

# **A Training Workshop on Sustainable management of the Brahmaputra River System, India in a changing climate for water security and disaster resilience**

**For researchers, practitioners and media personnel of Assam**

*Organised by*

**Aaranyak, Guwahati**

**With support from**

***SaciWATERS Cap-Net Network (SCaN) for South Asia (Hyderabad)***

**Forum for Policy Dialogue on Water Conflicts in India (Pune)**

**Date: November 15-18, 2016**

**Venue: Indian Institute of Bank Management, Khanapara,  
Guwahati**

## **The Brahmaputra River System: An Introduction**

The Brahmaputra is one of the world's largest rivers, with a drainage area of 580,000 km<sup>2</sup>, (50.5% in China, 33.6% in India, 8.1% in Bangladesh and 7.8% in Bhutan). In India, its basin is shared by Arunachal Pradesh (41.9%), Assam (36.3%), Meghalaya (6.1%), Nagaland (5.6%), Sikkim (3.8%) and West Bengal (6.3%). Originating from the great glacier mass of Chema-Yung-Dung in south east of the Mansorovar lake in the Kailash range of the Himalayas of southern Tibet at an elevation of 5300 m, it traverses 1,625 km in China and 918 km in India, before passing 337 km through Bangladesh and emptying into the Bay of Bengal through a joint channel with the Ganga.

An extremely dominant monsoon domain interacting with a unique physiographic setting, fragile geological base and active seismo-tectonic instability together with anthropogenic factors have moulded the Brahmaputra into one of the world's most intriguing gigantic fluvial system. A unique river, it drains such diverse environments as the cold dry plateau of Tibet, the rain-drenched Himalayan slopes, the landlocked alluvial plains of Assam and the vast deltaic lowlands of Bangladesh. The Brahmaputra River is the fourth largest river in the world in terms of annual discharge. The Brahmaputra is also one of the most heavily sediment-charged large rivers in the world.

In the course of its 2,880 km. journey, the Brahmaputra receives as many as 22 major tributaries in Tibet, 33 in India (in the northeastern part, 20 of these coming from the north and another 13 from the south bank) and 3 in Bangladesh.

The Brahmaputra basin, particularly in Assam, experiences awesome hazards of annual floods and erosion bringing misery to the people and shattering the fragile agro-economic base of the region. With 40% of its land surface susceptible to flood damage, Assam's Brahmaputra valley represents one of the most acutely hazard-prone regions in the country, having a total flood-prone area of 3.2 million Ha. In the aftermath of the great earthquake of 1950, the intensity, frequency and the damage due to floods increased progressively.

The Brahmaputra basin, with a total population of about 83 million (across all four countries), is extremely rich in cultural diversity, with many ethnic, socio-cultural and linguistic groups. The potential utilizable water resources of the basin are estimated at 50 km<sup>3</sup>/yr, of which about 90% remains undeveloped which is about 0.6 m<sup>3</sup>/person/yr (based on estimated 2011 population of 82.7 million people). Approximately 9.9 km<sup>3</sup>/yr is used throughout the basin. The main water use in the basin is for agriculture (81%), followed by domestic uses (10%) and industries (9%).

### **The Brahmaputra River: Major issues of management**

There are varied issues both local, national and of international nature that have posed challenges to the ecological well being of the river and its use for the welfare of people. In the domestic front mitigating the floods and river erosion has been a herculean task for our engineers at least for last five decades. In this regard new and innovative approaches to disaster risk reduction are required.

Absence of hydro-meteorological gauging network of desirable coverage and density, especially in the hill and mountain areas is a big handicap for scientists in India. Political considerations and administrative rules do not favour exchange of scientific data among Governments, researchers and civil societies of the country. Such data endemism and restrictions is a big hindrance for research and development of knowledgebase on the river.

Lack of adequate knowledge base is a factor that constrains technologically appropriate interventions and long-term planning for mitigating water induced hazards and environmentally sustainable development of the water resources. This is true in general for all the basin countries but especially for the Indian part of the basin. Lack of availability and access to hydrological data is a common problem in India that obstructs studies on the behaviour of the river including flood forecasting, and climate modelling.

