

# AFGB Conference 2014

## Executive Summary

The 3<sup>rd</sup> Annual Conference organized by Assam Forum of Great Britain took place on 13<sup>th</sup> September 2014 at the London School of Economics. The conference opened with a brief address by the AFGB Chairman. Two topics were discussed at this conference, namely, “The perennial problem of flood and erosion in Assam” and “Primary Healthcare problems in Assam”.

### **Chairman’s Address<sup>1</sup>:**

In his speech, Dr. Jitendralal Borkakoti, Chairman of AFGB, points out a few important constraints that have impeded faster economic growth in the North East. All the NE States are poor relative to the rest of India, but Assam and Manipur are the poorest among the North-East States. The economic constraints include poor provision of industrial infrastructure, lack of private industrial investment, failed public sector undertakings, annual scourge of flood, and low productivity in agriculture. The social and political constraints include poor governance, large-scale corruption, and poor law and order situation combined with insurgency. These constraints have debilitating effects on the economy, leading to a serious problem of unemployment in Assam today. It is necessary to keep hammering the obvious: the government must take urgent steps to make sure of uninterrupted supply of electricity and to expand the infrastructure of road connectivity to the interior parts of Assam.

Dr. Borkakoti also flags up the issue of balkanization of Assam, as the various ethnic groups of people in Assam demand their own homeland or separate state on the basis of their ethnicity. This reveals that Assam’s social and political fabric is torn asunder. The notion that each ethnic group can bring about a golden period of economic development for itself separately from the rest is dangerous, erroneous and cruelly delusionary. The Government of Assam should stop this ad hoc approach, and consider the matter differently with a long term strategic vision so that the social and political cohesion Assam is safeguarded.

### **Flood & Erosion Problems of Assam:**

The conference benefitted from presentations via Skype by two experts from IIT Guwahati, namely, Professor Arup Kumar Sarma<sup>2</sup> and Dr. Rajib Kumar Bhattacharjya<sup>3</sup>. In addition, the conference also benefitted from a presentation by Dr. Rituparna Sarma on flood and erosion problems of Majuli, and specifically, from her presentations of two short papers on Majuli by Mr. Hem Chandra Bhuyan<sup>4,5</sup>, an experienced engineer from Guwahati. Furthermore, there was also another paper on low tech natural solutions to erosion by Mr. Wahid Saleh<sup>6</sup> from The Netherlands, and the Chairman led a brief discussion on this.

Professor Arup Sarma puts forward a holistic approach to manage water resources so that the problems of flood and erosion can be effectively solved. Multiple causative factors are responsible for the current situation of flood and erosion. These include: (a) increase in sediment influx to the rivers because of indiscriminate deforestation and hill cutting, leading to a deduction of the flow carrying capacity; (b) increase in surface runoff and peak discharge (e.g., impermeable concrete and paved area, indiscriminately filling up of low-lying area, etc.); and (c) anthropogenic factors (e.g., rise in surface level of river at upstream because of a bottleneck caused by bridges with inadequate waterways).

Assam suffers from heavy monsoonal flow of water through the river system, and on the other hand, due to large temporal variation of the available water in the Brahmaputra basin, utilisable water is only about 3 to 4 percent of its available water. A holistic approach is thus necessary to find sustainable solutions to the flood and erosion problems, and also to integrate water resources to economic development. The holistic approach has three main project components.

The first is an assessment of seasonal or monthly water demand including water for power generation and irrigation. Second, in order to meet the assumed demand, the supply or flow of water must be augmented in space and time, so that the spatiotemporal variation of the available water is reduced by appropriate use of reservoir. Optimal operating policies will increase utilisable water. Third, both structural and non-structural measures are required to solve the flood and erosion problems. Ecological Management Practices (EMPs) should be adopted on the basis of simulation carried out by using a mathematical optimizing model of the entire Brahmaputra basin, taking into consideration the piedmont zones. This will indicate the likely flow and sediment movement. To find the optimal flood control measures and to protect the river banks, hydrodynamic models have to be linked to the optimization model. Professors at the IIT, Guwahati, have developed a model called the BRAHMA model (being the acronym, of Braided River Aid Hydro-Morphological Analyzer) that uses a Genetic Algorithm (GA) based optimization procedure. They have used this model to develop a linked-simulation optimization model to determine optimal protection measures.

