platform and need to proactive AI driven maintenance strategy to enhance operational readiness.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Presently, maintenance planning relies on schedule routines and reactive response to identify defects. The lack of comprehensive AI driven predictive model hampers the ability to foresee and prevent critical machinery failures.
Future Expectations from Prototype / Tech Development	Minimizing unplanned down time, optimizing maintenance resources and ensuring the sustained operational readiness of naval platforms. The benefits include reliability, cost saving and improved mission effectiveness.

PROBLEM STATEMENT - 9 (NAVY)

Organisation Name	Navy
Problem Statement/ Challenge Title	Stable design for a Strong, Reliable, Cost –Effective Forces Multiplier
Challenge Domain	The Indian Navy aspires to achieve a standardized platform design across its fleet, encompassing cruisers, destroyers, frigates, corvettes, oil tankers, offshore patrol vessels (OPVs), minesweepers, water jet fast attack crafts (WJFAC), and fast interceptor craft (FIC). This initiative seeks to emulate the successful models of leading naval powers, where a common design platform is utilized for a significant number of warships, enhancing interoperability and operational efficiency.
Challenge brief/ definition	The Indian navy requires a unified platform design for its warship fleet to ensure operational and consistency, cost-effectiveness, and strategic advantage in force majeure situations. (a) Statement of the problem in detail. The current heterogeneity of warship designs within the Indian Navy leads to logistical and operational challenges, increased costs, and challenges in maintenance and logistics. (b) Evolution of the problem. Over time, the Indian Navy's diverse fleet has evolved to meet various mission-specific requirements. However, this has resulted in a complex array of ship types with unique maintenance and operational protocols, necessitating a shift towards a more standardized design approach.
Future Expectations from Prototype / Tech Development	Solving this problem will lead to operational efficiencies, cost savings and enhanced mission effectiveness particularly in force majeure scenarios.

PROBLEM STATEMENT - 10 (NAVY) (MARCOS)

Organisation Name	Navy
Problem Statement/ Challenge Title	Virtual Reality/ Mixed Reality training aids for close quarter battle training.
Challenge Domain	Training and Simulation
Challenge brief/ definition	(a) **Statement of the Problem**. The traditional training methods lacks realism vital to train the operators for combat scenarios encounters in the maritime domain. This limits skill development especially in close-quarter combat operations. (b) **Evaluation of the Problem**. The lack of realistic training aids restricts the operator's ability to prepare for the multiple combat scenarios faced in the maritime domain. Further, there is a huge cost to development of infrastructure for the CQB training that can be minimized by induction of VR/ MR training aids. The training aids can also be improved in future to include futuristic scenarios through software updates making them future ready. The aid will also reduce risk to operators during training missions and enhance combat effectiveness.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Regular CQB training in kill house, ships and offshore platforms
Future Expectations from Prototype / Tech Development	Provide realistic training scenarios to the operators by simulating multiple combat scenarios via VR/AR/ MR technologies. The equipment reduces the cost of developing infrastructure, can be scaled up to include the developments in the warfare tech and environment. Overall, the system augments operator's readiness and effectiveness for the real time threats faced in maritime operations.

PROBLEM STATEMENT - 11 (NAVY) (MARCOS)

Organisation Name	Navy
Problem Statement/ Challenge Title	Software Defined Radios (SDR)
Challenge Domain	Operational
Challenge brief/ definition	(a) **Statement of the Problem**. The Commercial Off the Shelf (COTS) communication sets in the inventory lack encryption and are susceptible to interception and jamming by the enemy. This compromises communication security and reduces the probability of mission success especially in the evolving domain of electronic warfare. (b) **Evaluation of the Problem**. Vulnerable communication channels would lead to compromise in operational security and surprise vital for mission success. Considering the adversary superior EW capability, this would hamper effectiveness of maritime forces in responding to the emerging threats.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Currently the units do not have secure SDRs on their inventory
Future Expectations from Prototype / Tech Development	Offer encrypted, resilient, secure communication in HF, VHF and SATCOM spectrum through Software-defined radios. This ensures secure and reliable communication thus ensuring operational security and mission success.

PROBLEM STATEMENT - 12 (NAVY) (MARCOS)

Organisation Name	Navy
Problem Statement/ Challenge Title	Multispectral Camouflage nets and fabric
Challenge Domain	Operational
Challenge brief/ definition	(a) **Statement of the Problem**. Traditional camouflage fails against multi-spectral sensors, compromising operational concealment in the diverse maritime environments of the Andaman and Nicobar Island. (b) **Evaluation of the Problem**. Limited concealment capabilities in the face of adversary's superior electro-optic sensors increase the risk of detection of the forces by enemy and risks mission success and operational security.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Traditional camouflage nets and concealment tactics
Future Expectations from Prototype / Tech Development	Multi-spectral camouflage fabric and paints offer effective concealment for personnel, boats, and equipment against various Electro-Optical (EO) sensors employed in the maritime domain for Intelligence, Surveillance, Target Acquisition, and reconnaissance (ISTAR) by adversaries. This enhances operational security and grants superior stealth capabilities to the forces operating in the theatre.

