

## Case Study

# Inter-State Water Disputes and Interlinking of Rivers in India

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PILDAT is an independent, non-partisan and not-for-profit indigenous research and training institution with the mission to strengthen democracy and democratic institutions in Pakistan.

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Printed in Pakistan

Published: March 2011

ISBN: 978-969-558-215-2

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Published by



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# CONTENTS

## *Preface*

<b>Interlinking of Rivers</b>	07
<b>Peninsular Rivers Development</b>	09
<b>Expected benefits of Interlinking of Rivers</b>	10
<b>Arguments against Interlinking of Rivers</b>	10
1. Legal angles and election tangles	10
2. Financing	11
3. Flood period	11
4. Desertification	11
5. River pollution	11
6. Security	11
7. Land acquisition	12
8. No public debate	12
<b>Conclusion</b>	13
<b>List of Tables</b>	08
Table No. 1: Milestone dates / Time table for interlinking of Rivers	



## PREFACE

The enormous drain of water into the seas, the paradoxical and perennial shortage of water for irrigation and drinking, and the floods in many parts of India have prompted the idea of Interlinking or networking of rivers. The idea has been deliberated over the decades in India, which entails construction of dams and canals and other connected hydraulic engineering works for mass transfer of water across River basins.

The objective of behind reproducing this study is to provide a learning experience from other cases similar to ours while trying to address our inter-provincial differences over water distribution.

PILDAT is using the article of **Ms. Shreya Tripathi** from online sources and printing this as Case Study to describe the Inter-State Water disputes and Interlinking of Rivers in Indian States (states in India are the equivalent of provinces in Pakistan) and how the efforts are being made to resolve the issues. Similarities in the socio-economic conditions of India and Pakistan make this Case Study even more relevant and useful for Pakistan.

We hope that this study will help in putting the Pakistani Inter-provincial Water issues in a broader context and help Pakistani experts and stakeholders in using the examples learnt through this study.

### Acknowledgments

PILDAT would like to acknowledge with gratitude **Ms. Shreya Tripathi** whose article is being reproduced as this case study.

We also wish to thank the British High Commission, Islamabad for its support to the project aimed at promoting understanding of inter-provincial water issues as a first step towards their resolution through dialogue.

### Disclaimer

PILDAT has used the article of **Ms. Shreya Tripathi** from online sources as this Case Study. The opinion and findings, therefore, are of the author and do not reflect the views of PILDAT or the British High Commission, Islamabad.



## Interlinking of Rivers

The idea of interlinking of rivers has been deliberated over the decades in India. This was recently brought about in the case of N. Nandhivarman, Dravida Peravai General Secretary v. Union of India and others. In this chapter there are two parts. First there is a discussion about the case and its details and thereafter about the whole concept of interlinking of rivers with its pros and cons.

Interlinking of rivers was an idea put forward by NDA in its election manifesto. The political resolution of the BJP National Council meeting at Nagpur in August 27-28, 2000 also stated: "We also urge Government to consider a time bound programme to link Ganga and Cauvery waters. The Sethu Samudram canal project also needs to be considered for early action. The BJP has been championing these projects and we owe it to the people to fulfill our commitments to them." Though 9th plan states this project and in spite of being promised in the election manifesto, this project has not seen the light at the end of the tunnel. Hence Dravida Peravai General Secretary N. Nandhivarman had filed a writ petition in the Supreme Court of India, against the Union of India and others. (Writ Petition # 496 of 2001).

In his prayer, the petitioner included the following issues:

- He had sought the apex court's intervention to direct authorities to initiate the implementation of this project in a phased manner and with a time frame.
- The feasibility reports prepared by the National Water Development Agency under Ministry of Water Resources must be made public along with the reasons for long consumption of time in initiating this project.
- The petition also seeks details of the total funds spent by Central and all State Governments on flood and drought relief.

