

## Management and co-sharing of trans-boundary water resources: a concern for water security in the SAARC



The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) published in 2007, for the first time, identified regions most likely to be affected by climate change. The most vulnerable regions are the Arctic, because of high rates of projected warming on sensitive natural systems; Africa, especially the Sub-Saharan Region, because of low adaptive capacity and projected changes in rainfall; Small Island States, because of high exposure of the population and infrastructure to the risk of sea-level rise and increased storm; and Asian mega-deltas such as the Ganges-Brahmaputra and Mekong, because of their large populations and high exposure to sea-level rise, storm surges, and river flooding (IPCC 2007). Meanwhile, these changes are already having impacts on the lives and livelihoods of millions of people living in Asian Mega deltas.

### Impacts of climate change will affect existing water resources and would lead to conflict over the management of water resource in the South Asian countries.

Over 70 percent of South Asia's annual precipitation occurs in a brief four-month monsoon period. A buoyant monsoon heralds bountiful harvests and financial security, yet when the monsoons fail, or are excessive, suffering and economic loss is widespread. If climate projections are indicative of future trends, the risks associated with water-related climate variability are likely to worsen. The runoff is expected to change significantly, with implications for agriculture. The Indus and Ganges/Brahmaputra basins are expected to experience increased runoff driven by precipitation changes and glacial melt.

After the glacial melt, however, there could be significant declines in flows. By 2050, the annual runoff in the Brahmaputra is projected to decline by 14 percent and the Indus by 27 percent (IPCC 2001). Such outcomes will be further complicated by changes in water use in the basins including diversions, groundwater-surface water interactions, and increased demands for irrigation, hydropower, industrial, and municipal water supplies by the increasing population.

### The greater part of the South Asian region enjoys similar hydro-metrological pattern influenced by 'monsoon' and shares fresh water flows originated from the Himalayans thus retreat of Himalayan glaciers will affect the entire region.

The Himalayas are a vital life-sustaining resource for South Asia. The Himalayan ecosystem supports some 1.5 billion people who live directly in the floodplains of its many rivers (e.g. Indus, Ganges, Brahmaputra, and Meghna). With the rising of temperatures the ice mass of the Himalayas and Hindu Kush is retreating more rapidly than the global average. This poses an unprecedented threat to water supplies, lives, and the economies of the region. Glaciers melting would increase flood risks in the near future. In the long term, there can be no replacement for the water provided by glaciers, which could result in water shortages at an unparalleled scale. Agriculture and the region's economic structure will need to undergo significant adjustment to cope with these changes.

### Sea Level Rise could have a significant impact on the low-lying coastal systems, and islands.

Along with other extreme weather events like flooding and tropical cyclone, sea level rise is an impending threat to the coastal areas in Bangladesh which has long and densely populated coastlines with many low-lying remote islands. In the severe climate change scenario, sea level rise poses an existential threat that would inundate 18 percent of Bangladesh's total land, directly impacting 11 percent of the country's population. Salt water intrusion from sea level rise in low-lying agricultural plains, along with other hazards, could lead to 40 percent

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decrease in food grain production and would increase forced migration to the urban slum areas. Prediction shows that 1 meter sea level rise by 2100 would inundate 17 percent of country's land mass. Estimates show that with just a 1 to 2 degree increase in temperature would force physical dislocation of more than 35 million people in Bangladesh. It's a question of survival for such low-lying coastal countries and low-lying islands nations, for instance it's a concern of existence of the people of the Maldives that are located only few meters above sea level. About 85 per cent of the Maldives' main island, which contains the capital Male, would be swamped. Most of the Maldives would be turned into sandbars, forcing 300,000 people to flee to India or Sri Lanka. It's a question of survival for such low-lying coastal countries and low-lying islands nations.

### **Global policy discourses and responses those underscored impacts of climate change on water resources.**

In this context I must to mention the Nairobi work programme on impacts, vulnerability and adaptation to climate change based on which the Subsidiary Body for Scientific and Technological Advice (SBSTA) of the UNFCCC prepared a technical paper (FCCC/TP/2008/3, 20 November 2008) for the developing countries, particularly for the least developed countries and small island developing States. **Para 158 of the technical paper noted that the;**

*'Adverse effects of climate change on freshwater systems will aggravate the impacts of other stresses, such as population growth, changing economic activity, land-use change and urbanization. Importantly, the interaction of physical and socio-economic stresses can create conflict over water use, as competing priorities over water for drinking and household use, irrigation and industry collide. Sectors that are already under stress will especially suffer, such as agriculture where 70 per cent of global water use*

*is already dedicated to sustaining agricultural production'*

In this backdrop Para 159 of the paper highlighted requiring of integrated water resource management across river basins as freshwater systems cut across administrative boundaries. And physical and socio-economic stresses in one country will affect water supply in neighboring countries,. This issue is particularly prominent in South Asia and African countries, where many of the river basins are transboundary, and increased water scarcity could therefore result in conflict in many countries.

Here, this is to mention that most of the South Asian countries shares rivers with the neighboring country, so changes in upstream runoff and demand due to climate change, could significantly impact future water availability across the region.

### **Importance of negotiation on the trans-boundary water resources in**

**SAARC:** Adaptation to climate change might therefore require not just local action but also cross-boundary cooperative arrangements. Partnerships and coordinated approaches provide a cost effective way of adapting to the impending regional climate related risks. In line with the context of Nairobi Work Programme and UNFCCC Technical Paper, we have to create scope under SAARC for negotiation on the management and co-sharing of water resources of trans-boundary Rivers. Along with other actions, regional initiative on the management of trans-boundary water resources would address water insecurity in the long run; and this requires special attention in the upcoming SAARC summit.

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