PROBLEM STATEMENT - 13 (NAVY) (MARCOS)

Organisation Name	Navy
Problem Statement/ Challenge Title	Long Range Tactical Drones for Surveillance
Challenge Domain	Operational
Challenge brief/ definition	(a) **Statement of the Problem**. The surveillance drones held in the unit's inventory have limited range and endurance, which restricts their use for surveillance purposes in the extensive maritime geography of the Andaman and Nicobar Islands. (b) **Evaluation of the Problem**. Limited surveillance capabilities diminish the tactical utility of drones in maritime operations, thereby reducing the effectiveness of Special Forces (SF) elements in conducting ISR (Intelligence, Surveillance, and Reconnaissance) missions. Additionally, this heightened reliance on close-proximity positioning of teams to targets increases the risk of detection.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Use of tactical drones for ISR missions
Future Expectations from Prototype / Tech Development	Offer extended endurance and surveillance capabilities, enabling persistent monitoring of maritime activities across vast distances, enhancing situational awareness and response capabilities for maritime forces operating in the region.

PROBLEM STATEMENT - 14 (NAVY) (MARCOS)

Organisation Name	Navy
Problem Statement/ Challenge Title	Tethered Drones
Challenge Domain	Operational
Challenge brief/ definition	(a) **Statement of the Problem**. Traditional drones require frequent recharging, restricting their endurance and employability. Additionally, adding extra payloads like communication relays or electronic warfare systems further decreases endurance, making them inefficient for drone use. (b) **Evaluation of the Problem**. The limited endurance of drones due to battery constraints results in restricted utilization for surveillance operations. This leads to gaps in monitoring, reducing situational awareness and impeding timely responses in remote maritime areas. Consequently, this compromises the ability to identify threats, monitor illegal activities, and effectively respond to unfolding situations, thereby impacting overall maritime security.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Tactical drones used for operations are battery operated and have limited endurance.
Future Expectations from Prototype / Tech Development	Offer extended flight times by drawing power from external sources, unlike untethered drones limited by onboard batteries. With the ability to remain airborne for hours or days, tethered drones enhance the capability of teams deployed for ISR operations. The drones are easier to operate and require less training and manpower. They have ability to seamlessly integrate multiple sensor payloads enhancing flexibility in employment.

PROBLEM STATEMENT - 15 (NAVY) (NSRY)

Organisation Name	Navy
Problem Statement/ Challenge Title	There is a large gap in requirement and availability of fresh water needs at ANC
Challenge Domain	Operational
Challenge brief/ definition	Presently there is an average daily requirement of 180-210 T fresh water for the ANC ships and Yard and against the same average daily supply of fresh water from MES is only 50-60T (non-monsoon period)/110-120T (monsoon period). During the last monsoon period, the daily supply was 60T. The average annual rainfall of Port Blair is 2910mm with steady increase in population touching 1,48,000 in 2023 and number of tourists of approximately 1,50,000 per year. This led to a shortfall of 10.7 lakh and is poised to increase with future accretion and augmentation of both *IN* and ICG jetties. The main sources of fresh water for Port Blair are Chouldhari Dam, Dhanikari Dam and Jawhar Dam. The fresh needs of the command are met through existing land-based rain fed or through land-based desalination sources and here exists a large gap between requirement and availability of fresh water. The present solution to this problem is unsolved as efforts in materalising additional fresh water sources are yet to be rectified.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Countries in Middle East viz. Saudi Arabia and other countries viz USA, Cypriot and Thailand is extensively relying on floating desalination plants to meet the freshwater needs. According to a study for OECD by M/s Deloitte Tohmatsu Consulting Co Ltd, the size of floating desalination plant manufacturing market will be at least $ 1.5 billion to $ 4 billion until 2025.
Future Expectations from Prototype / Tech Development	It would be the firm's responsibility to provide the deliverable as an outsourced service with payment being released on a monthly basis. Most units in India Navy are nowadays fitted with local RO/filtration units for production of cooking and drinking water (TDS < 500ppm) from the supplied domestic water with TDS of up to 2000ppm. In order to attract competition, it is necessary to have longer term period for the outsourcing of services, viz three years extendable to another two more years.

PROBLEM STATEMENT - 16 (NAVY) (NSRY)

Organisation Name	Navy
Problem Statement/ Challenge Title	Unavailability of Jetty Crane
Challenge Domain	Operational
Challenge brief/ definition	(a) Unavailability of Jetty Crane at ANC has been a long pending issue. Due to which all loading / unloading activities are undertaken with the only available 75 Ton mobile crane. Since, the 75 ton mobile crane is a variable boom length crane, the lifting capacity reduces with extension of the same and due to which loading / unloading of BMPs and other items weighing 15 Tons and more cannot be undertaken on higher deck ships viz Kesari. (b) Construction of 20 Ton ELL crane at Naval Jetties at Port Blair being undertaken through ATWP route since 2009. The original contract awarded to M/s Jessop which could not complete the work and the same was given to M/s Anupam in 2018-19 under risk and cost. Presently, the work is stopped in requirement of second crane of capacity 100 Ton which is work in tandem with M/s Anupam's 80 Ton hired crawler crane. Both these cranes are required to work in tandem to lift and fix parts of the ELL crane. The contractor is not able to hire second crane view financial crunches.
Solution envisaged	Hiring of 100 Ton crawler crane by the Yard to facilitate completion of pending work for 20 Ton ELL crane and also loading / unloading activates onboard higher deck ships which is not possible presently.

