ASSAM FORUM GB, 6TH ANNUAL CONFERENCE

SUMMARY OF PRESENTATIONS

Flood in Assam: the Old Problems and the New Ones

By

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Every year Assam suffers from flood and erosion; but in recent years the ferocity of flood and the rate of erosion have both increased. This year there have been three waves of flood. The third wave of flood appears to be somewhat mysterious as there has not been heavy rain preceding the days or week; and it seems this was caused by up-stream activities of some kind. Each year, the government of Assam carry out the fire-fighting exercises that include relief activities when the flood arrives and some repair work of during the winter season. The current flood protection rely heavily on embankments; and the useful life of these embankments built many decades back have passed the sell-by date. Political leadership in Assam has been poor without a firm grip on the flood issues and lacking in ability to think big or initiate ambitious projects to solve a big problem.

However, the Centre realised these issues. The UPA Government attempted but failed to implement the proposed North East Water Resources Authority (NEWRA) because of reported objections from Arunachal Pradesh. The NDA Government has taken the initiative to establish the North East and Brahmaputra River Rejuvenation Authority (NEBRRA) which will be empowered to take a holistic approach to the flood and erosion problems of the North East. NEBRRA must find long-term solutions to this perennial problem by investing in serious scientific studies and by seeking advice from both the Indian scientists and the internationally reputed experts in flood control. NEBRRA will follow a holistic approach for which it will have jurisdiction not only in Assam but also in Arunachal and West Bengal. Now, the problem is that NEBRRA is not yet established as a going organisation, since the relevant Bill has not yet been passed in the Parliament. This is very disturbing, as vested interest seems to be the root cause of such delays.

In the meantime, during the recent flood, the Central government has allotted Rs100 crore for the purposes of carrying out a through scientific studies of the flood problem in Assam by international experts. How this money will be used has not yet announced. AFGB should keep an eye on this fund; and if necessary, offer help to the government.

In a previous AFGB conference, Professor Arup Sarma from IIT Guwahati advocated a holistic approach to solve the problems of flood and erosion. The prime causes for the current situation of flood and erosion are: (a) increase in sediment influx to the rivers because of indiscriminate deforestation and hill cutting, and thus, creating a deduction of the flow carrying capacity; (b) increase in impermeable concrete and paved surface area, indiscriminately filling up of low-lying area, and (c) anthropogenic factors such as rise in surface level of river at upstream because of a bottleneck

caused by bridges with inadequate waterways or badly managed upstream dams. The prime cause, of course, is the heavy flow of water in the monsoon season and the ever rising river bed of Brahmaputra since 1950 earth quake. And Brahmaputra is one of the prolific rivers in the world as a sediment carrier.

In our earlier AFGB conference, we concluded that dredging Brahmaputra for flood and erosion control is technically not efficient. It is 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 was pointed out that China failed to canalize the Howangho river by dredging, and finally constructed 11 dams on the river to control floods.

But recently a large-scale multi-purpose infra-structure project has been mooted to dredge Brahmaputra from Sadiya to Dhubri, and to build a modern highway system alongside the river by using the dredged material. The main purpose is to increase navigability of the Brahmaputra river channel and at the same time to use the dredged material to build a highway to serve as embankment for flood control. Instances have been given from America where rivers are dredged for navigability to increase the depth of water. On this basis, we should support this project,

After we have presented the Memorandum to the Prime Minister of India, and after we have met Uma Bharti, the Central Water Resources Minister, there seemed to have been some action on Majuli's flood problem. The project that was left unfinished by the Brahmaputra Board was to start, as reported in Assam Tribune. But we do not know whether the second attempt was successful. Majuli's case flood and erosion problems are dire, and at this current rate of destruction, the river island will practically vanish in about 50 to 75 years.

Assam suffers from flood, but at the same time, due to large temporal variation of 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. While there are flood prone areas, there are also drought prone areas affecting agricultural output including output of tea. The holistic approach involves assessing seasonal water demand; and to meet that demand, the supply of water has to be augmented in space and time, so that the spatiotemporal variation of the available water is reduced by the use of water in reservoir.

We would advise that the high-level study of the flood and erosion problems in Assam should include not only the internationally renowned experts but also the experts in IIT who know the local conditions. Professors at the IIT think that both structural and non-structural measures are needed to solve these problems. Ecological Management Practices (EPMs) 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. They have developed a model called the BRAHMA model (being the acronym, of Braided River Aid Hydro-Morphological Analyzer) that uses algorithm based optimization procedure. They have used this model to develop a linked simulation optimization model to determine optimal protection measures.

The strategy of the Central government for solving flood and erosion problems of Assam is to build a series of dams in Assam and Arunachal. Creation of NEBRRA is a part of this strategy. Therefore, everything is slowing down because of the failure to launch NEBRRA. China has used this strategy successfully by building dams to control flood and erosion, and with the added benefits of producing electricity. The biggest dams in the world are to be found in China. However, there are social and political pressures in Assam against this strategy. The work at the Subansiri Lower Hydro Power project is at a stalemate, despite changes in construction design. This is something that the proposed high-level study should consider.

An important issue, and it is gaining in importance, is the upstream activities in China that could have serious downstream impacts in Assam. China is 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. We do not have exact information, but guess it is 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. 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.

In conclusion, the establishment of NEBBRA as a running institution is of utmost importance, as the rest of the mooted plans to be brought into fruition are crucially dependent on this. The top priority of the Government of Assam is to consult the World Bank and seek help to put together a high-level group of internationally reputed experts so that a thorough scientific study can be carried out within a time-bound period of one year. In the meantime, Government of Assam should make sure that the unfinished projects on flood protection are carried out immediately. The Central Government should raise the issue of dam building on Yarlung Tsangpo with China, as these up-stream activities are very likely to have both economic consequences and security implications. The Chief Minister of Assam should raise this issue with the Prime Minister of India at the earliest opportunity.

Revival of Rupsi Airport and Thames barrier

By

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This year 2017 28th Oct at Assam Forum Gt Britain (AFGB) held at Loughborough University, I had the opportunity to deliver two presentations. The first one was update on Revival of Rupsi Airport, the second one was Thames barrier.

The original paper on Revival of Rupsi Airport was presented at AFGB 4th February 2016 in London. I felt it was my duty to let the AFGB know what progress I made on the whole. The list did go like this, email to PM, via a BJP activist in Leicester, CM's right hand person, the media, organisations, outstanding personalities so on and so forth. I was able to say that my avenues still remained open. The appreciation of the audience was remarkable.

My second paper was Thames flood barrier. I was able describe 216 miles the River Thames, originated at Cotswolds, meandered through Oxfordshire, Berkshire, Buckinghamshire, Surrey, ultimately through London to end up in North Sea. It became tidal at Teddington in east London. I mentioned the flood havoc of barrier less London in winter 1959. It suffered catastrophic disaster of Infrastructure of London, damage of property and human life. London took long time to recover from this devastation. Hence the flood barrier at Woolwich came to exist in the year 1984. It was declared open by Queen. This is one and only flood barrier system in the world. I produced slides to represent various designs of this giant structure. The barrier can rise up to five story building to combat massive tidal wave of North Sea. It has got still flood reservoir system with sluice gate to return the excess water back to Thames. The whole idea of presenting this paper was to emulate a modified structure from Thames barrier to be able to fit into river Brahmaputra. A visit by IIT Guwahati experts could to look through this structure to be able to report back to the Government for consideration if present plan of dredging entire river Brahmaputra found to be unsuccessful.