



The South-Asian region is one of the most populous regions of the world. About half of this region is covered by the basins of three of the largest rivers of the world namely: the Ganges, the Brahmaputra and the Meghna. This area covered by the basins of the three rivers termed as GBM region comprises parts of China, India, Nepal, Bhutan and Bangladesh. Ironically, the GBM region is among the poorest and most depressed in the world despite its rich natural endowments of land, water and people. A large number of people of the area live below poverty line. Land man ratio and per capita food grain availability are steadily declining.

It is a predominantly agricultural region and farming is central to the economy of all the national and federal units despite some industrial overlay. Agricultural yields are well below their potential and unable to generate the income, employment and surpluses needed to stimulate industrial investment. As bulk of the energy requirement is met by fuelwood, there is massive deforestation in the region. Because of large-scale use of agricultural residues and animal waste as energy source by the millions of poor, the availability of organic fertilisers have reduced greatly in the area. This has prompted increased use of chemical fertiliser, which is causing harm to soil, drinking water, fishery and livestock.

The flows in the Ganges, Brahmaputra and Meghna are highly seasonal and heavily influenced by the monsoon rainfall. More than 80% of the total rainfall over the GBM region occurs during only four monsoon months from June to September. The rainfall in other months is insignificant. As a result the rivers in the region swell to brims and often overflow during the monsoon months.

On the other hand during dry months (Nov. - May) the flows in the rivers reduce dramatically and many of the smaller rivers become totally high and dry. The region, therefore, faces two major hazards: floods during the monsoon and scarcity of water during the dry season. These hazards become more pronounced in the downstream regions particularly in Bangladesh which is the lowest riparian of the Ganges, Brahmaputra and Meghna rivers. Overabundance and scarcity of water are the two perennial impediments frustrating the overall development efforts in the GBM region.

These large rivers provide substantial social and economic benefits to a significant number of people, particularly in the developing or industrialising regions. Fisheries in these large rivers, and their associated wetlands, provide a source of food, employment and/or income that is crucial to sustaining the livelihoods of multitudes of people, particularly the rural poor. Many of these fisheries are of national economic importance and/or are crucial to local or even regional food security. These benefits remain universally under-valued and are often ignored in management actions that have an impact upon them.

Large rivers and their associated wetlands are among the most endangered ecosystems on earth. They suffer the immediate and long-term impacts of a multitude of human activities including damming, channelization, wetland loss and catchment disturbances which result in degradation in water quantity, quality and the timing of hydrological events. The escalating extraction of water to satisfy an ever-growing need for drinking and for irrigated agriculture aggravates an already critical situation. These effects seriously undermine the viability of river systems and the aquatic life they support. Many large rivers have already passed the crisis point and are now the target for rehabilitation, whilst almost all others are poised on the brink of collapse as functioning ecosystems.

Large rivers support a significant proportion of the earth's aquatic biodiversity. Species richness within some tropical systems surpasses that of marine ecosystems, including coral reefs. Additionally, associated semi-aquatic/terrestrial habitats, such as seasonally flooded forests, are an integral part of river ecosystems and sustaining the water resources is a pre-requisite for sustaining them. Testament to the vulnerability of rivers and associated wetlands, and the urgent need for improved management, is the fact that almost all of the IUCN listed vulnerable or extinct fishes are from freshwaters or, for migratory species, are chiefly vulnerable at the freshwater stage of their life cycle. It is estimated that 20% of the world's freshwater fishes are in danger of extinction or in need of urgent conservation efforts. Some rivers, as the result of mismanagement, have the unfortunate distinction of being the only major ecosystems yet to achieve the status of being termed "biologically dead". Requirements for sustaining biodiversity and fisheries in rivers are integrally linked through a mutual need for improved management of both habitats and exploitation.