The petitioner states that interlinking Ganga and Cauvery was first mooted in 1972 by then Union Minister for Irrigation Dr. K.L. Rao, which envisaged 2640-kilometer long Ganga Cauvery link. Thereafter in 1974 Captain Dastur suggested a canal known as Garland canal. In July 1982 National Water Development Agency was created to carry out surveys and prepare feasibility reports. In September 1987 the National Water Policy stated that its prime goal is to interlink national rivers. Over all these years

none of the feasibility report is made public nor the interlinking of rivers has been undertaken even in a phased manner. The petitioner states that another project promised in the manifesto of the NDA namely Sethu Samudram Project, which was conceived 141 years back, has seen 22 feasibility reports in these periods and now global tenders were called for to prepare fresh feasibility reports. Fearing such a fate will happen even to this interlinking of rivers project Dravida Peravai General Secretary Mr. N. Nandhivarman in his petition states from the ongoing deliberations for decades, it is an irony that the foreigners who ruled us interlinked Indian states with railway link, whereas in independent India to interlink rivers, create more lakes and canals were are just discussing, discussing and jettisoning scheme after scheme.

The National Water Development agency is only collecting the data's offered by various state governments and compiling them into reports. Even to do that the agency seems to be having 2010 as the time frame to complete all feasibility studies. Moreover like previous proposals this may also be jettisoned citing similar reasons or fresh excuses. Thereafter after 2010, India may go for global tenders to make a study of this project and all will be back to square one in 21st century too. In view of this petitioner had to pray before the court to find out what is going to ultimately happen to this project.

The project prepared by the National Water Development Agency, the petition says, has two components namely Himalayan Rivers Development Component and Peninsular Rivers Development component.

Listing these the petitioner N. Nandhivarman General Secretary Dravida Peravai further states: Every feasibility study ordered from the days of K.L.RAO, The Minister if State for irrigation at union Government had only endorsed the findings after findings that favour the national dream project. The 33,600 crore project linking peninsular rivers could first be taken up. Himalayan component can be taken up. Or links within states and agreeable states could be taken up.

Yet there was no good news from the seats of power, and farmers of this country who alone are a majority in our agrarian economy were left aghast at the neglect of this national project.

In December 2002, the Supreme Court ordered to take up the task of interlinking major rivers of the country. The



## Case Study

### Inter-State Water Disputes and Interlinking of Rivers in India

national water development agency (NWDA) has, after carrying out detailed studies, identified 30 links for the preparation of feasibility reports under the National Perspective Plan, 1980 and has prepared feasibility reports of 6 such links.

With a view to bring about a consensus among the states and provide guidance on norms of appraisal of individual projects and modalities for project funding etc. the central government set up a TASK FORCE on 13th December, 2002.

The task force will comprise of the following members:

1. Shri Suresh Prabhu, Member of Parliament, Lok Sabha, Chairman
2. Shri C.C. Patel, Vice-Chairman: and
3. Dr. C.D. Thatte, Member-Secretary

In addition to the above members of the Task Force, part-time members will also be nominated in consultation with

the Chairman of the Task Force and with the approval of the Prime Minister. These part-time members will be as under:

- A member from water-deficit states
- A person from the water surplus states
- An economist
- A sociologist
- A legal/world wildlife expert

The terms of reference of the Task Force will be to:

- Provide guidance on norms of individual projects in respect of economic viability, socio-economic impacts, environmental impacts and preparation of resettlement plans
- Devise suitable mechanisms for bringing about speedy consensus amongst the States
- Prioritize the different project components for the preparation of Detailed Project Reports and implementation

**Table No. 1: Milestone dates / Time table for interlinking of Rivers**

<b>Notification of the Task Force</b>	December 16, 2002
<b>Preparation of Action Plan-1:</b> giving an outline of the time schedules for the completion of the feasibility studies, detailed project reports, estimated cost, implementation of the schedule, concrete benefits and advantages of the project	April 04, 2003
<b>Preparation of Action Plan-2:</b> giving alternative options for funding and execution of the project as also the suggested methods for cost recovery.	July 31, 2003
Meeting with the chief ministers to deliberate over the project and to elicit their cooperation	May/June, 2003
Completion of feasibility studies (already in progress)	December 31, 2005
Completion of Detailed Project Reports	December 31, 2006
Implementation of the project (10 years)	December 31, 2016

Interlinking is required when water is to be transformed from surplus to deficit areas.

- Propose suitable organizational structure for implementing the project
- Consider various modalities for project funding
- Consider international dimensions that may be involved in some project components.