During the discussion that ensued, Dr. Apurba Baruah queried about the viability of dredging. According to Professor Arup Sarma, dredging Brahmaputra for flood and erosion control is technically not efficient and also not viable as the width of Brahmaputra varies from 2.5 km to 14 km, and the relevant length is about 1,600 km. [It may be noted, *en passant*, that China failed to canalize the Howangho river by dredging, and finally constructed 11 dams on the river to control floods]. When asked by Mr. Rituraj Sharma whether the research initiated by the IIT has been fed to the relevant departments of the Government of Assam, Professor Arup Sarma expressed his frustration, and illustrated the fundamental problem of implementation of projects by citing an actual example. A thorough study of the Guwahati flash flood was carried out by the IIT in 1999 and identified where the water flows come from; and accordingly technical solutions were recommended. But because of the lack of a central

authority to implement the various construction works, the various departments were willing to do only the bit that is in their administrative purview. There was, thus, administrative chaos without any department taking the lead; and the plans were ultimately not implemented.

Dr. Rajib Bhattacharjya<sup>3</sup>, in his presentation, raised the important issue of China building dams in the Yarlung Tsangpo (the upper reaches of the Brahmaputra). The first dam (capacity 510mw = 85mw x 6 Turbines), located in Lokha prefecture, will be completed in 2015. Four more dams are planned, and they are “run of the river” hydroelectric projects; and these are not expected to adversely affect the flow of water to the North East of India. Dr. Bhattacharjya reports that China is also planning to build several other dams on the Yarlung Tsangpo; and the biggest (capacity 40,000mw) is to be built on the great bend of the Brahmaputra. [This will be bigger than the one on river Yangtze, currently the biggest in the world with 22,500mw capacity]. However, this planned dam is not a “run of the river” project, and it is likely to lead to some serious issues for Assam. China plans to divert 57 billion cubic meters of water per year from the Yarlung Tsangpo to the river Tao. This diversion will involve constructing 37 dams and 39 tunnel sections with a total length of 1455 kilometres. There are likely to be serious downstream problems in the North East. India has a MOU with China on sharing hydrological data of the river Brahmaputra during the monsoon season; but the lean period upstream flow data are not available. Dr. Bhattacharjya also flags up another serious issue, and it is the impact of climate change on the water flow of the Brahmaputra. The rise in temperature due to climate change will lead to melting of the snow and glaciated ice. This may, as per published reports, cause the monsoon flow of the river to increase by 20% in the future while it may lead to a decrease of the flow by 20% in the lean period. Effective solutions to the problems of flood and erosion must take into account the anthropogenic developments at the upstream of Brahmaputra.

In her presentation, Dr. Rituparana Sarma reveals that, because of relentless erosion over the decades, Majuli is reduced from 1256 km<sup>2</sup> in 1891 to 925 km<sup>2</sup> in 1971, and then to 577 km<sup>2</sup> in 1998. The river island now measures about 421 km<sup>2</sup> with the serious implication that the river island will be completely annihilated by the mighty river in about five decades if that trend of destruction continues. Majuli is the largest fluvial island only in India and not in the world, as people commonly portray. This proud place of being the largest fluvial island in the world goes to Bananal Island in Central Brazil. [This island, measuring 19,162 km<sup>2</sup>, is formed from the bisection of the river Araguaia in the Tocantins State of Brazil]. But the importance of Majuli in terms of cultural heritage cannot be underestimated; and urgent steps must be taken to save Majuli from total annihilation.