PROBLEM STATEMENT - 17 (NAVY) (NSRY)

Organisation Name	Navy
Problem Statement/ Challenge Title	Unavailability of Loading Ramp at ANC
Challenge Domain	Operational/ construction/administrative
Challenge brief/ definition	Unavailability of Loading Ramp at ANC requires all loading/ unloading activities onboard ANC ships using only available mobile cranes. Mobile cranes available at ANC are variable boom types which does not fulfill the requirement of loading items onboard bigger ships viz INS Keasari.
Solution envisaged	Construction of loading ramp or provisioning of mobile loading ramp.

PROBLEM STATEMENT - 18 (NAVY) (NSRY)

Organisation Name	Navy
Problem Statement/ Challenge Title	The existing methods adopted, and machinery utilized for surface preparation of external underwater areas of docked vessels poses challenges of dust / pollution, cumbersome protective enclosures and low productivity.
Challenge Domain	Operational
Challenge brief/ definition	Floating Dock Navy 1 and 2 are platforms of the Indian Navy based at Andaman and Nicobar Command of facilitate docking of ANFLOT Ships, Yard Crafts, ICG ships etc for undertaking underwater hull repairs. The docks have been rendering yeoman service and have been the pillars behind timely completion of refit of ANFLOT ships/Yard Crafts and in providing emergency assistance to GoI ships operating in the A&N area. Presently surface preparation and painting of underwater hull of docked IN ships have been undertaken through trade. Surface preparation by open grit blasting is undertaken to achieve desired surface profile prior full scheme paint renewal of the ships. Use of steel / chilled iron grit and protective envelopes are adopted to contain the dust and pollution due to open grit blasting. Further to evade the effect of pollution, FDN-2 has been provided with 02 vacuum blasting machines of M/s surface International make during induction. However, the productivity of the machines and downtime for maintenance is considerably high making open grit blasting as first choice for surface preparation at the cost of increased load on environment pollution.
Details of innovation to be done by the startup and expected deliverable at the end of the project	(a) Considering the unique nature of floating docks which are fitted with state-of-the-art machinery and equipment for docking and self-sustenance it is prudent to explore greener technology for surface preparation. A combination of vacuum grit blasting and open grit blasting with well-equipped enclosure using abrasives viz steel embedded sponge grit is considered ideal solution to achieve productivity and reduced level of pollution. (b) Considering the peculiar environment conditions and uniqueness of floating docks, it is proposed a combination of vacuum grit blasting and open grit blasting with well – equipped enclosure using advanced abrasives viz. steel embedded sponge grit as an ideal solution to achieve productivity and reduced level of pollution. In addition to this, an operation and maintenance contract may also be concluded for 02 vacuum blasting machines to augment the resources to meet peak workload and emergent scenarios.

Solution envisaged	In Southeast Asian countries, Japan, China, US and Europe, the ship repair industry has adopted more sophisticated robotic vacuum, blasting with efficient environment control to undertake surface preparation and painting of docked vessels. The various abrasives used to reduce pollution area crushed glass, steel grit embedded sponge, garnet sand etc. The choice of abrasive depends on the desired surface profile. Similarly various methods like wet abrasive blasting, robotic (crawler mounted) vacuum blasting is also adopted along with open grit blasting.

PROBLEM STATEMENT - 19 (NAVY) (NSRY)

Organisation Name	Navy
Problem Statement/ Challenge Title	Construction of Modern Workshop Buildings since AN is in seismic Zone
Challenge Domain	Operational/Administrative
Challenge brief/ definition	Earthquake resistant structures are designed to withstand earthquakes. While structures cannot completely resist earthquakes, the objective of earthquakes, the objective of earthquake resistant structure is to perform better during earthquakes. Andaman falls in seismic zone V in seismic zoning map of India which lies on the Andaman-Sumatra Subduction Zone, one of the highest seismically active zones. Hence, construction of modern workshops at NSRY(Pbr) is a challenge
Details of innovation to be done by the startup and expected deliverable at the end of the project	Earthquake Resistant design of Building
Solution envisaged	Solutions are required to design and build modern multi storied workshops that can withstand earthquake acceleration and shows minimum inter-story drift. The structures are required to incorporate advance earthquake resistant techniques which may be cross bracing, base isolation, tuned mass samper or any other innovative technique.