- India accounts for 15% of the world population and 4% of the world's water resources
- Utilization surface water: 690 BCM/year
- Replenishable Ground Water: 432 BCM/year
- Total: 1132 BCM/year

As per **internationally accepted standards** if annual per capita water availability is:

- Below 1700- region is termed as **water stressed**
  - Below 1000- region is termed as **water scarce**
- India's position**

**Per capita annual water availability (cu.m/capita/year)**

- The past
- 1951-5177
- 2001-1820

- Future estimates
- 2025:1341
- 2050:1140

As per internationally water availability standards, India is water stressed today and will be water scarce tomorrow

#### Uneven Water Availability

- India has highly uneven water availability in space and time
- The country receives rain fall for only 3-4 months
- The Brahmaputra-Barak-Ganga basin accounts for 60% of surface water resources
- This region is also rich in ground water
- Western and southern India experience severe deficit in both surface and ground water.
- 60% of the country experiences water deficit, while parts of the country suffer from floods

#### Himalayan Rivers Development:

- Construction of storage reservoirs on the principal tributaries of the Ganga and the Brahmaputra in India, Nepal, and Bhutan,
- Along with interlinking canal systems to transfer surplus flows of the eastern tributaries of the Ganga to the West,
- Apart from linking of the main Brahmaputra and its tributaries with the Ganga and Ganga with Mahanadi.

#### Benefits

The Himalayan component would provide additional irrigation of about 22 million hectare and generation of about 30 million KW of hydropower, besides providing substantial flood control in the Ganga & Brahmaputra basins. It would also provide the necessary discharge for augmentation of flows at Farakka required interalia to flush the Calcutta port and the inland navigation facilities across the country.

#### Peninsular Rivers Development

This component is divided into four major parts:

- Interlinking of Mahanadi-Godavari-Krishna-Cauvery rivers and building storages at potential sites in these basins. This is the major interlinking

of the river systems where surpluses from the Mahanadi and the Godavari are intended to be transferred to the needy areas in the South.

- Interlinking of west flowing rivers, north of Bombay and south of Tapi. This scheme envisages construction of as much optimal storage as possible on these streams and interlinking them to make available appreciable quantum of water for transfer to areas where additional water is needed. The scheme provides for taking water supply canal to the metropolitan areas of Bombay; it also provides irrigation to the coastal areas in Maharashtra.
- Interlinking of Ken-Chambal Rivers. The scheme provides for a water grid for Madhya Pradesh and Uttar Pradesh and interlinking canal backed by as much storage as possible.
- Diversion of other west flowing rivers. Heavy rainfall on the western side of the Western Ghats runs down numerous streams, which empty, into the Arabian Sea.

#### Benefits

Construction of an interlinking canal system backed up by adequate storages could be planned to meet all requirements of Kerala as also for transfer of some waters towards east to meet the needs of drought affected areas. The peninsular Component is expected to provide additional irrigation of about 13 million hectare and is expected to generate about 4 million KW of power.

Interlinking or networking of rivers entails construction of dams and canals and other connected hydraulic engineering works for mass transfer of water across River basins. Basically, the scheme is to convey floodwater in the Ganga and Brahmaputra river basins to the arid and semi-arid areas of Rajasthan and Madhya Pradesh, and to the peninsular rivers of south India. There are essentially three methods to achieve the same. They are as follows:

- Canal option-** to construct lengthy canals,
- Tunnel option-** to convey water under mountains, and
- Pumping option-** to pump water over mountains.

The enormous drain of water into the seas, the paradoxical and perennial shortage of water for irrigation and drinking, and the floods in many parts of the country have prompted the idea of networking the rivers. The president Dr. Abdul

Kalam has said that the plan must be accorded top priority, it is hoped it will kick start the economy and mitigate the problem of unemployment. This as per him will convert the country into a developed nation. The project is also certain to integrate the rural and urban economies and bridge the gap in the great rural-urban divide.

Dr. Kalam had adumbrated certain requirements so that the grandiose plan is successfully implemented. They are as follows:

- a. The need to develop greater tolerance, compassion, hard work, dedication, and an ability to feel and realize the problems of others and the readiness to help. Avoiding narrow political ambition and greed, leaders must foster inter and intra-communal harmony. The country as a whole must realize the economic need for such a project that would stimulate growth.
- b. The second priority is political. Water must be moved from the State List and included in the Concurrent List, with over weaning Central control. The need for bringing water under Central control has been amply demonstrated by the non-implementation of several river water sharing awards between the States.
- c. An immediate dialogue with Pakistan and Bangladesh to seek their approvals for the networking is an essential priority as per Dr. Kalam. The project will be not be successful without linking the Ganga, the Indus and the Brahmaputra. The Ganga, the Yamuna and the Brahmaputra combine in Bangladesh before entering the Bay of Bengal. Similarly, the Indus and its tributaries — the Ravi, the Beas, the Sutlej, the Jhelum and the Chenab merge in Pakistan before entering the Arabian Sea.
- d. The next priority would be to look at and review the land acquisition laws. This river-networking project would require a lot of land across the country and also would need access rights from several million landowners.
- e. The fifth priority is to design an acceptable management structure to plan this project, and implement and monitor it. Once completed, this network would last several generations and change the face of this country. This would also cost an enormous amount of money.

