

Concept Note
Webinar: Governing the Invisible — Participatory
Underwater Domain Awareness (UDA) Framework
for the Brahmaputra Basin
23rd June 2026 at 1630 hrs IST

Background and Rationale

The Brahmaputra River Basin is one of the world's most dynamic and strategically significant freshwater systems, spanning China, northeastern India, Bhutan, and Bangladesh, and sustaining millions of people whose livelihoods depend on the river's shifting seasonal and sedimentary rhythms. Despite the basin's highly sediment-intensive nature, marked by rapid erosion, deposition, channel migration, and braided river dynamics, conventional river governance remains largely focused on surface-level indicators such as floods, embankments, navigation routes, and visible infrastructure damage. This creates a critical governance gap because many of the processes that shape ecological change, infrastructure vulnerability, and human risk, including sediment transport, riverbed morphology, scour, submerged habitats, and bathymetric instability, occur below the surface and often become visible only after crises emerge.

Building on the first keynote's argument that the Brahmaputra is governed at the surface but shaped underwater, the second keynote advances the discussion from visibility to action by proposing Underwater Domain Awareness (UDA) as a governance architecture rather than merely a technological monitoring system. Introducing the concept of "Participatory UDA," the keynote combines scientific tools such as hydrographic mapping, acoustic sensing, sediment profiling, and real-time bathymetry with the lived expertise of char dwellers, fishers, ferry operators, and floodplain communities who possess intimate knowledge of sediment behaviour, submerged hazards, erosion patterns, and navigation channels. In doing so, it demonstrates how UDA can bridge the mismatch between governance and underwater risk, reposition sediment as ecological and socio-economic intelligence, support locally usable monitoring and warning systems, strengthen river-based livelihoods and infrastructure resilience, and foster "hydro-verification" through shared underwater and sediment data that can reduce uncertainty, build trust, and encourage cooperative governance among riparian states in the transboundary Brahmaputra system.

Objectives

1. To examine the limitations of conventional surface-oriented river governance in the Brahmaputra River Basin and highlight the importance of underwater processes such as sediment transport, riverbed morphology, scour, and bathymetric instability in shaping ecological risk and human vulnerability.
2. To introduce Underwater Domain Awareness (UDA) and "Participatory UDA" as integrated governance frameworks that combine scientific monitoring tools with the lived knowledge of riverine communities to support anticipatory, inclusive, and resilient river governance.
3. To explore how UDA can strengthen flood preparedness, erosion management, navigation safety, livelihood resilience, infrastructure planning, and transboundary cooperation through shared underwater and sediment intelligence systems.

Expected Outcomes

- Enhanced understanding among policymakers, researchers, and stakeholders of how underwater processes such as sediment transport, riverbed change, and bathymetric instability shape ecological risk, infrastructure vulnerability, and human security in the Brahmaputra Basin.
- Greater conceptual clarity on Underwater Domain Awareness (UDA) as a governance architecture that integrates scientific monitoring, ecological intelligence, community knowledge, and participatory decision-making rather than functioning solely as a technical monitoring system.
- Recognition of Participatory UDA as a Brahmaputra-specific governance model that combines hydrographic and sediment monitoring with traditional ecological knowledge and lived experience of riverine communities.
- Identification of practical pathways for applying UDA to community resilience, sustainable livelihoods, and economic planning through tools such as erosion alerts, bathymetric mapping, habitat monitoring, navigation advisories, fisheries management, and sediment-informed infrastructure planning.
- Increased awareness of the role of UDA and shared underwater data systems in enabling hydro-verification, strengthening regional cooperation, reducing uncertainty, and supporting trust-building among riparian states in the transboundary Brahmaputra system.

Proposed Schedule

- *Opening Address* – **Dr (Cdr). Arnab Das**, Founder & Director, MRC, Pune.
- *Keynote Presentation* – **Ms. Tejaswini Kaktikar**, Research Fellow at MRC, Pune.
- *Expert Interventions* (15 minutes each) by:
 - **Dr. Sumit Vij**, Assistant Professor, Sociology of Development and Change, Wageningen University, Netherlands.
 - **Dr. Mirza Zulfiqur Rahman**, Programme Coordinator and Research Associate at the Heinrich Böll Regional Office, New Delhi.
 - **Shri Ashwin Pandya**, Former Secretary General at International Commission on Irrigation and Drainage (ICID) and Former Chairman at Central Water Commission (CWC).
 - **Dr. D K Sharma**, President at International Commission on Large Dams (ICOLD) and Member National Security Advisory Board (NSAB), Government of India.
- *Concluding Remarks* – **Ambassador Riva Ganguly Das (Retd)**, Former Secretary (East), Ministry of External Affairs, Government of India.
- *Closing Remarks* – **Ms. Cathrine J**, Hear Research and Publication, MRC, Pune.

Convenor

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