After the great earthquake in 1950, flood and erosion problems became relatively more acute because of geological changes. The Government of Assam in the 1950's and 1960's took ad hoc measures without any scientific research. It is realised now that the engineering decision in 1965-66 to close the Kherkatia Suti (a course of the river Brahmaputra) was suicidal to the island. Consequentially, the forceful diversion of excess discharge to the main river

course engulfed a large landmass (almost 200 km<sup>2</sup>) on the south-west bank of lower Majuli. To mitigate that disaster, another blunder was committed. It was the closure of the river Tuni at the tail end in 2003. This led to a lot of public suffering.

The Brahmaputra Board proposed a Master Plan in 1996 and, only in 2003, after 7 years came up with a detailed plan, involving Rs.96.56 crore, to be completed in three phases by 2006-07. The Board miserably failed to implement the projects of the Plan. This is a sad example of poor governance. The erosion of Majuli is still going on unabated.

Mr. Wahid Saleh's paper<sup>6</sup> (briefly presented by the Chairman) draws from the experience of Netherlands; and advocates a low-tech solution offered by Mother Nature to prevent erosion. The solution, as practised in the Netherlands, is to use maram grass which is a strong plant. Its roots are 6 to 9 metres long and will retain the sand of the new dunes of the *Maasvlakte 2* (the expansion of the port of Rotterdam). The roots of the maram grass constitute the underground networks that stabilise shifting dunes. Such low-tech solutions, in conjunction with high-tech solutions, can be used to prevent erosion of Majuli. The maram grass can be planted by hand, and it takes 2 to 4 years for optimal effect. It is a perennial rhizomatous grass; and new roots are produced in the layer of freshly deposited sand. It has the natural ability to emerge from sand which is deposited on the vegetation.

There is also the native vetiver grass which is a perennial grass. The Directorate of Economics and Statistics, Government of Assam, in their overview of Assam, states that the vetiver (botanical name, *Chrysopogon Zizanioides* but also known as *Vetiveria Zizanioides*) is a grass that grows on any kind of soil (sandy, loamy, clay, alkaline, acidic and saline) and soil polluted by heavy metals. It tolerates very heavy rainfall, withstands drought, and can survive submergence in flood water for five months. Its roots grow to 10 feet long, and tensile strength of nylon to effectively arrest bank erosion and prevent land slide. The grass has been planted in Morigaon and Sibsagar District on trial basis with successful results. This low-tech solution, in conjunction with high-tech solutions, should be used more widely in Assam.

### **Latest Fiasco of Majuli's World Heritage Status:**

Dr. Rituparna Sarma has pointed out that Majuli is likely to have significant benefits if the island gets the Unesco World Heritage status. In fact, this might save the river island. For the third time in 2012, the World Heritage Committee rejected the application from the Government of India on the grounds that all necessary documents were not complete as per the latest operational Guidelines. Tragically, no nomination dossier was submitted when the 38<sup>th</sup> session of the World Heritage Committee was held in Doha in 2014. Because of pathetically poor governance, no nomination dossier was prepared. The 2012 dossier was prepared by the Archaeological Survey of India, but was thereafter decided that the revised dossier would be prepared by the Government of Assam, and accordingly the State Government was requested. The Assam Government failed to produce the required dossier for 2014.

## Primary Healthcare Problems in Assam:

The conference benefited from brief presentations by the three appointed panellists, namely, Dr. Tarun Kumar Chowdhury, Dr. Jayanta B. Sarma and Dr. Mitam Barooah.

Dr. Tarun Chowdhury has put forward the proposition that Assam should emulate the NHS system of the United Kingdom. After having described the operation of the NHS system in terms of the primary (GP Surgeries) and secondary (Hospitals and Consultants) sectors where medical services are free at the point of care. Dr. Chowdhury recommends that the UK style primary care should be introduced in Assam, by suggesting that it should be pioneered first in Guwahati by establishing eight primary care health centres with all up-to-date facilities for minor surgery, and with computer facilities so that patients are able to register electronically under a doctor. After successful implementation at Guwahati, this model should be extended to all towns of Assam. However, it is pointed out that such a programme will require a massive amount of investment in health care.

