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INTERLINKING OF INDIAN RIVERS AND ITS CHALLENGES

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Abstract

Indian government proposed large scale civil engineering project to link the Indian rivers by network of canals and reservoirs named as National River Linking Project (NRLP). The concept of river interlinking is the process of connecting two rivers by constructing artificial canal which transfer water from water surplus area to water deficit area. This project comprises of 30 links out of which 14 links are under Himalayan component and 16 links are under peninsular component. If India succeeded to execute this project then it will be India's revolutionary achievement in the global market. This project appears to be very simple but it has several complications. This paper focuses on the Concept of river interlinking in a brief and challenges as well as consequences of project in social, economic, political and environmental aspect.

Keywords: *NRLP, River interlinking, inter basin water transfer, Ken-Betwa river linking, and challenges*

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1. INTRODUCTION

India has only 4% of total water available in the world whereas India has 18% share in the world's population which shows India doesn't have enough water to fulfill all its requirement. India receives around 4000 billion cubic meter average rainfall annually but distribution of rainfall is completely uneven and unseasonal across the nation, east and northern states gets into flood and on other side west and southern states faces to drought situation year after year.

Indian government proposed project named as National River Linking Project (NRLP) of worth 120 billion US$ to transfer surplus water from north-eastern rivers to the water scarce rivers of south-west part of country. It will connect around 37 rivers and they will have 3000 dams and 14900 km long canal. Due to this water transfer, flood can be controlled easily and drought prone areas shall get relief. Initially this project was scheduled to be completed in 2016 but now deadline for completion of project is extended to 2050.This is one of the concrete step taken to boost irrigation rate, domestic water supply, Industrial production and socio-economic conditions in the water scarce region. On one side Every agency and every individuals believes that massive solution requires to get additional water in future due to increasing population and decreasing water table while on other side many critics claims that NRLP is socio-economic and environmental disaster.

1.1 Project History

River linking was the brainchild of Sir Arthur Cotton given in 1858 who was the chief engineer of madras presidency. The prime objective of the plan was navigation in India from Assam to Mumbai. Post-independence this idea was firstly extended by proposal of Dr. K. L. Rao 1972 which had 2640km long Ganga Cauvery link as its main component which comprises large scale pumping over head of 550m. Power requirement for lifting water in this project was estimated to be 5000MW to 7000MW which was not really a cost effective had no control over floods as well. Later Captain D. J. Dastur submitted report in 1977 to construct high capacity canal to collect water from Himalayan rivers like Ravi, Sutlej, Yamuna, Ganga and Brahmaputra for transferring into the southern garland canal.

In 1980 National Water Development Agency (NWDA) gave a very crucial action plan known as National Perspective plan under Ministry of Water Resources. This river linking plan identified two components, one as Himalayan and other as peninsular component. This plan was said to be amendment of Dr. Rao's proposal given in 1972. The project focused on transfer of water mostly by gravity in order to make it economical. In 1999 water conservation report given advisory to check the feasibility of project followed by creation of task force to scrutinize the project by NDA government in early 21st century and it submitted the complete proposal in 2003-04. First Memorandum of Understanding signed between Uttar Pradesh and Madhya Pradesh in 25th August 2005 for popular Ken-Betwa link but no further action taken in this regard in last years.

1.2 River Interlinking Concept and Current Scenario

Interlinking of river is not actually the transfer of water from water surplus rivers to the water scarce river but it involves inter basin water transfer (National Perspective plan 1980). The objective of project are to provide water to the water

