Conclave on Brahmaputra River Basin

… translating ideas into action

Feb 12-13, 2018

Organized by Gauhati University

Co-organized by North Eastern Council, Shillong

Venue : Gauhati University.

The background and perspective

The transboundary Brahmaputra River Basin, draining about 5,80,000 sq. km. through China, India, Bhutan and Bangladesh, carries the third highest discharge (~20000Cusec) and the second highest sediment load on earth. The catchment area is largely part of a tectonically unstable and a highly seismic Himalayan region in the Asian landmass that witnesses frequent large earthquakes and consequent numerous massive landslides that generate enormous sediment in the catchment. High to very high rainfall from South West Monsoon, particularly in its lower catchment in India and Bhutan, results in high seasonal discharge in the river regime and recharge the dynamic groundwater reserve. Thus, the Brahmaputra valley in the lower riparian state of Assam that forms a topographic low into which the basin slope converge, witnesses the convergence of water and sediment from its numerous tributaries and sub tributaries with consequent large-scale flood, erosion and sedimentation.

In the context of Assam, Brahmaputra is often seen as a source of misery and hindrance to economic growth. Relief and rehabilitation following floods and construction and maintenance of thousands of kilometers of embankments and other river training measures over the last several decades along the Brahmaputra and its tributaries have remained a major burden on the state economy; all such measures have been found to be grossly inadequate in addressing these issues. It is often felt that a long term basin-scale approach with the spirit of collaboration and cooperation among upper and lower riparian stakeholder countries, more than a short term local approach targeted at a channeled segment, is required to address the recurring problems of flood, erosion and sedimentation in the Brahmaputra valley. It is also felt that if harnessed as a resource in spite of these challenges, the Brahmaputra river system can provide a unique opportunity for socio-economic growth and development. If ways of living with such a highly dynamic river

system are developed, it may open up huge avenues for navigation, aquaculture, water intensive agriculture, eco-tourism, hydropower and so on.

The Brahmaputra has been the subject of much debate and discussion in recent times and various independent experts and organizations have deliberated on the issues of flood and erosion vis-à-vis possible interventions and need for long term studies. It has been proposed that dredging the Brahmaputra might be a possible solution for the problems of flood and erosion, but there is a counter narrative questioning the efficacy of such measures in very high sediment-carrying river system. A realistic assessment on suitability of river engineering and basin scale intervention essentially calls for validated models on hydrology and sediment flow into the rivers, taking into account the dynamic variables like climate and land use which, as of now, are lacking - at least in the Indian part of the basin. In a perennially flood prone tropical region like this, flood forecasting needs to get priority; unfortunately, there are no integrated operationalised and validated flood forecasting models for the Brahmaputra trunk channel and its tributaries.

As such the Brahmaputra still remains largely unknown for its hydrology, channel dynamics, sediment flow vis-à-vis possible impact of climate change and changes in land use/landcover. This calls for a holistic approach to study the Brahmaputra River Basin and look beyond the flood and erosion problem, particularly taking into account the technological development in relevant fields. It is worth mentioning that there has already been active consideration at the government level for taking various measures in a structured way, especially after the Hon'ble Prime Minister of India announced a comprehensive study package on the Brahmaputra. Meanwhile the government of Assam has also constituted a number of expert committees for recommendation of suitable measures. These recommendations, however, are yet to be available in the public domain.

In this backdrop, Gauhati University decided to take the initiative of organizing a National Conclave on Brahmaputra River Basin and accordingly sent a proposal to Ministry of DoNER, Government of India, which approved the concept and extended financial support for the Conclave in the last part of 2017. Subsequently, in active collaboration with the North Eastern Council, this two day Conclave was planned for deliberations on the following themes:

- Brahmaputra: a system perspective beyond flood and erosion
- Understanding the Brahmaputra:
    - Flood and erosion
    - Flood and erosion management
- Channel morphology and dynamics
- Flood forecasting and hydrological models
- Engineering and Technological intervention
- Flood moderation and sediment control
- Transforming challenges into opportunities

Scientists and engineers, planners and policy makers from various organizations including knowledge institutions, government agencies and departments, and independent experts have been invited to bring out the core issues for discussion. The deliberations and brainstorming sessions across the two days have been mandated to come out with a set of viable action plans on

relevant issues in conformity with the vision for this Conclave **"Translating Ideas Into Action"**.