



WATERSHED DEVELOPMENT AND RIVER LINKING PROGRAMM IN INDIA: ISSUES AND CHALLENGES

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ABSTRACT

Water is undoubtedly the most important natural resource on the planet, as it sustains all aspects of life in a way that no other resource can. United Nations agencies and the World Bank have claimed that these scarcities will escalate in the future, creating serious problems for humankind and the environment. India needs to adopt a crystal-clear water mission that can help us to use available water resources to fields, villages, towns and industries round the year, without harming our environment. Keeping in mind the increasing demand for water, the government of India has developed a new National Water Policy which claims that water is a prime natural resource, a basic need and a precious national asset. India's National Water Development Agency has suggested the watershed management and river linking program in India. This proposal is better known as the inter-river Linking Project (IRL). It is a mega project that engages money, resources, engineering, management and human understanding. It is designed to ease water shortages in western and southern India and aims to link 30 major rivers. It will also involve diverting the Ganges and the Brahmaputra – two of India's biggest rivers. It is estimated to cost US \$ 123 billion (as per 2002) and, if completed, would be the single largest water development project anywhere in the world. It is expected that properly planned water resource development and management could alleviate poverty, improve the quality of life, and reduce regional disparities, better law and order situation and manage the integrity of the natural environment. The core objectives of the paper are to understand the historical background of Watershed Development Program and Interlinking River Projects in India to discuss issues and challenges.

Keywords: Watershed Development Program, Interlinking River, issues and challenges.

INTRODUCTION

The Watershed Development Programme (WDP) initially envisaged as a measure for poverty alleviation and improved livelihoods has gained even greater importance in light of the worldwide recognition of its effectiveness in combating climatic change. In India several Ministries namely, Ministry of Agriculture, Ministry of Rural Development and Ministry of Environment and Forests, National Water Development Agency have been involved in Watershed Development Programs and river linking project with substantial variation in their approaches. The Ministry of Rural Development had been coordinating sector-wise flagship schemes such as IWDP, DPAP and DDP under Watershed Development Programmes. The main objective of the WDP was to improve water conservation, irrigation facility, and land use pattern leading to increased agricultural productivity in drought prone and desert prone areas. Poverty reduction, better livelihoods and improved bio-physical and socio-economic environment would bring about sustainable development.

History of Watershed Development Program in India

About 60 per cent of total arable land (142 million ha) in India is rain-fed, characterized by low productivity, low income, low employment with high incidence of



poverty and a bulk of fragile and marginal land (Joshi et al. 2008). Rainfall pattern in these areas are highly variable both in terms of total amount and its distribution, which lead to moisture stress during critical stages of crop production and makes agriculture production vulnerable to pre and post production risk. Watershed development projects in the country has been sponsored and implemented by Government of India from early 1970s onwards. The journey through the evolution of watershed approach evolved in India. Various watershed development programs like Drought Prone Area Program (DPAP), Desert Development Program (DDP), River Valley Project (RVP), National Watershed Development Project for Rain-fed Areas (NWDPR) and Integrated Wasteland Development Program (IWDP) were launched subsequently in various hydro-ecological regions; those were consistently being affected by water stress and draught like situations. Entire watershed development program was primarily focused on structural-driven compartmental approach of soil conservation and rainwater harvesting during 1980s and before. In spite of putting efforts for maintaining soil conservation practices (example, contour bunding, pits excavations etc.), farmers used to plow out these practices from their fields. It was felt that a straight jacket top-down approach cannot make desired impact in watersheds and mix up of individual and community based interventions are essential. The integrated watershed development program with participatory approach was emphasized during mid 1980s and in early 1990s. This approach had focused on raising crop productivity and livelihood improvement in watersheds (Wani et al. 2006) along with soil and water conservation measures. The Government of India appointed a committee in 1994 under the chairmanship of Prof. CH Hanumantha Rao. The committee thoroughly reviewed existing strategies of watershed program and strongly felt a need for moving away from the conventional approach of the government department to the bureaucratic planning without involving local communities (Raju et al. 2008).

The new guideline was recommended in year 1995, which emphasized on collective action and community participation, including participation of primary stakeholders through community-based organizations, non-governmental organizations and Panchayati Raj Institutions (PRI) (GoI, 1994, 2008; Hanumantha Rao et al. 2000; DOLR, 2003; and GoI, 2008; Joshi et al. 2008). Watershed development guidelines were again revised in year 2001 to make further simplification and involvement of PRIs more meaningful in planning, implementation and evaluation and community empowerment (Raju et al. 2008) and guidelines were issued in year 2003 (DOLR, 2003). Subsequently, Neeranchal Committee (in year 2005) evaluated the entire government-sponsored, NGO and donor implemented watershed development programs in India and suggested a shift in focus “away from a purely engineering and structural focus to a deeper concern with livelihood issues” (Raju et al. 2008). Major objectives of the watershed management program are:

- 1) Conservation, up-gradation and utilization of natural endowments such as land, water, plant, animal and human resources in a harmonious and integrated manner with low-cost, simple, effective and replicable technology.
- 2) Generation of massive employment.
- 3) Reduction of inequalities between irrigated and rain-fed areas and poverty alleviation.



