

Event Report

CMEC – Maritime Knowledge Lecture

Maritime India: River Economy Waterways to Prosperity

Organised by CMEC & RIS | 18 November 2025 | IHC, New Delhi



The Centre for Maritime Economy and Connectivity (CMEC) at RIS , in collaboration with the India Habitat Centre organised the 11th Maritime Knowledge lecture Series titled, “*Maritime India: River Economy Waterways to Prosperity*” as part of the Maritime Knowledge Lecture Series. Anchored in the broader discourse of river based civilizational heritage, sustainable transport and blue economy, the event sought to unravel the importance of India’s river systems as ecological assets and economic lifelines.

Panel –

- Shri Rajiv Ranjan Mishra, Former DG National Mission for Clean Ganga- Lead Speaker
- Professor Vinod Tare, IIT Kanpur and Founding Head of cGanga - Chair
- Shri Ashutosh Gautam, Member Technical IWAI – Panelist
- Dr Shishir Shrotriya, CMEC - Moderator

The speakers highlighted that Indian rivers are, foremost, **living ecological systems** with dynamic hydrology, sediment behaviour, and biodiversity patterns. The presentation drew attention to India's long-standing river heritagetraditions of navigation, community water governance, hydrological knowledge, riverine trade, wetland use and cultural relationships with water.

However, unlike European systems, India never formalized these traditions into official documentation. Much of the intangible heritage related to floodplain management, boat-building, sediment understanding, and riparian negotiations remains undocumented. The speakers emphasized that reclaiming this knowledge is vital for shaping modern river governance and redefining the concept of "heritage" to include hydrology, flow regimes, and ecological processes beyond monuments and rituals.

The Need for Holistic River Basin Governance

Drawing from global examples, particularly the **Danube** and **Rhine**, the Shri Mishra underscored the aspects of **Integrated River Basin Management (IRBM)**. These international basins operate through cyclical, six-year plans that integrate science, regulatory frameworks, stakeholder coordination, biodiversity concerns, flood management, and navigation. Such models maintain continuity and discipline across decades.

During the discussion, it was noted that India's governance remains fragmented, historically organised around sectors such as irrigation, hydropower, urban supply, fisheries, navigation, and pollution control, without a unifying framework. While recent attempts to introduce basin-level planning mark progress, institutionalisation is still limited. The Ganges basin ranges from the Himalaya and the Trans-Himalaya in the north, to the northern slopes of the Vindhya range in the south, from the eastern slopes of the Aravalli in the west to the Chota Nagpur plateau and the Sunderbans delta in the east, necessitating governance models that integrate ecology, cultural values, community rights, and economic aspirations.

The speakers emphasised that India must move from individual projects to basin-scale thinking supported by hydrological mapping, wetland inventories, environmental-flow assessments, and inter-state coordination. Without this approach, river interventions risk duplication, conflict, or ecological degradation.

Sedimentation, Flows and Scientific Navigation

One of the strongest themes was sediment behaviour. During the presentation, it was discussed that Indian rivers are turbid, sediment-rich and naturally dynamic, unlike stabilised European rivers. This creates complex dredging challenges.

The speakers explained that sedimentation is not merely a river engineering issue but a catchment management issue also. Rapid runoff, hill degradation, loss of vegetation, and altered land use accelerate silt flow. It was noted that to reduce siltation, rapid flows in upper catchments must be converted into sluggish, dispersed flows. This requires upstream

interventionscheck dams, vegetation recovery, soil conservation, wetland restoration and terrain management.

The experts cautioned against viewing channelisation or river “control” as a long-term solution. The presentation stressed that stabilising rivers through heavy engineering is neither ecologically desirable nor financially feasible in most Indian contexts. Instead, navigation should be developed as an activity that depends on and reinforces the health of the river.

Inland Water Transport: Promise and Constraints

The lecture highlighted that India’s Inland Water Transport (IWT) potential is significant: it is cost-efficient, energy-efficient and environmentally favourable. Yet the actual share of IWT remains marginal.