**Expected benefits of interlinking of rivers:**

- Surface water irrigation: 25 million Ha
- Ground water irrigation: 10 million Ha
- Hydropower generation: 34 million KW
- Improved agriculture: It will help in ensuring food security
- Flood and drought control
- Alternative means of transport: river transport is a cheap and non-polluting
- Higher GDP growth: creation of more employment opportunities will approximately lead to a 4% growth in the GDP.
- Lead to national unity and national security.

The disadvantages of this networking project have been enumerated below and later there are some details elaborating the same.

- No inclusion of people's participation
- Lack of consensus among citizens
- Criss-cross construction of dams and canal systems, which will cause displacement of people
- Submergence of land, forests and reserves
- Negative impact on flora and fauna.
- Acquisition of large tracts of land
- If control is transferred to the center then decisions might be taken under political pressure.

#### **Arguments against Interlinking of Rivers**

##### **1. Legal angles and election tangles**

At present, there are serious disputes between various states of the Indian Union concerning sharing of river water. The disputes occur on account of the Chief Executive of any State having to take decisions and make claims in the interest of the people of his/her State since after all, that is the purpose for which he/she is elected. A Central Law to dictate water sharing between all the states from the network has the potential to precipitate new problems. This is because there is no guarantee for change in the very political climate that causes inter-state disputes in the first place, despite the present of river-sharing agreements and authorities. Furthermore, if control is transferred to the center then decisions might be taken under political pressure.

##### **2. Financing**

The effect on the economic and political independence of India due to borrowing an enormous amount of money (estimated today at Rs.5.6 lakh crores as conveyed by Government of India to the Supreme Court, but it would surely increase) needs to be re-considered. This especially when India is almost in a debt trap with rising debt servicing almost equaling loans received from financial institutions like World Bank or Asian Development Bank. It is also necessary to consider whether India will be in a financial and physical position to maintain the huge assets when created (dams, canals, tunnels, captive electric power generation plants, etc.) in order for the system to continue to function and give the benefits for which it is designed. If India cannot maintain the network, the capital assets created will deteriorate and be lost and the benefits of the project and incomes from it will not be available, though the loan liability would remain. This will inevitably lead to take over of assets by the creditor Banks to consolidate the entry of foreign interests into India. The political aspect of forcible project implementation is increasing disaffection among displaced people who already number tens of millions since Independence.

### 3. **Flood period**

The basic idea of networking rivers is to convey unwanted floodwaters from one place to another where it is deficient and needed. But this idea does not consider that the period when it is surplus in the donor area (July to October in the Ganga-Brahmaputra basins) is not the time when it is needed most in the recipient area (January to May in the peninsular rivers). In such a situation, it will be necessary to construct enormous holding reservoirs that will add to financial, social and environmental costs.

### 4. **Desertification**

Flooding per se is not undesirable because it results in deposition of alluvium particularly in the delta areas of rivers to maintain the fertility of the land by compensating loss of topsoil due to natural erosion. Any system that prevents or severely reduces natural flooding (by diversion of floodwater) will cause land fertility to gradually reduce over the years, thus desertifying the land. The greatest loss that land can suffer is desertification by loss of

topsoil. The land that will be so lost to cultivation is the most fertile delta land, and therefore the impact of this on total food production needs to be factored into the discussion. History tells us that entire civilizations have vanished due to desertification.

### 5. **River pollution**

Annual floods flush industrial and municipal pollution in the Ganga down to the ocean. Reducing the flow in the Ganga by diversion will increase the concentration of pollution in the river. A live example is the Yamuna, from which Haryana and Delhi draw so much water that it barely flows after Delhi and the water quality at Delhi is so poor as to be positively poisonous. It is relevant to note that the expensive project to clean the Ganga has not succeeded even with annual flooding. This is not to argue that pollution of river water is inherent and may never be checked at source, but that this factor is yet another that needs to be included in the legitimacy check for the project.