Interlinking River Project

The interlinking of rivers has two components: the Himalayan component and a peninsular one. All interlinking schemes are aimed at transferring of water from one river system to another or by lifting across natural basins. The project will build 30 links and some 3000 storages to connect 37 Himalayan and Peninsular rivers to form a gigantic South Asian water grid. The canals, planned to be 50 to 100 meters wide and more than 6 meters deep, would facilitate navigation. The estimates of key project variables - still in the nature of back-of-the-envelope calculations - suggest it will cost around US \$ 123 billion (or Indian Rs 560,000 crores, at 2002 prices), handle 178 km of inter-basin water transfer/per year, build 12,500 km of canals, create 35 giga watt of hydropower capacity, add 35 million hectares to India's irrigated areas, and create an unknown volume of navigation and fishery benefits. Similarly, 3700 mega watt would be required to lift water across major watershed ridges by up to 116 meters.

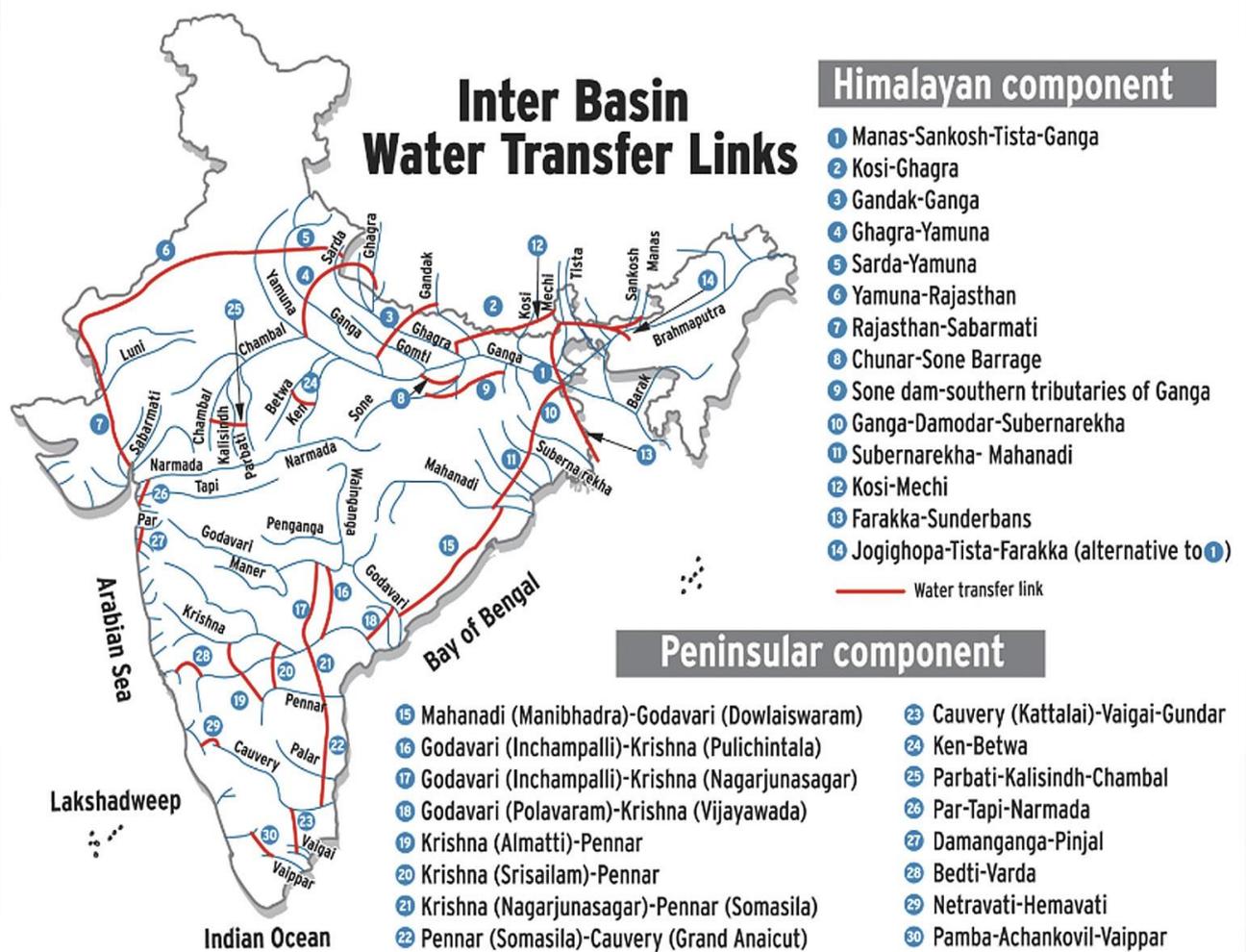
The majority of observers agree that the Project may not be in operation even by 2050.

