

## **International Dimensions of Cooperation on Flood Management of shared river systems**

Keynote address  
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## **INTRODUCTION**

- The Southern Himalayan Rivers form one of the largest supplies of water in the world.
- They form a natural resource region whose logic is not effaced by political frontiers
- Ganga-Brahmaputra-Meghna (GBM), the second largest River basin of the World, next to the Amazon, as also the Indus River system run through the SAARC Region

## **FLOODS AND DROUGHTS**

- The Indian subcontinent is among the most pronounced monsoon regions of the world.
- Monsoon brings four-fifths of its annual rainfall, between June and September.
- Rainfall not distributed evenly over space / time; heavy spells contribute 90 % of the total rainfall.
- Heavy rain causes floods in many river basins. and dry spells cause seasonal droughts.
- Likely effects of climate change on these patterns are still being debated.

## **Magnitude of the problem**

- The region, particularly that drained by GBM, has faced the onslaught of floods since ancient times.
- The region's countries are low-income economies, & their efforts for economic growth invariably get thwarted by recurring disasters- floods/ droughts.
- GBM, with drainage area, over 1.75 m. sq. km, carries annually a flow of over 1,250 BCM.
- At 1 in 100 probability, the Brahmaputra could carry a peak flow of 100,00 cumec, the Ganga 80,000 cumec and the Meghna 20,000 cumec.

## **Disillusionment**

- All the GBM countries have flood problems. Due to its physiography & terminal location in the basin, Bangladesh bears the brunt of the flooding.
- Vulnerability to natural disasters might be beyond human control. But, human action can profoundly affect their outcome and their effects on people.
- India witnesses the paradox of increasing flood damages. There is disillusionment in India and other SAARC nations, on what has been achieved so far as response to challenges posed by floods.

## **INDIA'S FLOOD DISTRESS - REPORTED STATISTICS**

- Floods annually affect 7.6 million ha of land in India, of which 3.6 million ha are cropped area.
- 33 million people are affected.
- Loss of lives –average 1600 humans and 95,000 heads of cattle.
- The annual loss due to damage to crops, houses and public utilities is put as over 13 billion rupees.
- In high flood years, these averages get multiplied manifold.

## The logic of cooperation in shared systems

- Trans-boundary waters extend hydrological interdependence across national frontiers, linking users of the shared system.
- Vast hydropower potential may exist in one country but its market in the others.
- The real solution to flood problem in one nation may lie in another. The redress to water shortage manifest in one part of a basin may lie in another.
- Complementarities of acting in cooperation and harmony, while safeguarding national interests must be acknowledged.

## LEGACY OF THE PAST

- Expanding developmental cooperation through bilateral and regional efforts made in the past had not been very successful. More so in shared rivers.
- They reflected their fears, divergent perceptions & priorities as also basic development strategies.
- To compound matters, bilateral relations of the past have left a legacy of distrust. The Nations involved do not seem to have recognized the heavy penalty implicit in prolonging national impoverishment for each of them by such attitude.

## EXISTING BILATERAL ARRANGEMENTS

- India & Bangladesh set up in 1972 the Indo-Bangladesh Joint Rivers Commission, with a vast mandate, for effective cooperation in water resource development/management in their region.
- The JRC & its committees implement mutually agreed flood forecasting and warning as well as border river flooding and erosion issues.
- In recent years the JRC and its joint committees have not been effectively used by either nation to solve problems or as envisaged under its statute.

## JRC-continued

- Ganga Waters Treaty 1996 is mainly on sharing of low season flows in the Ganga at Farakka. Unlike the earlier 1977 Agreement, it has no provisions on augmenting the lean season flows of the Ganga or optimum use of the water resources of their region
- No notable progress in JRC on meeting the flood disasters posed by GBM or optimally meeting the water needs of this region in an integrated manner.
- It does not even meet as often as prescribed.

## INDO NEPAL COOPERATION

- Cooperation on the Kosi & Gandak barrage schemes- largely project-specific arrangements.
- Flood forecasting and hydrological and other relevant data exchange were agreed upon
- Nepal considering the possibility of dams on the Karnali-Sarda-Ghagra, Gandak and the Kosi.
- For many years Nepal and India discussed these proposals for mutual benefit. India cooperated in surveys & investigations on some of the proposals.

## Indo-Nepal-continued

- In 1996 Nepal and India signed a Treaty on the integrated development of the Mahakali river. Pancheswar Multipurpose Project is the centerpiece of this Treaty.
- Investigations were already completed and the DPR was to be finalized after some pending issues were resolved. However, for various reasons including internal developments in Nepal, there had been no progress on the agreed arrangements.

### Indo-Nepal-continued

- Field investigations and preparation of a Joint Detailed Project report on Kosi multipurpose dam (with another on the Sunkosi) was agreed to. Due to local conditions not much progress.
- A scheme for cooperation on flood forecasting and warning between India and Nepal is in operation.
- Many border river issues have lingered for long

### INDO-BHUTAN COOPERATION

- The Chukha hydro power project has been a role model for cooperation.
- It was followed up by the second stage of Chukha and the Tala projects. Significant current revenues of Bhutan is from sale of surplus power to India.
- Hydro-meteorological and flood forecasting network of stations in common rivers has been agreed upon and some data is being exchanged
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### INDO- PAKISTAN COOPERATION

- Relations between India and Pakistan have been not very smooth. In water- related issues, it had been always very difficult
- Indus Waters Treaty gave the Indus Commission as a joint forum: It is deemed to have worked, well but there have always been items under serious dispute on Indian schemes permissible under IWT.
- It is a fact that IWT had not enabled optimize the benefits possible by water resource development

### Indo-Chinese cooperation

- There is no existing treaty or other arrangements between Tibet/China and India pertaining to the development and management of shared water resources.
- Only minimal arrangements exist relating to cooperation in flood forecasting in the rivers entering India from Tibet.

### India and China-continued

- In the absence of a robust institutional arrangement, there is no useful information available to India on present and proposed water-related developments and projects on the rivers flowing from the Tibet region.
- China's South to North water diversion project, will have significant consequences to India and Bangladesh. There have been many recent reports in this regard, which cause concern and dismay.

### Converting water to wealth

- Many official and NGO studies exist about the synergetic potentials of cooperative development of South Asian river systems.
- One such brought out that, given a cooperative frame by the countries involved and a variety of trade-offs, development of the water resources and sharing the resultant benefits could be a positive sum game. Each nation will stand to gain more by it than what it can ever hope to achieve on its own, acting independently.

### Converting -continued

- The three-country study team on cooperation in developing the GBM region pointed out that-
- “ The waters of the Ganga, Brahmaputra and Barak/Meghna constitute an abundance of wealth and energy that must be creatively and cooperatively used.
- It added that- “We can move forward together towards a better future or suffer the privation of self-abnegation while the world marches on. The choice is obvious.”

### THANK YOU

- A start on taking the cooperative joint action is already overdue.
- I am grateful to the organisers for inviting me to give the keynote address
- Also, many thanks to you all.