PROBLEM STATEMENT - 20 (NAVY) (HITU)

Organisation Name	Navy
Problem Statement/ Challenge Title	Cleaning and maintaining of bilge hygiene
Challenge Domain	Operational / Administrative
Challenge brief/ definition	(a) Deterioration of structural integrity of underwater compartments especially machinery compartment bilges have been an area for concern. The defects are primarily caused by dirty water/ muck accumulation in bilges due to poor bilge hygiene, leading to excessive corrosion. The equipment fit in these compartments add to the maintenance challenges w.r.t accessibility for maintenance/ preservation. (b) The problem has been prominent since numerous defects on structures have been witnessed by this unit. Structural defects observed in underwater shell plating are primarily due to accumulation of dirt oil, water in bilges.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Poorly solved, given the nature of cleaning job of compartment, spillage of oil, dirt and muck are inevitable variables since machinery and equipment are running and low accessibility adds to the challenge.
Future Expectations from Prototype / Tech Development	Correct cleaning will ensure reduction in corrosion causing factors and in turn will reduce the number of structural defects of ships in machinery compartments.

PROBLEM STATEMENT - 21 (NAVY) (HITU)

Organisation Name	Navy
Problem Statement/ Challenge Title	Calibration of test and trials equipment
Challenge Domain	Setting up Labs under DTIS in ANI
Challenge brief/ definition	(a) Calibration of test and trials equipment is required to be undertaken every year. Many equipment are of foreign make and have to be calibrated by OEM or OEM certified representatives. There is no dedicated facility for undertaking calibration at A&N, therefore entailing more time and inaccessibility of equipment for long durations. (b) All the test and trials equipment held with the unit warrant yearly calibration and non-availability of equipment for long time affects the efficiency of the unit.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Poorly solved, no commercial facility has been set up for calibration of test and trials equipment at Andaman and Nicobar.
Future Expectations from Prototype / Tech Development	Calibration of equipment would ensure accuracy while conducting test and trials onboard ships.

PROBLEM STATEMENT - 22 (COAST GUARD)

Organisation Name	Coast Guard
Problem Statement/ Challenge Title	03 Lane Slipway, Port Blair
Challenge Domain	Operational
Challenge brief/ definition	(a) A total of 30 ICG ships/ Aux vessels are based in A&N Region, with more ships likely to be based in future. The periodic dry docking of ships operating in saline environment is paramount for upkeep and operational availability of these surface assets. However, the necessary infrastructure for same in the form of dry dock /slipway/ Floating docks etc is very limited in the country in general, and A&N Region in particular. (b) Presently, ICG ships in the A&N Region under refit are docked at facilities available at DSS or 02 FDNs (of Indian Navy) for underwater routines. However, considering the existing limitations of same on account of their own commitments, ICG need to have a Captive infrastructure for docking of its ships.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Considering the limited availability of dock facilities with Indian Navy (FDNs) or local Administration (DSS) in the Region, construction of a captive Slipway of 500 Ton capacity and associated repair facility is in progress at CG Jetty, Port Blair, which is likely to be completed by Mar 2025.
Future Expectations from Prototype / Tech Development	In order to operationalise the 3 Lane Slipway Project, ICG is looking forward for a cost-effective methodology by involving private shipyard, other agencies etc., capable of engaging with ICG. Accordingly, this Headquarters is in the process to explore the way-ahead towards operation of the project, on a modified GOCO model, encompassing overall managerial control being with the ICG, with maximum outsourcing of Services. Further, factorized as modern technologies, innovative solutions in dry dock activities for undertaking refits of ships over the slipway effectively, taking into consideration local weather conditions, geographical constraints, technical ability of the refitting yards etc, workable solution in consonance with standardization bodies (ISO, IACS approved marine Classification societies etc) are also to be duly factored in.

PROBLEM STATEMENT - 23 (AIR FORCE)

Organisation Name	Air Force
Problem Statement/ Challenge Title	Design and develop an Automatically Inflatable Surface Inflatable targets, which can be air dropped from helicopters and deploy automatically on contact with Water.
Challenge Domain	Operational
Challenge brief/ definition	(a) IAF aircrafts needs to have an Automatically Inflatable targets (lighted/ nonlighted) which can be deployed on short notice with the help of aircraft with precision. (b) As on date, IAF is practicing armament firing on Surface Inflatable targets, at locations where ground range is not available due non-feasibility and for firing practice in maritime environment. (c) The means to deploy this SIT at target location is through IN Ships, in which a target is inflated on Ships and then towed by ships to desired location. This is a cumbersome process and requires involvement of multiple agencies. (d) Instead, an automatically inflatable target that can be dropped through the air may be designed and developed that can be used for air to ground firing practice. The target should also have a lighted version for practicing firing during night (aided/ unaided). (e) The inflatable target will be similar to Dinghy which is been used by IAF as a part of sea survival equipment. The dimensions for target shall be 20' x 20' (approx) with height of 5' (approx). It should be reliable, reusable and cost-effective at the same time and can be deployed with the help of aircraft at any location.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Addressing the shortcomings of current Surface Inflatable targets through development and implementation of automatically inflatable SITs which can be deployed by air will revolutionize target deployment and thus target fire practicing. They are portable, easy to set up, and can be quickly deployed in various locations, providing a realistic target for pilots to practice their armament accuracy.
Future Expectations from Prototype / Tech Development	No such known system exists presently. However present dinghies being used by IAF works on the same principle.