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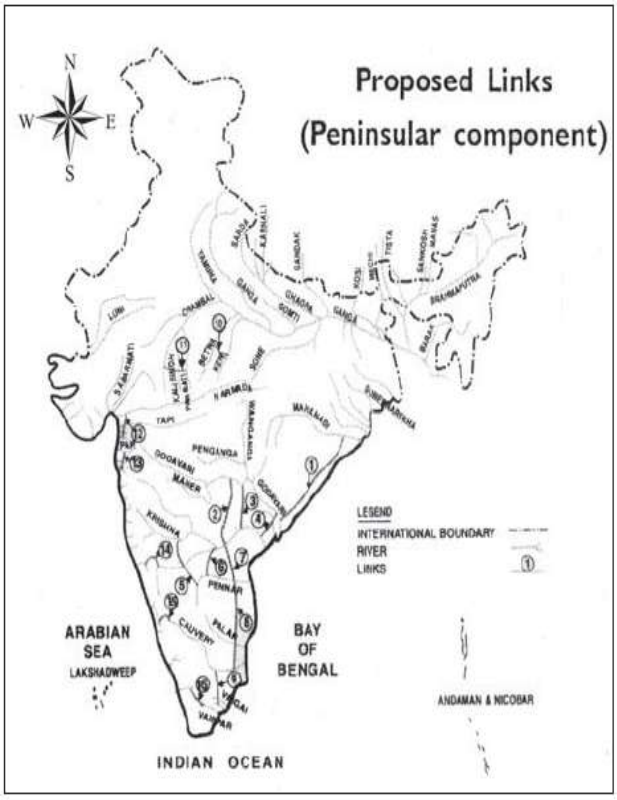
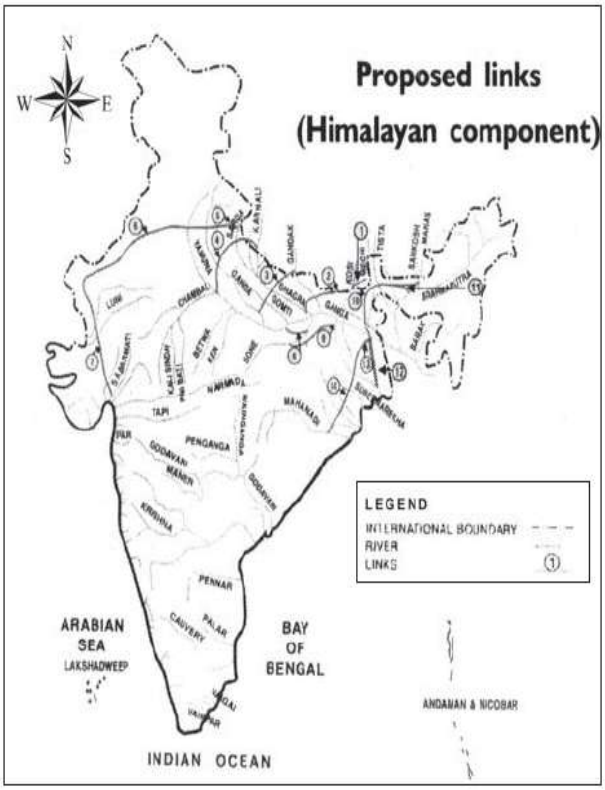
deficit region, to improve irrigation, to hydropower generation, Navigation etc. This project involves Himalayan river development (with 14 links) and peninsular river development (with 16 links) collectively both Himalayan and peninsular component will transfer 174 Billion cubic meter (Bm^3) per year through the total canal network of 14900km. Estimated project cost is 123Billion US$ and is likely to increase food grains production to 450MT which is presently 250MT and it will also generate 34000 MW electricity by hydropower plants. Among 14 Himalayan link 12 are inter-dependable and 2 are independent links which links Brahmaputra with Ganga and Ganga with the Mahanadi benefiting states of West Bengal, Assam, Bihar, Jharkhand and Orissa. On other hand in Peninsular component 16 links are transferring excess water Godavari and Mahanadi to scarce basin of Krishna, Cauvery and Pennar in the states of undivided Andhra Pradesh, Orissa, Karnataka, Tamil Nadu and Pondicherry. Ken-Betwa is the very popular peninsular link of the NRLP which is projected to benefit six drought prone district of UP and MP by taking water to Bundelkhand which facing to the severe drought for more than decade.





2. CHALLENGES FOR RIVER LINKING PROJECT

River Interlinking is undoubtedly the key solution to get rid of from flood and draught problems. Though this project challenges in certain aspect as follows:

- Economic Aspect- The project is said to be economically feasible if cost-benefit ratio is higher. Currently total cost of project is around 5.6 lakh crore which will surely increase till the completion of project. In 10^{th} Five year plan no fund have been kept for river interlinking project so project needs to be implemented on BOT basis or with the participation of private sector.
- Political Aspect- Under the Indian constitution as per Article No. 246 clause 7 water sharing and storage is the state subject, central government cannot make any law in this context. No state wants give its water to other state and it has become the matter of dispute due to lack cooperation between state governments on one side and disobeying the directives of Supreme Court by political power. For an instance Cauvery leads to riots in 1991 when Karnataka was unwilling to share water with Tamil Nadu by disobeying Supreme Court.
- Social Aspect- This project expected to displace 580000 people across the country. Displacement leads to very severe socio-economic, cultural and environmental impacts. Rehabilitation hampers to the productive assets and productive skills due to which psychological stress takes place and potential for mutual help diminished.

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- For rehabilitation of affected people government has to allocate funds e.g. In Ken-Betwa link 334cr are allocated for rehabilitation of around 7500 people.
- Environmental Aspect- Many Environmentalist claims that Interlinking of river is one of the disastrous project to the ecology. Scheme comprises 36 major dams and almost 15000km long canal network due to forest area can submerged which may harm to wild life and Natural flora fauna and livelihood of tribal population at risk. For an instance in Ken-Betwa link total 5258ha forest land will submerged out of which 4141ha is part of Panna Tiger Reserve which may restrict the movement of tigers which leads harm to the Tiger conservation policy.
- Land Acquisition- For inter basin water transfer land required for 200 m wide canal with a total length of 15000km so excavated earth need to dumped on both side or single sides of canal and the land to be acquired will be minimum 300 m. For this Land Acquisition bill has to get passed in both the houses of parliament. Currently it would take decades to acquire that much huge land for river linking network only besides this land require for rehabilitation should also be taken into consideration.
- Some other challenges also affects to the river interlinking in India,
  a) Such as many opponents believes that instead of river linking, priority should be given to control the pollution of river as study says 47% of Indian are only sewage carrier.
  b) Lack of Technical verification in order to check feasibility of project.
  c) Non-involvement of civil society.
  d) Social Acceptance and cooperation.
  e) Advanced Technology.
  f) Gaining confidence of neighboring countries.

3. CONCLUSION

As discussed, inter basin water transfer is the key solution against the water crisis that country have been facing since century. River interlinking can play crucial role in strengthening agriculture and fisheries sector as emphasized in union budget of 2018. If proposed NRLP is executed at war level then not only flood and drought shall be controlled but improvement in food productivity, Power generation, Higher GDP growth, Social benefits and employment, Ground water recharging would be the probable benefits. River Interlinking is an indeed much needed project in India with advantages in the long run, yet it is hoped that this Implementation does not come with a huge environmental cost. All the challenges and issues need to be settled down much before the project is implemented and this can be achieved by conclusive negotiation with state government, proper environmental impact assessment and scrutinize technical verification of project.

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