### 6. **Security**

India has a national electric power grid that functions with difficulty because supply does not meet demand. However it is kept functional because electric power can be switched from one circuit to another in the grid. Further it is not easy to deliberately interfere physically with the flow of very high voltage (upto 132 kV) electricity on overhead conductors atop huge pylons. But a national water grid is entirely different because water does not flow instantaneously like electricity, it cannot be switched like electric power, and it can very easily be tampered with enroute to divert, pump out or interrupt flow. A canal breached deliberately or due to natural circumstances combined with poor maintenance would spell disaster for the areas around the breach. Water is basic for human survival unlike electric power, and motivation for interference is that much more. Maintenance of a network of canals, dams, etc., will have to be done under central supervision. Flow can be prevented or caused by the simple expedient of taking control of sluice gates as demonstrated by farmers during the recent Cauvery water problem. Thus security of the network will be an enormous load on security forces of Central and State Governments. In contrast, decentralized systems can be maintained, repaired and protected by those

who benefit from them and live nearby.

#### 7. **Land acquisition**

One cannot consider the acquisition of 8000 sq km of land when acquisition of land even in acres is a vexed issue, which has taken years. Even if fresh legislation makes it possible within a short period, its implementation will cause untold misery and injustice to the displaced people in obtaining compensation due to systemic corruption. Besides, land for resettlement is mostly not available.

Thus, we must scrutinize closely and guard against our tendencies to address the political challenges of progressive policy and lawmaking for resolution of conflicts over natural resources with technology-heavy solutions

#### 8. **No public debate**

Neither the feasibility reports of the Task Force and nor the development of the networking plan have been subjected to extensive and intensive public debate.

The proposed river network is a mega project comprising of a system of interlinked projects and has to be therefore subjected to multi-disciplinary scrutiny. The people involved in the decision making about networking of rivers do not look into the holistic view of the situation but only examine it by associating it with their knowledge and expertise in special fields. Democratic action and enlightened self-interest by all citizens of India is the need of the hour.

The head of Task Force Mr. Suresh Prabhu in an interview allayed all fears discussed above. He said that experts in all fields are working to minimize the ill effects of this grandiose plan. He also discussed the global experience on transferring water from one basin to another. He mentioned china's attempt to transfer major water from the Yang Tse river in the south to the Yellow river and beyond in the north. He said that the plan is being implemented in an eco-friendly manner and that the benefits will surely outweigh the costs.

## Conclusion

Anyone who knows what river systems are, what inter-basin transfers bring forth, and the politics and economics of large river valley and inter-basin projects, will know that whatever water this plan holds is but a mirage.

Prior experience teaches that we must study basic aspects of each river basin, including catchment area treatment, command area development, benchmark survey of the affected population, impacts of the reservoir and canal system on farmers, and fisheries, and public health. Environmental Impact Assessment will be inevitable. Compensatory and mitigated plans must be rationally conceived. Where the canal network extends, the surveyors must assess that whether soil is irrigable through surface water flows without water logging and salinisation that has taken a million hectares of Indian Land. The impacts on food security already in crisis will be disastrous because of a sudden change in cropping pattern. The River Valley Guidelines (1983) discuss environmental and social impacts due to transfer of water and people beyond suitability. Unless these guidelines become part of the project planning, the impacts will neither be considered nor be dealt with. Some questions that come to my mind are:

1. Will such a linking of rivers actually prevent drought? Or merely transfer drought?
2. What will be the extent of displacement, and provisions for rehabilitation?

Canals also displace. In the Sardar Sarovar project, 1,50,000 landholders stand to lose land due to the canal network, of whom 23,500 will lose more than 25% of their land, and 2,000 will become landless. None is considered project-affected or eligible for rehabilitation.

The whole crisis of water management today is due to total neglect of water harvesting, either because it is considered peripheral or to be a non-replicable, non-profitable micro-level experiment. Therefore we see the destruction of cultures, communities, and ecosystems, creating conflicts between states, as in Cauvery, and between state and people, as in Narmada. Conflicts are dealt with more politically than scientifically. If this happens in just one river basin, imagine the consequences across several river basins. Interstate disputes could take decades to resolve. The canals, designed for carrying irrigation waters rather than large peak flows, will not be sufficient to control or

divert floods in the northern states but will transfer silt. Several large dams built to provide the head and storage required to supply the canals will permanently submerge fertile lands, forests, village communities and towns, leaving millions of people displaced or dispossessed.