PROBLEM STATEMENT - 24 (AIR FORCE)

Organisation Name	Air Force
Problem Statement/ Challenge Title	Fully automated remotely controlled skid Drop mechanism in Helicopters
Challenge Domain	Operational
Challenge brief/ definition	(a) During Air Drop sorties in helicopters, which are extensively carried out in Northern and Eastern sectors and may be required to be undertaken anywhere else also, helicopters have to carry two Army soldiers as Ejection crew. These crew assist the Flt Gunner of the helicopter to push the load out over the DZ on command of the Captain. These two crew carried effectively reduces the load carried in every sortie by 200 Kg, which constitutes a significant percentage of load at high altitude. The human element associated with these crew, especially in a low oxygen, unpressurised cockpit, causes a lot of incidents and accidents. Additionally, during critical emergencies involving immediate ejection of load, manual ejection entails delay and requires the ejection crew to be frantically pushing out the load instead of being strapped to their seats. This has led to serious injuries and even fatalities. (b) Indian Air Force has been undertaking routine air maintenance mission since 1984. Helicopters carry loads for air maintenance on skid boards which in turn carried on rollers. In order to eject these skid boards outside the helicopter to facilitate the para drop, these skid boards need to be pushed with a certain force. Flight Gun was not able to generate the force required to push these boards outside the heptr. Therefore, a need was felt to carry two additional persons on board to push these skid boards. And hence, two additional Army soldiers are being carried on board to help Flt Gnr push these loads manually out of the helicopter.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Currently, IAF helicopters are using a manual system with two Ejection Crew. They also need to be trained specially for this role.
Future Expectations from Prototype / Tech Development	Automated systems available in modern aircraft.

PROBLEM STATEMENT - 25 (AIR FORCE)

Organisation Name	Air Force
Problem Statement/ Challenge Title	Design and develop a GPS navigated parachute for para-dropping payload at earmarked GPS co-ordinates
Challenge Domain	Operational
Challenge brief/ definition	(a) During Air Drop missions from helicopters or transport aircrafts presently non guided parachutes are used for mass troops dropping, arms, ammunitions, inflatable targets, vehicle, ration replenishments and other requirements. These mission critical loads are dropped in a zone and there are no means or technology present to drop these parachutes to exactly marked location with 100 % accuracy even during day and night. (b) Modern warfare scenario has created new challenge in front of Defence Forces to Air Drop, mission essential loads, at exactly earmarked location as all the forces are having high accuracy monitoring technologies like RPAs and drones. Delivery of payloads at the exact location will provide a time edge and safety advantage to the future missions.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Development of Remotely maneuverable parachute using AI controls as per different weather conditions, wind speeds, distance which can be steered to desired coordinates.
Future Expectations from Prototype / Tech Development	Depending on the software development with induction of AI technology

PROBLEM STATEMENT - 26 (AIR FORCE)

Organisation Name	Air Force
Problem Statement/ Challenge Title	Designing the software for operational management of transporting of load and detailment of Aircraft/ load carrier accordingly.
Challenge Domain	Operational/Administrative
Challenge brief/ definition	(a) The load is staggered at many places, the purpose and utility of item are not known to the transporting agency. Further the volume of load including weight is not displayed to any agency or for that matter at Air HQ (b) The software should be utilised at the prime location all MCUs and Air HQs. So as to enable these agencies to monitor the operational importance of load with volume, weight, No. of boxes etc
Details of innovation to be done by the startup and expected deliverable at the end of the project	**How is being overcome today?** (a) At present any airlift requirement of a base is raised manually by the user to Ops section of the base. Same is further processed by the Station Ops section to Command HQs Ops. All Airlift requisitions are compiled at Command HQs and demand for Air Movement is placed to Air HQs. Air HQs then as per Air Movement requisitions prepares the flight plans. All this process is handled manually by different offices which takes considerable time for filing the actual air movement for airlifting the load. **Status of the present solution to the problem**. (b) It is proposed that a software to be developed in coordination with civil agencies to effectively utilise the Immols data of different bases automatically, to prepare flight plans at Air HQ as per availability of serviceable ac and their load carrying capacity so as to deliver the load/equipment in most economic and faster way possible and further notify the transporting agencies about the criticality/priority of load.
Future Expectations from Prototype / Tech Development	Following are the reasons for development of Design and develop a software for most economic and faster delivery platform: - (a) Delivery of equipment from repair depots to field units and vice versa in minimum time thus enhancing Ops capabilities of field units and max utilisation of repair facilities due to in time availability of CAT D equipment/spares at BRDs. (b) Saving of man hours by eliminating the manual efforts being carried for preparation of the flight plan at each hierarchy. (c) Timely delivery of armament stores to field units. (d) Enhancement of overall Ops capabilities and real-time visual availability of transport capabilities and time for delivery of any load.

