13TH EASTERN HIMALAYAN NATURENOMICS™ FORUM 2025
10th & 11th December
Guwahati, Assam

The Future of the Third Pole and the Eastern Himalaya

GLACIERS IN RETREAT: RETHINKING WATER SECURITY IN THE THIRD POLE

Host Institution: IIT Guwahati

I. Rationale and Context

The Eastern Himalaya, part of the greater "Third Pole" region, is witnessing one of the fastest transformations in its hydrological systems. Driven by accelerating glacial melt, erratic monsoon patterns, and widespread landscape degradation, this shift is disrupting the lifelines of over a billion people across South and Southeast Asia.

In the Brahmaputra Basin, water regimes are becoming increasingly unpredictable—with dry season scarcity and intense monsoon flooding emerging as dual threats. This hydrological instability has deep social consequences, from the erosion of agricultural livelihoods to displacement and the loss of cultural traditions tied to rivers and wetlands.

Compounding the crisis is the degradation of wetlands, riparian forests, and floodplains—ecosystems critical for water storage, filtration, and flood regulation. To restore water security in the region, we must reimagine watershed systems as integrated ecological and cultural landscapes, combining traditional wisdom with cutting-edge research.

The water session at EHNF 2025 will bring together key actors to co-create resilient, inclusive, and ecosystem-based approaches to securing the region's most vital resource.

II. Focus Areas of the Session

This session will convene water scientists, policymakers, civil society, indigenous leaders, and students to explore integrated solutions for managing water across climate-vulnerable landscapes. Emphasis will be placed on innovations and practices that are ecologically sustainable, socially inclusive, and culturally rooted.

Key Discussion Points:

1. Glacial Retreat and Hydrological Instability

- Impact of Third Pole glacier melt on river flow patterns, sedimentation, and flood cycles
- GLOFs (Glacial Lake Outburst Floods) and their implications for downstream villages
- Case insights from the Brahmaputra, Teesta, and Subansiri basins

2. Wetland and Catchment Degradation

- Loss of ecological functions in key wetlands (e.g., Deepor Beel, Maguri Motapung)

- Restoration models for riparian zones, silted floodplains, and degraded springsheds
- Role of native species, bamboo bio-shielding, and nature-based solutions

3. Community Water Governance and Cultural Dimensions

- Traditional water knowledge systems and river-based cultural practices
- Displacement, erosion, and the socio-spiritual impact of water insecurity
- Role of indigenous communities in watershed stewardship and revival

4. Integrated Water Resource Management (IWRM)

- Embedding IWRM in climate adaptation, conflict resolution, and equitable access
- Institutional reforms and community-based governance frameworks
- Cross-sectoral and transboundary coordination for river basin planning

5. Early Warning Systems and Technology for Resilience

- Leveraging tech tools (GIS, AI, mobile alerts) for flood/drought forecasting
- Blending modern systems with local indicators and early risk detection
- Community training and access to data for disaster preparedness

III. Outcomes & Collaboration Opportunities

This session will serve towards catalysing multi-stakeholder action across the following areas:

1. Critical Watershed & Wetland Identification - Mapping high-risk glacial and riverine zones for priority intervention and funding.
2. Integrated Watershed Strategies - Co-designing cross-disciplinary, region-specific models combining science and traditional knowledge.
3. Youth Research & Storytelling - Encouraging students to document river histories, traditional systems and water innovation.
4. Transboundary Cooperation & Data Sharing - Building platforms for collaborative governance across borders and sectors.
5. Water Security Charter - Drafting a regional charter for water resilience with community and academic inputs.

IV. Participation Audience

- Government & Policy Institutions: Representatives from Water Resources, Jal Shakti, Environment, Forests, and Disaster Management Departments
- Academic & Research Bodies: IIT Guwahati, Assam Water Research and Management Institute Society (AWRMIS), Tezpur University, North Eastern Regional Institute of Water and Land Management (NERIWALM), and water-focused think tanks
- Civil Society & Indigenous Leaders: Community networks, NGOs, youth and women-led water conservation groups
- Technology & Innovation Stakeholders: Climate tech startups, hydrology monitoring firms, data platforms

- Development Agencies: UN agencies, World Bank, GIZ, and regional multilateral cooperation bodies

V. Venue & Engagement at IIT Guwahati

IIT Guwahati will host the Water Session of EHNF 2025, drawing upon its expertise in hydrology, disaster risk reduction, and ecological engineering. Through its academic leadership and student involvement, IITG will play a key role in fostering dialogues that bridge research and ground realities.

VI. Proposed Format

- Opening Keynote: Reframing Water Security in the Era of Glacial Retreat
- Panel Discussions: Glacial melt, wetlands, and river basin governance
- Case Presentations: Community-led restoration and early warning innovations
- Youth Engagement Segment: Student poster sessions, river storytelling, and solution pitches
- Naturenomics™ Pavilion: Cultural expressions of rivers, forests, traditions and art and craft.