Therefore,

- Noting that rivers are one of the most important elements of nature;
- Observing that rivers are pro-genitors of eco-systems, and each river gives rise to a unique eco-system in its basin;
- Recognizing that diversity of the eco-systems is an integral characteristic and possibly the most attractive aspect of nature;
- Noting that rivers gave rise to civilizations, that river valleys continue to have centuries old culture, that river valley populations have built up a life based on the land, water, forests, and fisheries that rivers and their floodplains provide, so that these populations have inalienable riparian rights to the river resources and to planning processes that harness and use these resources;
- Observing that people in pre-industrial ages by and large had a harmonious relationship with rivers, reaping their benefits without trying to contravene their natural courses and flows;
- Realizing that industrialization has greatly enhanced human technological and engineering capability to intervene in nature;
- Observing that enhanced technological capability of industrial societies has led to the *Commercial Approach* to rivers according to which rivers need to be 'conquered' and 'consumed' at any economic, social, human, and environmental costs;
- Noting that the Commercial Approach has led to the tragic notion that 'any river water passing to the sea is a waste';
- Observing that the Commercial Approach led to structural interventions into major rivers in the form of dams, barrages, and canals for abstraction of large volumes of water, and that the benefits of such interventions have been associated with huge and unjustifiable costs, as brought out by the *World Commission on Dams (WCD)*.
- Noting that the large-scale interventions inspired by the Commercial Approach lead to centralized decision making, depriving the river valley populations of their rights to determine the best use of the river resources;

- Observing that the Commercial Approach to rivers and its implementation first progressed in developed industrial countries;
- Noting that encouraged by the examples of developed countries, developing countries also embraced the Commercial Approach and set on a course of structural interventions in rivers, so much so that China and India together now account for 57 percent of all dams in the world;
- Observing that the enthusiasm for structural interventions in rivers continues to reign in developing countries, as exemplified by the Three Gorges Project on *Yangtze* River in China;
- Noting that the Indian River Linking Project (IRLP) is a culmination of the Commercial Approach, and that it beats all other river intervention projects in terms of its scope and size as it envisages simultaneous interventions in several major rivers of the world;
- Noting that IRLP envisages transfer of 334 billion cubic meters of water by constructing 30 inter-river links, involving 36 big dams, 94 tunnels, and 10,876 kilometer of canals, costing about \$215 billion, by preliminary estimates;
- Observing that the Himalayan component of IRLP directly involves such transboundary rivers as the *Brahmaputra* and the *Ganges*;
- Observing further that the Peninsular component of IRLP is connected with the Himalayan component via the *Ganga-Damodar-Subarnarekha*, *Subarnarekha-Mahanadi*, and *Mahanadi-Godabari* Links;
- Noticing that IRLP's main objective is to transfer water from the *Ganges* and *Brahmaputra* basins, which it considers to be 'surplus' in water, to western and southern (Peninsular) river basins, which it considers to be 'deficit' in water;
- Noting that ecologically the concept of some rivers being water 'surplus' and others water 'deficit' is erroneous, because specific to the eco-system generated by a river, its water is neither surplus nor deficit, and large scale water transfer from one river basin to another have long term deleterious effects on the ecology of both river basins;
- Observing that even from a non-ecological point of view, the notions of water 'surplus' and 'deficit' are not absolutes, as regarded by IRLP, and are rather relative notions depending on both supply and demand conditions, which are themselves amenable to conscious policy influence;
- Being aware that the record of large scale river intervening projects in alleviating problems of flood and draught is poor, as the experience of both India and China shows;
- Observing that surface water irrigation based on publicly financed large scale nature-defying river intervention projects generally lead to waste and misallocation of resources in terms of crop and technology choice, and often leads to new problems of water logging, salinity, and pollution;
- Noting that hydropower generated by Dams is neither clean nor cheap when all the long-term economic, social, environmental, and human costs are taken into consideration, and that power needs can be satisfied through harnessing renewable energy sources (such as wind and solar power), alternative cleaner fuel (such as natural gas), and through conservation in use of energy;