PROBLEM STATEMENT - 27 (NAVC)

Organisation Name	HQ NAVC
Problem Statement/ Challenge Title	Development of an AI-Based Tool for Comprehensive Building Design and Construction Management in the Andaman and Nicobar Islands.
Challenge Domain	Logistic
Challenge brief/ definition	The seminar aims to explore the development of an AI-based tool designed to streamline the construction of new buildings and other upcoming works projects in the Andaman and Nicobar Islands. The tool should address both exterior and interior design aspects, incorporating advanced features such as design suggestions, virtual reality (VR) visualization, interior layout planning, material selection, energy efficiency analysis, cost estimation, project management integration, feedback loops, accessibility and inclusivity features, and environmental impact assessments. This comprehensive solution seeks to enhance efficiency, sustainability, and inclusivity in construction projects, leveraging cutting-edge technology.
Details of innovation to be done by the startup and expected deliverable at the end of the project	(a) Usages of tools like Autodesk's BIM 360 and Spacemaker AI use AI to optimize building designs and layout plans. (b) Companies such as IrisVR and Enscape provide VR solutions that allow stakeholders to visualize and interact with design models in immersive environments to be developed. (c) Usages of tools like Procore and PlanGrid offer integrated solutions for material management and cost estimation, enhancing project planning and execution. (d) Usage of software such as Energy Plus and IES VE are used to model and analyse building energy performance, promoting sustainable design. (e) Usage of platforms like Oracle's Aconex and Microsoft Project offer comprehensive project management tools that integrate various aspects of construction workflows.

Future Expectations from Prototype / Tech Development	(a) Conduct feasibility studies and pilot projects to test the AI-based tool in selected construction projects. (b) Develop initial versions of the tool with basic features such as design suggestions, cost estimation, and project management integration. (c) Expand the tool's capabilities to include advanced features such as VR visualization, interior layout planning, and material selection. (d) Integrate energy efficiency analysis and environmental impact assessment functionalities. (e) Roll out the tool to a wider range of projects across the Andaman and Nicobar Islands. (f) Achieve full-scale adoption of the AI-based tool across all construction projects in the region. (g) Continuously update and optimize the tool's features based on user feedback and technological advancements. (h) Establish the tool as a standard practice in construction management, ensuring sustainable and efficient building practices.

PROBLEM STATEMENT - 28 (NAVC)

Organisation Name	HQ NAVC
Problem Statement/ Challenge Title	Implementing Smart Inventory Systems in the Andaman and Nicobar Islands Using IoT and Blockchain Technology.
Challenge Domain	Logistic
Challenge brief/ definition	Efficient inventory management is vital for the operational readiness of defence forces and the efficient functioning of civilian operations in the Andaman and Nicobar Islands. This seminar aims to explore the deployment of Internet of Things (IoT) and blockchain technologies to create smart inventory systems that facilitate real-time tracking and management of supplies, ensuring enhanced transparency, efficiency, and accountability.
Details of innovation to be done by the startup and expected deliverable at the end of the project	(a) IoT in Inventory Management. Companies like Amazon and Walmart utilize IoT sensors and RFID tags to track inventory in real-time, ensuring accurate stock levels and efficient warehouse operations. (b) Blockchain for Transparency. IBM's Food Trust blockchain platform is used by major food producers and retailers to trace the origin and journey of food products, ensuring transparency and safety in the supply chain. (c) Defence Applications. The US Department of Defence has explored blockchain for secure and transparent management of military supplies, enhancing the reliability of logistics operations.
Future Expectations from Prototype / Tech Development	(a) Conduct feasibility studies, pilot projects, and initial deployment of IoT devices and blockchain platforms in selected areas. (b) Expand the implementation to cover all critical supply chains, integrating IoT and blockchain systems into existing infrastructure. (c) Achieve full-scale adoption and optimization of smart inventory systems, continuously updating and improving the technology to meet evolving needs.

PROBLEM STATEMENT - 29 (NAVC)

Organisation Name	HQ NAVC
Problem Statement/ Challenge Title	Development of Efficient, Compact, and Environmentally Friendly Garbage Disposal Compactors for Andaman and Nicobar Islands-Based ANC Units and Ships.
Challenge Domain	Logistic
Challenge brief/ definition	The Andaman and Nicobar Islands (ANI) face unique waste management challenges due to their remote location, limited infrastructure, and fragile ecosystem. The Indian Armed Forces, with their significant presence in the ANI, generate substantial amounts of garbage. Current disposal methods, including discharge at sea and rudimentary land-based disposal, are unsustainable and environmentally harmful. This challenge seeks innovative solutions for compacting and processing various types of garbage, including organic waste, scrap metal, and plastics, within the constraints of ANC units and ships.
Details of innovation to be done by the startup and expected deliverable at the end of the project	(a) Plasma Gasification: Conversion of waste into syngas, which can be used for power generation. (b) Advanced Compaction Systems: High-pressure compactors that significantly reduce waste volume. (c) Biodigesters: Conversion of organic waste into biogas for cooking and heating.
Future Expectations from Prototype / Tech Development	(a) Identification and evaluation of existing technologies and solutions suitable for ANI conditions. (b) Development and testing of prototype compactors and processing systems tailored for ANC units and ships. (c) Implementation and scaling up of successful solutions across the ANI.