Major advantages of ILR

- Create the potential to increase agricultural production by an additional 100 per cent over the next five years;
- Avoid the losses of the type that occurred in 2002 to the extent of \$550 million by the loss of crops because of extreme draught or flood condition;
- Save \$ 565215000 a year in foreign exchange by avoiding importing oil;
- Unify the country by involving every Panchayat as a share holder and implement agency;
- Provide for enhancing the security of the country by an additional waterline of defense;
- Provide employment to the 10 lakh people for the next 10 years;
- Eradicate the flooding problems which recur in the north-east and the north every year;
- Solve the water crisis situation by providing alternative, perennial water resources;
- The large canals linking the rivers are also expected to facilitate inland navigation too;
- Increasing food production from about 200m tones a year to 500m;
- Boost the annual average income of farmers, from the present \$40 per acre of land to over \$500.

Major disadvantages of ILR

- Environmental costs (deforestation, soil- erosion, etc.)
- Rehabilitation: not an easy task
- Social, Psychological damage due to forced resettlement of local people
- Political effects: strained relationship with neighbors (Pakistan, Bangladesh)



Issues and challenges

Inter-River Linking Project involves multifaceted issues and challenges related to economic, ecological, and social costs. On this note, Iyer very sharply states that “We have had great difficulty in completing even a single project successfully and we want to embark on thirty massive projects at the same time.” IRL project has caused much anger and protest in our neighboring nation, Bangladesh. It is grappled with fear that diversion of water from the Brahmaputra and the Ganges, which provide 85% of the country’s fresh water flow in the dry season, would result into an ecological disaster. Indian National Water Development Agency plans to dig hundreds of reservoirs and more than 600 canals. This may trigger an alarm among environmentalists to raise their voice against this plan. Environmentalists are quite concerned about the ecological impact of the project of such huge magnitude. Shiva (2003) very aptly remarked that the water flowing into the sea is not waste; it is a crucial link in the water cycle. With the link broken, the ecological balance of land and oceans, freshwater and sea water, also gets disrupted Shiva considered ILR violence to nature: “Violence is not intrinsic to the use of river waters for human needs. It is a particular characteristic of gigantic river valley projects which work against, and not with, the logic of the river.” As this project is of massive estimated cost, a long term planning and a sound financial simulation are required to meet the standard of due diligence for such proposals.



The huge expenditure may likely generate fiscal problems that are difficult to handle. The maintenance cost and physical position of the dams, canals, tunnels, and captive electric power generation will also involve huge financial burdens. This certainly requires financial assistance from the private sector, as well as global capital agencies. Mobilization of global capital may ultimately entail the risk of destroying social welfare measures. The rehabilitation of project-affected people in water infrastructure projects will also pose a burning question before the concerned authorities. The construction of reservoirs and river linking canals in the peninsular component alone expect to displace more than 583,000 people and submerge large areas of forest, agriculture and non-agriculture land. Transfer of water is bound to be unacceptable as no state is likely to transfer water to another foregoing possible future use of such water. Domestic and regional geo-politics play a pivotal role on the discussions on ILR. As of now, there is no mechanism as of now to deal with matters concerning inter-basin transfers. There are also important institutional and legal issues to be sorted out. As per the latest information disclosed in the Indian Parliament, Union Minister of Parliamentary Affairs and Water Resources informed the house that NWDA has spent Rs 350.5 crores on various Inter-River Linking Project (IRL) studies up to February 2012 and Water Resource Ministry had not received certified copy of guidelines, as issued by the Hon'ble Supreme Court of India. Some of the ILR (inter-linking of rivers) schemes have international implications, with a possible impact on countries like Bhutan, Nepal and Bangladesh. Each of the 30 schemes of the ILR is supposed to get through several statutory, legal and procedural steps. None of the schemes have gone through any of it. The Union ministry of environment and forests has already said no to the project. No state is ready to give water to another state. In India's constitution, water is essentially a state subject. Several states including Kerala, Andhra Pradesh, Assam and Sikkim have already opposed ILR projects. There will be several environmental impacts of ILR including submergence of land and forests, destruction of rivers, aquatic and terrestrial biodiversity, downstream impacts, destruction of fisheries, salinity ingress, pollution concentration, destruction of groundwater recharge and increased methane emission from reservoirs, among others. Unfortunately there is no comprehensive assessment of all such possible impacts for a single link in any credible way. Assembly line, rolling increasingly toward the goal of unlimited production.

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