- Noting that structural interventions inspired by the Commercial Approach damage the river potential with respect to navigation and fisheries;
- Realizing that the Commercial Approach leads to a situation of ‘Beggar-Thy-Neighbor’ rivalry among co-riparian countries (states), often characterized by a vicious race to abstract water as much possible, a race that proves to be a ‘race to kill’ the rivers, causing serious injustice to the river valley populations and having adverse impact on the downstream areas;
- Noting that the Commercial Approach to rivers leads to ‘Tragedy of Commons’ situation for sea, because the ‘race-to-kill’ the rivers leads to serious diminution of water flowing into the sea, causing severe damage to the marine eco-system, giving rise to sea-ingress leading to increased salinity of both land and water;
- Observing that in view of the mostly negative experience, a realization has dawned that large scale nature-defying interventions in rivers ultimately do more harm than good, and based on this realization a new *Ecological Approach* to rivers has emerged in the developed countries;
- Noting that inspired by the Ecological Approach more than 500 dams have already been decommissioned in the United States, enabling the restoration of fisheries and riverine ecological processes;
- Noting that the Ecological Approach does not negate use of rivers as resources and instead urges harvesting river resources in a sustainable way within river basins without contravening the natural course and flow of rivers;
- Observing that adoption of the Ecological Approach can actually be a better way in reaping the benefits of river;
- Observing for example that the meager amount of power generated by the *Kaptai* dam in Bangladesh has been obtained at much social, human, and environmental costs resulting from submergence of a large part of the tribal homeland, sowing thereby the seeds of tribal insurgency that caused Bangladesh much in terms human lives and financial resources;
- Observing that the *Farraka* barrage, while causing irreparable damage to the economy and ecology of Bangladesh, has proved to be hardly of any benefit to India in terms of increased navigability of the *Kolkata* port; that *Farakka* instead has now become an engineering and financial liability; that *Farakka* is disrupting the pre-existing ecological balance in the *Bhagirathi-Hoogly* basin and is often creating water-logging; that, by creating upstream water pressure, *Farakka* has now become the source of flooding in Bihar, so much so that there is now a strong people’s movement there to demolish *Farakka* barrage; that *Farakka* has become a sore point in Indo-Bangladesh relationship, serving as a stumbling block on the way to fruitful cooperation between these two countries in many other areas;
- Noting that the Commercial Approach has also spawned the Cordon Approach to rivers practiced extensively in Bangladesh and many parts of India, particularly in Bihar;
- Observing that while in deltaic conditions, river channel and floodplain constitute one organic whole, the Cordon Approach strives to separate the two through solid embankments along rivers;

- Noting that projects of the Cordon Approach have proved to be lose-lose propositions, increasing flood intensity and bringing in devastation for people outside the cordons, while depriving people inside cordons from the benefits of regular inundation with regard to soil revitalization, recharge of surface water bodies and ground water table, fisheries, navigation, irrigation, moisture retention, temperature balance, environmental cleansing, etc.
- Observing that perennial water-logging inside *Dhaka-Narayanganj-Demra (DND)* project, recent havoc caused by breaches in the *Gumti, Kikri, and Brahmaputra Right Hand* embankments, 2004 deluge of Dhaka city provide ample evidence of the perils associated with the Cordon Approach; observing further that the decay of the fabled *Chalan Bil* and its unique aqua ecology in Rajshahi-Pabna-Bogra districts of Bangladesh is a direct consequence of the *Brahmaputra Right Hand Embankment Project*; noting that decay of surface water bodies in different parts of Bangladesh is in part a result of the Cordon Approach;
- Noting that the South Asian people have a long and deep tradition of revering rivers as mothers; that the river *Ganges* is worshipped by many in India; that Bangladesh itself is called a ‘*nodimatrik desh,*’ i.e., a country which was born of rivers; that the name of the river *Brahmaputra* means ‘Son of *Brahma,*’ the Hindu God of creation; that the economy and culture of much of South Asia have evolved around rivers and center around land, water, and forests of the river basins;
- Observing that while the Commercial Approach and the efforts inspired by this approach to block and divert water have led to sub-regional conflicts within a country (such as conflicts among states within India), and that similar efforts have made transboundary rivers a source of contention among neighboring countries, the Ecological Approach can make these rivers bonds of neighborhood friendship and mutual benefit;
- Being aware that proceeding from the Commercial Approach, the governments of South Asian countries have failed to produce encouraging results with regard to reaping the transboundary river resources for mutual benefit;
- Realizing that people’s movement in South Asian countries can persuade the governments of the respective countries to adopt the Ecological Approach and thereby can be of much help in reaping the benefits of the transboundary rivers;

Recommendations

South Asian Network for Social & Agricultural Development (SANSAD) recommends

At the International Level

- That all countries of the world abandon the Commercial Approach to rivers and adopt the Ecological Approach.
- That countries who have progressed along the Ecological Approach enhance their efforts to disseminate the benefits of this approach;
- That developing countries conduct review of their Commercial Approach inspired water projects in order to determine which of these need to be decommissioned;
- That multilateral lending agencies, mostly based in developed countries, refrain from promoting and funding water projects inspired by the Commercial Approach to rivers;
- That international efforts are strengthened to protect the rights of co-riparian countries, in particular the rights of the lower-riparian countries;
- That international efforts are made to minimize abstraction of river water and to retain as much as possible of the natural flow of river water to the sea;
- That international efforts are made to reduce pollution of rivers and of river water flowing into the sea;
- That more close connections be built up among various national and regional movements working for the Ecological Approach to rivers;
- That SANSAD reaches out to international organizations that shares and promotes the Ecological Approach to rivers and establishes relationship of solidarity with them;