PROBLEM STATEMENT - 30 (NAVC)

Organisation Name	HQ NAVC
Problem Statement/ Challenge Title	Design and Development of Modular Wharf System for Enhanced Maritime Infrastructure in Andaman and Nicobar Islands.
Challenge Domain	Logistic
Challenge brief/ definition	The Andaman and Nicobar Islands (ANI) require versatile, scalable, and sustainable maritime infrastructure to support their strategic, economic, and logistical needs. The current reliance on anchorage and boat/RHIB transfers for ship disembarkation is inefficient, time-consuming, and susceptible to weather disruptions. This challenge seeks innovative designs for modular wharves that can be rapidly deployed, reconfigured, and adapted to various operational requirements, while minimizing environmental impact and maximizing resource utilization.
Details of innovation to be done by the startup and expected deliverable at the end of the project	(a) Roll-on/Roll-off (RoRo) Modular Wharves: These systems utilize floating platforms and ramps for quick deployment and easy reconfiguration. (b) Jack-up Modular Wharves: These systems employ self-elevating platforms that can be adjusted to different water depths. (c) Concrete Caisson Modular Wharves: These systems use precast concrete modules for durability and stability.
Future Expectations from Prototype / Tech Development	(a) Feasibility studies, concept design, and technology evaluation. (b) Detailed design, prototype development, and testing. (c) Production, deployment, and operationalization of the modular wharf system.

PROBLEM STATEMENT - 31 (NAVC)

Organisation Name	HQ NAVC
Problem Statement/ Challenge Title	Development of a Sustainable, Scalable, and Self-Sufficient Floating RO Plant for Freshwater Production in the Andaman and Nicobar Islands.
Challenge Domain	Logistic
Challenge brief/ definition	The Andaman and Nicobar Islands (ANI) face a critical shortage of freshwater resources due to their geographical isolation, limited groundwater availability, and seasonal variations in rainfall. Existing desalination facilities are often land-based and require significant infrastructure investment. This challenge seeks innovative solutions for a floating RO plant that can be deployed rapidly, operate autonomously, and produce high-quality freshwater to meet the growing demands of the islands' population and industries.
Details of innovation to be done by the startup and expected deliverable at the end of the project	(a) The DEWA barge is a large-scale floating RO plant powered by solar energy in UAE. (b) The SWCC in Saudi Arabia has developed a series of floating desalination barges for remote coastal communities. (c) The Keppel Offshore & Marine in Singapore has designed a floating desalination and power generation platform.
Future Expectations from Prototype / Tech Development	(a) Feasibility studies, conceptual design, and technology selection. (b) Detailed design, construction, and testing of the floating RO plant. (c) Deployment, operation, and scaling up of the plant's capacity as needed.

PROBLEM STATEMENT - 32 (NAVC)

Organisation Name	HQ NAVC
Problem Statement/ Challenge Title	Development of a Robust and Scalable Network-Centric Solution for Integrating Disparate Radar Systems into a Unified Air-Sea-Land Common Operating Picture (COP) in the Andaman and Nicobar Islands.
Challenge Domain	Operational
Challenge brief/ definition	The Andaman and Nicobar Islands (ANI) are of strategic importance due to their location in the Indian Ocean. There are no of radars systems across these islands. However, these systems operate independently, leading to fragmented situational awareness and hindering effective decision-making. This challenge seeks to develop a comprehensive solution that integrates these disparate radar systems into a unified COP, providing a real-time, comprehensive view of the air, sea, and land domains.
Details of innovation to be done by the startup and expected deliverable at the end of the project	(a) The Cooperative Engagement Capability (CEC) in USA is a network-centric system that integrates data from multiple sensors to create a unified air Defence picture. (b) The Air Command and Control System (ACCS) of NATO integrates data from ground-based and airborne radars to provide a comprehensive air picture. (c) The Jindalee Operational Radar Network (JORN) in Australia is a long-range over-the-horizon radar system that provides early warning of air and sea threats.
Future Expectations from Prototype / Tech Development	(a) Feasibility studies, technology assessment, and system architecture design. (b) Development and testing of data fusion algorithms, network infrastructure, and user interfaces. (c) Implementation, integration, and operationalization of the unified COP system.