Dr. Jayanta Sarma<sup>7</sup> briefly presents a review of the state of healthcare infrastructure and availability of medical services in the primary healthcare sector, and comments on the universal healthcare coverage by comparing the NE States, including Assam, with the national scenario by using 2005 as the base year, since the NRHM (National Rural Health Mission) was launched in 2005.

The structure of rural healthcare system in India is a three-tier system comprising of the following: (1) **CHC** [Community Healthcare Centre] which is a 30-bed hospital or referral unit for 4 PHC's with medical specialists; (2) **PHC** [Primary Healthcare Centre] which is a referral unit for 6 (4-6 bed) sub-centres staffed by a medical officer in charge and 14 paramedics; (3) **SC** [Sub-Centres] which is the most peripheral point of contact between the community and the primary healthcare system and staffed by 1 Health Worker who is Female/Auxiliary Nurse Midwife and 1 Health Worker who is male. Implementation of this system is going on in Assam.

The Government of India launched a number of health schemes under NRHM in 2013 before the BJP led Central Government. Assam has benefited from these schemes. A (Rs.22 crore) project called Tele Radiology Project (first in India) is to be launched in 11 districts of Assam. Also, under the same initiative, there will be free generic drug services.

Dr. Mitam Barooah in his presentation emphasizes the need for transferring medical knowledge and experience acquired in the UK by the Assamese doctors to Assam. Dr. Barooah's own efforts to improve patient care system in Assam by establishing professional contacts with the medical circle in Guwahati are taken as an example. The conference appreciated Dr. Barooah's work.

In the ensuing discussion, several important points emerged. First, because of poor governance, often the Primary Health Centres remain without a doctor, as there is a shortage

of doctors who are prepared to work in the rural areas. Second, due to non-accessibility to public healthcare and low quality of healthcare services, a majority of people in Assam, as in other parts of India, turn to the local private health sector as their first choice of care. [In India, 92% of the healthcare visits are to private providers of which 70% is from the urban population]. Dr. Lakhi Das states that private healthcare is expensive and often unregulated, and is unaffordable by the low-income people. It is, thus, all the more important to beef up public health services in rural areas even by providing the most basic services. Third, Dr. Mohan Thomas points out how mental health problems are neglected, and how symptoms of physical illness are often caused by mental illness. Therefore, resources devoted to treat mental illness should be increased. Fourth, it is important to streamline procedures for patient safety, and participants provided examples of wrong diagnoses leading to serious and tragic consequences.

### References:

Please click on the title of the paper to read it.

1. ["Chairman's Address" by Dr. Jitendralal Borkakoti](#)
2. ["Mitigating Flood and Erosion of Brahmaputra Basin through Holistic Approach of Water Resources Development and Management" by Prof \(Dr.\) Arup Kumar Sarma.](#)
3. ["Is it possible to seek solutions for the flood and erosion problem of Assam ignoring anthropogenic developments occurring at upstream of river Brahmaputra?" by Dr. Rajib Kumar Bhattacharjya.](#)
4. ["A Brief Note on Protection of Majuli" by Mr. Hem Chandra Bhuyan, BE, FIE \(India\).](#)
5. ["A Different Solution for Majuli's Flood & Erosion Problems" by Mr. Hem Chandra Bhuyan, BE, FIE \(India\).](#)
6. ["The Dutch erosion control & embankment protection policy: Lessons to be learnt from this flood prone country" by Mr. Wahid Saleh.](#)
7. "State of Universal Health Coverage in Northeast India" by Dr. Jayanta B Sarma, MBBS, MSc, PhD, FRCPath(London) and Dr. Rituparna Bhattacharyya, MA, PhD(Newcastle).

*The Executive Summary is prepared by Dr. Jitendralal Borkakoti*