At the Regional Level

- That countries of South Asia abandon the Commercial Approach to rivers and embrace the Ecological Approach;
- That the South Asian countries undertake a thorough review of the benefits and costs (including human and environmental costs) of their already implemented Commercial Approach inspired river intervening projects in order to determine which of these need to be decommissioned; that in conducting such reviews repercussions beyond individual nation states are given due consideration;
- That the governments of South Asian countries make all information regarding the experience of the river-intervening projects available to the public so that it can participate in the reviewing process on an equal footing;
- That the government of Bangladesh and India (and other countries of the region to which it applies) assess the record of the Cordon projects, involving solid embankments along rivers, and involve the civil society in this exercise by providing it with all the necessary information;

- That the government of India undertakes a review of the *Farakka* barrage, including the issue of its decommissioning;
- That India refrains from proceeding with other water diversionary projects on transboundary rivers along the border of Bangladesh;
- That India addresses legitimate concerns of Nepal regarding transboundary rivers shared by the two countries;
- That the government of India realizes that IRLP is based on an ecologically unsound premise and stops proceeding further with the Himalayan component of the project, as it additionally affects the flows of transboundary rivers directly;
- That even with regard to the Peninsular component, the government of India heeds to the concerns that have been expressed on the ground of ecological, social, economic, financial, and human considerations;
- That Bangladesh puts on hold the idea of a *Padma* Barrage, and instead tries to persuade India to restore the natural pre-*Farakka* flow of the *Padma* river;
- That in the meantime the countries of South Asia try to reap the benefits of the rivers following the Ecological Approach, harnessing thereby the water, land, and forests of the river catchment basins beginning with the smallest unit in the watershed and limiting it to the river basin in such a way as to ensure minimum displacement of people and environmental damage;
- That even in implementing Ecological Approach consistent water projects, governments of all South Asian countries followed the principle of prior informed consultation of the local communities requiring the project authorities to demonstrate public acceptance; that in each case various options to utilizing river water be assessed, and only such option be adopted that has no or minimum socio-ecological harm and that is most effective in fulfilling the developmental goals of equity, justice, energy-security, and ensuring food, water, and shelter; that the project-affected populations in a river valley is rehabilitated, with alternative livelihood and habitat, before undertaking any project entailing displacement of people;
- That in particular South Asian countries emphasize water conservation through appropriate choice of crops to grow, method of irrigation (with particular emphasis on sustainability and potentiality of rain-fed agriculture), settlement pattern, life-style, industrial technology, etc.
- That people-to-people contact among South Asian countries be enhanced;
- That in order to facilitate and sustain people-to-people contact and to foster the Ecological Approach to rivers in South Asia, an alliance of peoples' organizations agreeing on this approach be launched, and that organizations belonging to this alliance will promote a sustainable, equitable, and decentralized approach to water management, asking for more equitable and restrained distribution and utilization of water resources, reducing the losses and settling the priorities correctly;

At the National Level

- That Indians be made aware about the importance of rivers for her economy and ecology and the threat that these rivers face;
- That while demanding fair treatment from the upper riparian countries, India realizes that she has much to do right with respect to her rivers within her own borders;
- That, in particular, India stops immediately further pollution of her river by industrial effluent, chemical runoff from agriculture, urban waste, etc.
- That, in particular, India stops immediately further encroachment, legal or illegal, of rivers and other water bodies;
- That India abandons the Cordon Approach, which derives its inspiration from the Commercial Approach, and embraces the Open Approach, which is consistent with the Ecological Approach under deltaic conditions;
- That India undertakes a review of all major Commercial Approach projects already in place and identifies the most egregious ones for decommissioning;
- That India refrains from going ahead with any further Commercial projects;
- That in particular, the government of India undertakes a review of the costs and benefits of each and every Dam project;
- That India undertakes a major campaign of excavation and re-excavation of all her surface water bodies, including rivers, with the primary goals of mitigation of flood in monsoon and retention of water in the dry season;
- That India makes the best use of the monsoon precipitation occurring within her own borders so as to minimize her dependence on the inflows carried by the transboundary rivers.