

Basics of underwater world

Why Underwater Domain Awareness?

Who are the stakeholders?

Maritime Commons and their importance.

Freshwater Systems and the Tyranny of Small Decisions.

Acoustics and its Importance for Underwater.

Governance Mechanism and the Fragmentation.

Challenges & Opportunities in the Tropical Waters.

UDA Framework.

Pooling of Resources and Synergizing of Efforts.

Policy & Technology Intervention along with Acoustic Capacity & Capability Building.

Question & Answers

1. Why is the Underwater Domain Awareness (UDA) important?

Ans. 75% of the earth is underwater with climate change and life being supported. Our understanding of the Underwater is extremely poor, whereas the majority of the life, resources and activities, exist below water.

2. Who all are interested in the UDA?

Ans. The UDA is relevant to multiple stakeholders, namely shipping & logistics, deep sea mining, fisheries & aquaculture, climate change monitoring, sustainable blue economy management, strategic security, energy security, food security, oceanographic studies, ecosystem monitoring, water resource management, water quality management, inland water transport, hydrology management, ecology management and more.

3. What is the requirement of UDA?

Ans. The UDA can help manage global warming, climate change risks like El Niño, La Niña, freshwater availability for the large populations, water quality concerns, extremely weather events, migration due to climate crisis, internal security concerns, sustainable development concerns, plastic in the oceans, acoustic habitat degradation and more.

4. How can UDA help?

Ans. Digital transformation will be the key for governance and the Marine Spatial planning will be the critical tool for policy & technology interventions. The Modelling & Simulation (M&S) has been a time-tested tool to predict future events and trends and take corrective measures. We will have to build the infrastructure namely to see (sensors & platforms), to understand (data analytics) and to share (real-time presentation of the actionable inputs for the users). The clear appreciation of the source signal, the propagation modifications (path) and the receiver characteristics to make a qualitative & quantitative assessment of the ground situation.

The acoustics will be the key expertise required to manage the UDA and thus acoustic capacity & capability building will be required. Sonars are the only instrument that can process sound, so effective sonar design and development. The digital transformation will require massive scale data acquisition and processing. Artificial Intelligence and Robotics will be the critical requirements.

5. India in the 21st century has been preparing itself for the futuristic requirements. Please elaborate.

Ans. The Honourable Prime Minister declared the SAGAR vision, that recognized the requirements of the new age India. The mega vision was complemented with equally mega projects like the Sagarmala, Bharatmala, Gati Shakti, Deep Ocean Mission, Digital India, Skill India, Start-up India, Atma-nirbhar Bharat and more with massive allocation of funds.

6. Why does the New Global Order need the UDA Framework?

Ans. The New Global Order is playing out in the tropical waters of the Indo-Pacific region. Thus, it is important to focus on the UDA, as it requires specialized acoustic capacity & capability building. Geopolitically and geo-strategically, India has to play a major role in the Indo-Pacific strategic space, thus UDA will be important.

7. Who are the four stakeholders of the UDA framework?

Ans. National Security, Blue Economy, Environment & Disaster Management and Science & Technology.

8. What are the fundamental pillars of the UDA framework?

Ans. Pooling of Resources and Synergizing of Efforts. It encourages comprehensive and inclusive effort across the stakeholders.

9. How does the UDA framework make a difference?

Ans. The UDA framework provides policy & technology interventions, along with acoustic capacity & capability building. These are the most critical components to address any new domain.

10. What is the way forward to progress the UDA framework?

Ans. A three-step formulation will be in order – Outreach to sensitize the stakeholders, policy makers and practitioners, engage to involve a spectrum of individuals starting from students, faculty & young professionals through internships & fellowships, MoUs with the stakeholders and academia's, sustain will bring projects for actual policy & technology interventions.