Interlinking Himalayan and peninsular rivers is budgeted at Rs. 5.6 lakh crore, even before the completion of feasibility studies, expected by 2008, at a cost of 150 crore. The point to be considered is that: Have alternatives been assessed? When pending water projects require Rs. 80,000 crore to be completed and made usable as per Parliamentary Committee report, is such a plan viable, scientific, or democratic? There is no time, space, or process indicated for participation of communities whose riparian rights must be considered, and who face upstream impacts, which are now known, and lesser-known downstream impacts. Annual Irrigation budgets of state governments are about 1000 crore each. From where will the money for inter-linking rivers come even if states pool resources for the next several decades? The local irrigation projects of the true and tested kind have kept India self-sufficient. In this ambiguous experiment of Inter-linking Rivers, India itself is the guinea pig.

The 73rd amendment of the Indian Constitution direct that people's consent and consultation cannot be sidelined. Rivers support millions of people. A grandiose scheme such as interlinking would be likely to involve international lending agencies.

It will be nothing short of criminal if water is not treated properly and the water crisis worsens. Already Shivnath river in Chattisgarh is privatized, and the contractor has snatched away people's right even to drinking water. People of the country deserve to know if this centralized plan will nationalize the water only to privatize it like other national public property like oil, gas, land or mineral resources.

In nature what is linked are not rivers but water itself, through the hydrological cycle. A balanced water cycle demands a holistic policy that promotes forest cover, prevents erosion, enhances ground water through micro-watershed structures, and provides for desiltation and maintenance of existing tanks, lakes and reservoirs. A vigilant judiciary should punish corrupt administrations for non-implementation of environmental regulations, right to life and livelihood.



Stated below is an alternative to the grandiose plan of networking major rivers of India.

#### **Alternative to the proposed plan of interlinking of rivers in India**

Proponents of river interlinking say that there is no alternative even though some of them concede that decentralized schemes for water harvesting can work locally but not at national level. This is precisely where the logic of decentralization applies, because each State is nothing but many "locals" and the nation consists of States. Local water systems are viable in isolation since they simply conserve as much as possible of the rainfall precipitated within their own boundaries.

Shortage of water is simplistically seen as increase in demand without taking into account the very serious problems of distribution anomalies, obvious wastage and profligate consumption of water, which is a limited resource. As in the electric power sector, the thinking of planners appears to be that the only way of solving water shortage problems is to increase the quantity of water supplied to meet demand. This view does not recognize two factors.

1. Even though there may be an overall shortage of water, the reason for the seriousness of the problem is primarily improper distribution and vast differential in consumption, including leakages and consumer wastages.
2. If water is collected and used where it falls as rain (by rainwater harvesting from roof-tops and open areas in urban areas and check dams or johars and soak pits in rural areas), and the run-off made to naturally or artificially percolate into the ground, the local demand for water can be met locally to a great extent.

Such measures will also check soil loss by erosion by encouraging green cover. The second factor has actually made hitherto dry seasonal rivers to flow (as demonstrated in Rajasthan by Rajendra Singh of Tarun Bharat Sangh, by M.S.N.Reddy in Mylanahalli near Tiptur in Tumkur District of Karnataka and elsewhere) and increase the flow in perennial rivers.

Also, as the late Anil Agarwal demonstrated conclusively, ten reservoirs each of 1 hectare catchment area can store more water than a single dam with 10 hectares of catchment area. That is, decentralization of water

collection and storage will provide better availability of water than huge dams and lengthy canal systems.

Action based on the above two factors will cost vastly less in terms of finance and more importantly, cost almost nothing in terms of the ill effect of projects on people since local people will take local action for their own benefit. Planning for decentralized water availability also practically obviates displacement of people and acquisition of land, and makes for better local cooperation within and between communities instead of competition for scarce resources that are the basic reason for tensions. Thus the two factors briefly explained above are a clear alternative to the current thinking on interlinking rivers with a network of numerous dams and lengthy canals that have very high initial capital cost, very high operating and maintenance costs, and social and environmental ill effects and political fall-outs.

#### **Certain Suggestions**

1. The task force should make the details of feasibility reports public for scrutiny.
2. The task force should invite discussions over the networking of rivers from all states and be open to accept suggestions of experts from all fields.







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