

# Strategic Analyses of the National River Linking Project (NRLP) of India

## Series 1

India's Water Future: Scenarios and Issues

Upali A. Amarasinghe, Tushaar Shah and R. P. S. Malik, editors



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Linking Project (NRLP) of India  
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INTERNATIONAL WATER MANAGEMENT INSTITUTE

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# Preface

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In 2005, the International Water Management Institute (IWMI) and the Challenge Program on Water and Food (CPWF) started a three-year research study on “Strategic Analysis of India’s River Linking Project”. The primary focus of the IWMI-CPWF project is to provide the public and the policy planners with a balanced analysis of the social benefits and costs of the National River Linking Project (NRLP).

The project consists of research in three phases. Phase I analyzed India’s water future scenarios to 2025/2050 and related issues. Phase II, analyses how effective a response NRLP is, for meeting India’s water future and its social costs and benefits. Phase III contributes to an alternative water sector perspective plan for India as a fallback strategy for NRLP. This book presents the findings of research in Phase I.

In 1999, the National Commission of Integrated Water Resources Development (NCIWRD) published projections of India’s water supply and demand to 2025/2050. The trends of key drivers before 1990’s were the basis for this projection. However, with economic liberalization, the trends of these key drivers changed in the 1990’s. Therefore, the major focus of research in phase I was to assess the trends and turning points of the key drivers in recent years and assess their implications on future water supply and demand.

This volume, the first in a series of publications, presents the results of various research activities conducted in Phase I on India’s Water Futures. Many papers in this book were presented in various regional and national workshops between 2006 and 2007. And, different versions are submitted for publication in various journals.

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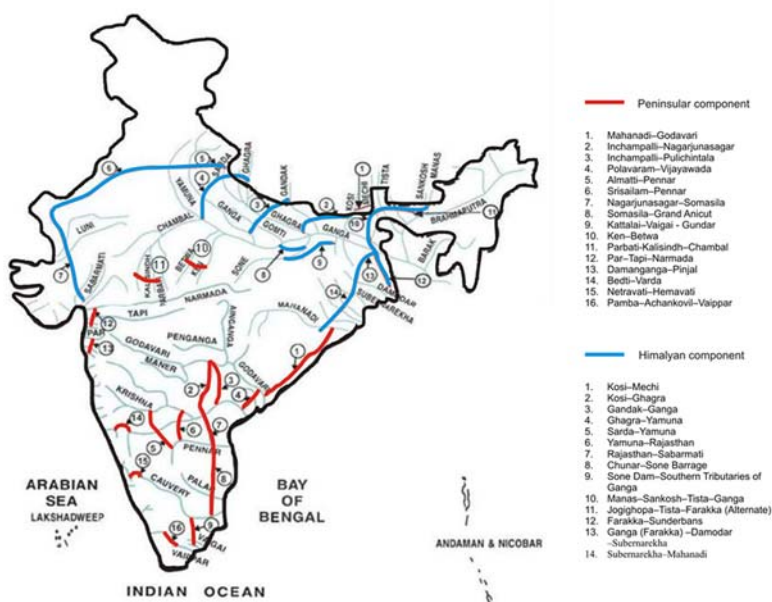


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# India's National River Linking Project - A Synopsis

The National River Linking Project (NRLP) envisages transferring water from the surplus river basins to ease the water shortages in western and southern India while mitigating the impacts of recurrent floods in eastern India. NRLP constitutes two basic components — the links which will connect the Himalayan rivers and those which will connect the peninsular rivers (figure 1). When completed, the project would consist of 30 river links and 3,000 storage structures to transfer 174 km<sup>3</sup> of water through a canal network of about 14,900 km.

**Figure 1.** The Himalayan and peninsular components of NRLP project.



## Components of the NRLP

The Himalayan component proposes to transfer 33 km<sup>3</sup> of water through 16 river links. It has two subcomponents linking:

1. Ganga and Brashmaputra basins to Mahanadi basin (links 11-14), and
2. Eastern Ganga tributaries and Chambal, Sabramati river basins (links 1-10).

The Peninsular component proposes to transfer 141 km<sup>3</sup> water through 14 river links. It has four subcomponents linking

1. Mahanadi and Godavari basins to Krishna, Cauvery and Vaigai rivers (links 1-9);
2. West-flowing rivers south of Tapi to north of Bombay (links 12 and 13);
3. Ken River to Betwa River and Parbati, Kalisindh rivers to Chambal rivers (links 10 and 11); and
4. some west flowing rivers to the eastern rivers (links 14 -16).

## Project Benefits

The NRLP envisages to:

- provide additional irrigation to 35 million ha of crop area and water supply to domestic and industrial sectors;
- add 34 GW of hydro-power potential to the national grid;
- mitigate floods in eastern India; and
- facilitate various other economic activities such as internal navigation, fisheries, groundwater recharge, environmental flow of water-scarce rivers etc.

The NRLP, when completed, will increase India's utilizable water resources by 25 %, and reduce the inequality of water resource endowments in different regions. The increased capacity will address the long ignored issue of increasing India's per capita storage, which currently stands at a mere 200 m<sup>3</sup>/person as against 5,960; 4,717 and 2,486 m<sup>3</sup>/person for the US, Australia and China, respectively.

## Project Costs

The NRLP will cost more than US\$120 billion (in 2000 prices), of which

- the Himalayan component costs US\$23 billion,
- the Peninsular component costs US\$40 billion, and
- the hydro-power component costs US\$58 billion.

## *Contentious Issues*

The NRLP has many contentious issues to tackle, and these include the following:

- Resource mobilization, despite the fact that India finds it difficult to finance the completion of even the existing uncompleted projects;
- Environmental concerns, as it will
  - increase seismic hazards,
  - transfer river pollution,
  - destroy forest and biodiversity, and
  - change the ecological balance of land and oceans, and freshwater and sweater ecosystems;
- Social issues, as it will
  - displace more than 580,000 people under the peninsular component alone, and submerge large areas of agriculture and nonagricultural land;
- Cost recovery issues, as
  - the interest on the capital during the construction could be twice the estimated cost, and
  - the annual installment and interest on the capital could be more than Rs. 17,000/acre; and
- Political issues, which include issues regarding
  - Interstate water transfers, and
  - Water transfers between riparian countries-Nepal, Bangladesh and Buthan.