Key issues discussed included the following :-

- a) **Highly variable water levels:**
Many stretches lack minimum assured depth. Dry-season flows are constrained by upstream withdrawals. The speakers pointed out that without regulating flows, navigation cannot scale.
- b) **Heavy and continuous sediment deposition:**
Indian rivers change course frequently and require regular dredging. The presentation referenced ongoing experiments with **robotic dredgers and amphibious dredgers**, yet noted that maintenance remains expensive and operationally demanding.
- c) **Absence of multimodal connectivity:**
Terminals often lack road or rail links to production centres. This disconnect raises logistics costs and reduces commercial viability.
- d) **Limited financial models:**
The speakers highlighted that navigation alone cannot finance river restoration. A river economy must integrate fisheries, tourism, river-based livelihoods, treatment of wastewater, wetland services, and cultural heritage.
- e) **Regulatory aspects :**
Restrictions on setting up industrial or storage facilities near rivers prevent potential users from accessing waterways efficiently. Balancing ecological safeguards with economic access remains a key governance challenge.

Ecology and Navigation: Coexistence, Not Competition

A major argument put forth during the lecture was that **navigation and ecology are not opposites**. Navigation requires stable flows, clean channels and healthy river systems; therefore, its success is inherently linked to ecological well-being. The speakers emphasised that rivers must not be treated as transport corridors alone but as ecosystems supporting biodiversity, aquatic life, groundwater recharge, floodplains and cultural identity.

It was also underscored that environmental flows are criticalnot only for ecology, but also for navigation, groundwater replenishment and river self-purification. The lecture called for

shifting from “wastewater economy” thinking to “river economy” thinking, focusing on circularity, reuse and maintenance of base flows.

Community Engagement and Cultural Implications

The event highlighted that rivers are embedded in India's cultural memory. People live, worship, trade, fish and celebrate along riverbanks. The speakers pointed out that modern river projects often generate anxiety when they are perceived as commercialising sacred spaces or altering public access. The example of increased vessel movement in culturally sensitive riverfronts like ghats was used to illustrate the need for **socially sensitive planning**. The discussion emphasised that community participation must go beyond token consultations. Riverfront users, fishermen, boatmen, local traders and residents must be integrated as stakeholders in planning terminals, ghats, biodiversity parks and flow management strategies.

Q&A Session: Multimodal Connectivity and Governance

During the interactive session, a scholar raised key questions about developing **seamless multimodal logistics corridors**, funding mechanisms, and the challenge of avoiding “environment vs. development” conflicts.

The speakers responded that multimodal connectivity linking waterways with road, rail, and coastal routes is essential for attracting cargo. But such integration requires:

- Long-term planning
- Cooperation across central and state agencies
- High-quality terminals and handling facilities
- Financial models that ensure viability
- Trust-building between industries and waterway authorities
- Waste to wealth and integrated contracts which enable waste utilization and recycling

The panel emphasised the need for continuous dialogue, evidence-based planning, and culturally sensitive interventions. Incentives are helpful, but **integration** where communities participate in decision-making and benefit directly from river-based development is far more important.

Towards a Holistic Future for India's River Economy

As the lecture drew to a close, the panel reiterated that the future of India's river economy lies in **holistic, science-driven, and culturally grounded river basin management**. Navigation, tourism, fisheries, water security, biodiversity, and cultural heritage must be addressed together, not in isolation.

The experts also called for stronger collaborations among universities, research institutes, government agencies, and civil society organisations. India's river revival, he suggested, can

become a global model if approached with patience, continuity, and respect for both science and culture.

Conclusion

The event concluded by noting that the session successfully moved the conversation beyond the conventional view of rivers as transport channels, presenting a deeper and more responsible vision for India's river economy. Dr Shishir Shrotriya emphasized the importance of Systems Approach to the River Basin management, by bringing together insights from governance, ecology, engineering, and community engagement, the lecture offered a nuanced blueprint for transforming India's waterways into engines of sustainable prosperity.