Being a transboundary river it is managed differently in different countries. Even within India Government plans and people's views about how to manage the river and use its resources differs from state to state. There are live issues of conflict between states in India and between India and its neighbouring countries over water resources development and water sharing. India and Bangladesh has yet to agree on how to share the water of the Teesta River, which is an important tributary to the river Brahmaputra. People in Bangladesh expect to have treaties of water

sharing on the Teesta and on a number of other tributaries of the Brahmaputra that both the countries share.

Similarly there prevails suppressed tension between India and China over the damming of the Tsangpo (name of Brahmaputra in Tibet, China) and its proposed diversion to northern China within the Chinese territory. Government of India as well as northeastern states have expressed grave concerns about possible consequences in NE India due to the planned Chinese interventions on the Brahmaputra.

There are allegations from people in Assam that unwarranted releases of water from some Bhutanese dams create flood havoc in western Assam. It is feared that some of the dams being built in Bhutan will be more dangerous to downstream Assam, northern part of West Bengal in future. The Indian Linking of Rivers Plan (ILRP) has been a constant source of apprehension for Bangladesh about the probable detrimental impact, mainly reduced flows from some of the shared rivers like the Ganga, the Brahmaputra and the Teesta.

The Government of India is implementing an aggressive hydropower generation plan in the Brahmaputra river basin in northeastern region of the country, mainly in the states of Arunachal Pradesh and Sikkim. Experts and people in general are highly concerned about the observed and perceived adverse impacts of these projects on environment, livelihoods, and cultures.

Of late there has been a trend to securitize the Brahmaputra River by various experts and agencies trying to highlight the river more as a security issue than other considerations. This is apparently to enhance the strategic significance of the river to contain increasing competitive claims from different basin sharing countries. Although it helps to some extent in drawing attention of the national Government to the river as a whole, at the same time it damages previous and on going efforts to forge cooperation among basin countries in matters related to collaborative management of the river. In such a discourse that promotes the river more as an entity that can affect the security of the country, the real issues such as maintaining ecological integrity, assuring riparian rights and achieving water security and disaster resilience as the most important common goal of an intended integrated basin management mechanism gets marginalised.

The Brahmaputra basin is one of the most vulnerable regions of the world to climate change impacts. Projected increase in rainfall and accelerated summer flows may give rise to more intense flooding and flood hazards, but consequent retreat of glaciers may reduce flows in the Brahmaputra river system in the long run. With the glacial contribution decreasing over the years, in future lean season flow is likely to decrease and water stress may increase in the Brahmaputra basin where large populations depend on agriculture for livelihoods. Glacial retreat in the Himalayas may lead to serious alterations in the hydrological regime of the Brahmaputra river

system since the mainstream of the Brahmaputra and some of its tributaries are partly fed by snowmelt run-off.

Although many other water related problems also plague the basin, the more important ones are water quality e.g. contamination of ground water with fluoride, arsenic and heavy metals; drying of streams and springs; occurrence of moderate to acute drought like situations even during the monsoons season; increasing bed and bank sedimentation in the flood plain and valleys; wanton degradation of the flood plain wetlands; loss of navigability and lack of long-term management vision in national and sub-national plans.

### **Why is the training workshop needed?**

The Brahmaputra River sustains about 83 million people living in its basin area spread over three countries. It supports diverse ecosystems and human cultures that have thrived in its basin region. The well being of the people and the environs greatly depends on the proper use and management of the river and its waters. However scientific knowledge about the river and its basin is still in a nascent stage. The existing information and knowledgebase is confined to academics, relevant departments and a few researchers only. There is limited opportunity for young upcoming researchers to learn about the river and its various facets. Even officials of relevant Government agencies have little exposure to emerging issues like climate change impacts, integrated river basin management, transboundary water governance and water conflicts. On the other hand reporters and journalists, although they have given due importance to the issues related to the Brahmaputra, have very few opportunities to gather scientifically correct information, knowledge and perspectives about these issues. This results in factually incorrect information flawed arguments being published and aired in public. Therefore media people also need capacity building on how to report more reliable stories about the issues related to the Brahmaputra River.