PROBLEM STATEMENT - 33 (NAVC)

Organisation Name	HQ NAVC
Problem Statement/ Challenge Title	Development of Sustainable, Scalable, and Efficient New-Age Power Generation Technologies for Diverse Applications.
Challenge Domain	Logistic
Challenge brief/ definition	The growing global demand for energy, coupled with the urgent need to reduce carbon emissions and mitigate climate change, necessitates the development of innovative and sustainable power generation technologies. This challenge focuses on three promising areas: flywheel technology, wave energy, and compact/smaller wind turbines. The aim is to develop solutions that are not only environmentally friendly but also scalable, adaptable to various environments, and capable of providing reliable power to both grid-connected and off-grid applications.
Details of innovation to be done by the startup and expected deliverable at the end of the project	(a) The Advanced Research Projects Agency-Energy (ARPA-E) in USA is funding research on flywheel technology, wave energy, and other innovative energy solutions. (b) The Horizon 2020 program of European Union supports research and development in renewable energy technologies, including wave and tidal power. (c) Japan has been a pioneer in flywheel energy storage and is exploring its potential for grid stabilization.
Future Expectations from Prototype / Tech Development	(a) Research and development of prototype systems, testing and validation in controlled environments. (b) Pilot projects and demonstrations in real-world settings, optimization of designs and performance. (c) Commercialization and large-scale deployment, integration with existing energy systems.

PROBLEM STATEMENT - 34 (NAVC)

Organisation Name	HQ NAVC
Problem Statement/ Challenge Title	Ensuring Maritime Security and Dominance through Robust Anti-Drone Capabilities in the Andaman and Nicobar Islands.
Challenge Domain	Operational
Challenge brief/ definition	The Andaman and Nicobar Islands, due to their strategic location and expansive coastline, are vulnerable to emerging threats from unmanned aerial vehicles (UAVs). These drones can be used for surveillance, espionage, or even attacks against naval assets and critical infrastructure. This challenge seeks to address the development and implementation of comprehensive anti-drone systems to protect both warships at sea and operational command centers ashore.
Details of innovation to be done by the startup and expected deliverable at the end of the project	(a) Rafael's Drone Dome system in Israel provides a comprehensive anti-drone solution with radar detection, laser targeting, and jamming capabilities. (b) Raytheon's Coyote Block 3 drone in USA offers a kinetic kill option against hostile drones. (c) Exploration of directed energy weapons, electromagnetic pulse (EMP) systems, and AI-powered detection algorithms are used in various nations.
Future Expectations from Prototype / Tech Development	(a) Deployment of interim solutions to address immediate threats, focus on detection and basic countermeasures. (b) Development and integration of more sophisticated systems, including layered Defence and AI-driven analysis. (c) Continual refinement and adaptation to evolving threats, emphasis on autonomous capabilities and interoperability.

PROBLEM STATEMENT - 35 (NAVC)

Organisation Name	HQ NAVC
Problem Statement/ Challenge Title	Suboptimal performance of Steering Gear System of LCU MK IV Class.
Challenge Domain	Operational
Challenge brief/ definition	Replacement of the present steering gear system of LCU MK IV class of ships provided by M/s Geeta Engineering which have critically impacted fleet operations and safety.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Other Navies, such as US and Royal Navy, have enhanced their steering gear systems by integrating advanced materials that withstand extreme environmental conditions and by employing state of the art diagnostic tools that predict system failures before they occur. These upgrades have significantly reduced downtime and improved operational reliability.
Future Expectations from Prototype / Tech Development	(a) Immediate comprehensive system assessments and emergency procurement of critical components. (b) Systematic upgrades (upgradation of VME processor and IP carrier and feedback system) and integration of advanced steering technologies during scheduled maintenance periods. (c) Replacement of the current fit system by a more reliable and redundant system based on the latest technological advances and environmental feedback to ensure continuous improvement.

PROBLEM STATEMENT - 36 (NAVC)

Organisation Name	HQ NAVC
Problem Statement/ Challenge Title	Proposal for Comprehensive Waste Management System.
Challenge Domain	Logistic
Challenge brief/ definition	Proposal for establishing a comprehensive waste management system to effectively manage and dispose of sullage, dirty oil, domestic garbage and sewage generated by ships.
Details of innovation to be done by the startup and expected deliverable at the end of the project	Other naval forces, such as the Royal Navy and the US Navy have implemented integrated waste management systems that utilise advanced technologies for waste treatment and disposal, including compactors, incinerators, and advanced sewage treatment plants with capabilities to repurpose waste materials.
Future Expectations from Prototype / Tech Development	(a) Conduct environmental impact studies, feasibility analyses, and design the waste management system. (b) Develop infrastructures and procure necessary technologies and equipment. (c) Implement the system, conduct training for personnel, and establish operational protocols.

Confederation of Indian Industry

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Since 2017, the Society of Indian Defence Manufacturers (SIDM) has grown and established itself as India's only Defence Industry association and, today plays a proactive role as an advocate, catalyst, and facilitator for the growth and capability building of the defence industry in India.

The Society represents the entire spectrum of Defence and Aerospace manufacturers in India covering both the Public and the Private Sector. Its membership constitutes large companies, MSMES, FOEMs, Academic Institutions and Think Tanks which are spread across all states and regions of the country.

SIDM stands as the 'Voice of the Industry' and works closely with the Government to shape a conducive policy environment for the growth of the defence Industry in India. Through its MoUs with the Army, the Air Force and the Navy, SIDM provides a platform for interface with the Services and enables the Industry to serve the emerging requirement of the forces.

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