Most importantly it is high time that we create a corpse of people, from the above three target groups who possess the minimum basic knowledge about water management of the Brahmaputra basin in its entirety. This will enable them to do better research, take more appropriate and knowledge based management decisions and sensitize people with reliable facts and views.

### **Objectives of the workshop**

- To sensitize a group of water researchers and journalists from Assam about the existing knowledgebase on the river that would encompass the hydrological, climatological, geomorphological, social and cultural aspects of the river and its basin
- To sensitize the select target group about contemporary issues such as climate change impact, adaptation and resilience, IWRM, DRR, water security and water conflicts in the context of the Brahmaputra river basin

- To conduct a day long field study in a suitable place to learn about the relationship of the river and the communities living on its banks with exploration of the adaptation, resilience, social and cultural dimensions of the synergy between the river and its people.

### **For whom is the training meant?**

This training seeks to address the needs of three specific target groups viz (i) young researchers from Universities, colleges, autonomous institutes and NGOs who are working in different aspects of water resources management, disaster risk reduction, climate change impact and adaptation, water governance, river basin management, water conflicts social and political ecology of water in the context of the Brahmaputra basin in India and especially in Assam; (ii) young professionals and practitioners including the officials in service in relevant Government departments and agencies (iii) media people from local print, electronic and internet based media who are engaged in reporting on water and climate change issues in Assam. About 30 participants will be trained in this programme. We encourage mainly young candidates from the above-mentioned categories to apply with especial emphasis on participation of women candidates. However, in principle there is no bar on age. We will prefer applicants from all over northeast India including Sikkim and West Bengal.

### **How to apply for the programme?**

Interested people are requested to send (i) a covering letter mentioning (a) about their back ground very briefly and (b) highlighting how their work and experience is linked to the river Brahmaputra in not more than one A4 size page (ii) a detailed CV and (iii) a note in response to the question 'why do you want to join this programme?' (Not more than a A4 size page). All communications are to be made through email to (i) Bijoyinee at <bijoyinee@aaranyak.org> with a copy to (ii) Partha at <partha@aaranyak.org>. The last date for applying is November 5, 2016.

### **Selection of candidates**

The CVs of applicants will be examined by a group of experts engaged by the organisers and selection of the 30 individuals will be done strictly on the basis of merit. Besides the nature and quality of work, expertise and experience of the candidates and their potential for future contribution to the Brahmaputra's water management will also be considered as a criterion of selection.

### **Mode of the programme**

The training will be held over four days including a day of field visit to a nearby area. The classroom sessions will be conducted by renowned experts from the fields of water resources management, disaster mitigation, geomorphology, hydrology, climate change, water conflicts, environmental economics, sociology, cultural anthropology, transboundary water governance and journalism and mass communication. Study materials will be provided to the selected participants in advance so that they can prepare beforehand and get the best out of the classroom sessions.

## **Logistics**

About 15 candidates who are from outside Guwahati will be provided accommodation in twin sharing rooms. They will be provided with breakfast and dinner. Lunch as well as tea/coffee with snacks will be served during the classroom sessions every day. On the day of field visit a working breakfast and lunch will be provided. Travelling costs of selected participants who are from outside Guwahati by public vehicles through the shortest routes will be borne by the organisers. Certificates will be awarded to all participants who successfully complete the training programme as per norms and rules.

To know more about the event, please contact:

Dr. Partha J Das

Head, 'Water, Climate & Hazard Division'

Aaranyak (A Scientific and Industrial Research Organisation of India)

Administrative Office, House Number # 13, Tayab Ali Bylane

Bishnu Rabha Path, Beltola Tiniali, Bhetapara Link Road

P.O Beltola, Guwahati- 781028, Assam, India

Email: [partha@aaranyak.org](mailto:partha@aaranyak.org), [parthajdas@gmail.com](mailto:parthajdas@gmail.com)

Telephone: +91-361-2230250, Telefax: +91-361-2228418

Mobile: 94351-16558, 9957189404

[www.aaranyak.org](http://www.aaranyak.org)