Interlinking Of rivers In India

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EXECUTIVE SUMMARY

Interlinking of major rivers in India, aimed at modifying the acute spatial inequity in the availability of water resources in India, has its origin in the ideas of K.L.Rao and Captain Dastur, in the form of Ganga-Cauvery Link Canal and the Garland Canal respectively. Both these ideas were considered to be mere dreams and not feasible projects by the Ministry of Water Resources. In recent years, the National Water Development Agency (NWDA) has come up with a proposal for a set of inter-basin transfer canals. The Supreme Court has asked that these projects of inter-basin transfers be completed in the next 10 years or so.

While the urgency for assured supply of domestic water needs for all citizens of India is unquestionably accepted, the present paper examines whether the proposed inter-basin water transfer project provides the best mechanism to address this question in terms of environmental sustainability, regional equity and economical feasibility. In the total absence of technical data and feasibility studies from the public domain, the paper, after examining the available ideas and information on the interlinking project, takes the position that supply of domestic water needs could be better assured with the help of much less costly water harvesting and consumption projects at local levels.

The paper then questions the wisdom of extending irrigation facilities to the drier areas, instead of promoting watershed management for increasing food production. Instead the increased food production, if at all needed, can come from more efficient water management and productivity increase in the presently irrigated areas. The paper then
finds the only justification for the proposed project on interlinking in making more water available to the western and southern parts of India, for diversified and highly lucrative use of land and for industrial uses.

The paper identifies the various social and environmental costs to be generated by the proposed project and questions the logic behind the investment of public funds to meet the very heavy costs of the project. It takes the position that the official confidentiality around the project could help in packaging and selling a highly cost-ineffective project as a desirable one. On this basis, the paper stresses the need for a totally transparent techno-economic and environmental feasibility study of the project and comparison with other possible solutions, before the interlinking project is approved.
INTRODUCTION

“Little drops of water make a mighty ocean”
“Water, water, everywhere, not a drop to drink”

These well known sayings, refusing to both the constitution of water and its uses for humankind, illustrate clearly an inherent flow in the availability of water all over the world. Although 75% of the earth’s surface is covered with water, only a miniscule proportion of it is available for human needs as fresh water. With so little water available and most of it polluted & depleted, disputes over the use of fresh water are becoming very common.¹

Today in India water is one of the two most important sources of conflict. The other is religion. The ranking of these issues is location-specific. The political system in India is based on multi party democracy. Every political party gives a top slot to water resource development in its election manifesto. Every candidate contesting the election promises a water project to his constituents. The availability of water is seldom taken into consideration when making these electoral promises.

Non-availability can always be attributed to someone upstream who can be shown as having appropriated all the water, a ripe case for conflict. Water is an easily exploitable issue in electoral politics. The potential for conflict had always existed historically but the political leadership facilitated the negotiations. Over the years, this spirit has changed to

¹ See M.V.V Ramana, Inter-State River Water Disputes in India, 1992, Orient Longman, New Delhi
rigid postures, with every state rushing to over exploit water and accusing neighbors of “stealing” their share²

Given this political environment, it is not surprising that the national river interlinking plan has been offered as a miracle solution to water scarcity, primarily for these claims, which it makes: -

i) First, interlinking would lead to a permanent drought proofing of the country by raising the irrigation potential to equal the current net sown area of about 150 million hectares.

ii) Second, it would mitigate the annual floods in Ganga and Brahmaputra.

iii) Third, it would add 34,000 MW of hydropower to the national pool.

The passing observation of the President Mr. A.P.J. Abdul Kalam on the eve of Independence Day 2002, set the momentum for interlinking of lines, hitherto a dormant idea. This prompted an advocate to attach the copy of Kalam’s speech with a Public Interest Litigation (PIL), which he had filed for the cleaning of Yamuna and also as regards the water-sharing dispute between Karnataka and Tamil Nadu. Thus in August, 2002 for the first time, the issue came up in the Supreme Court. Justice B.N. Kirpal, the then Chief Justice of India, who was heading the Bench responded so enthusiastically that he connected the PIL into an independent writ petition and issued notices to the center and the states for interlinking of rivers.

When the matter came up again on 31st October 2002, only the Centre and Tamil Nadu endorsed the court’s initiative. The absence of response from all but one state did not deter Justice Kirpal and other judges from pursuing the task which they took with missionary zeal. On the contrary, the learned judges ruled that in the absence of affidavits

² See Ramaswamy Iyer, Scarce Natural Resources and the Language of Security, EPW, 16 May 1998
from other states, the assumption was clearly that they do not oppose the plan made in the writ petition and there is consensus amongst all of them that there should be interlinking of rivers in India.

The order passed on 31st October, 2002 formed the basis on which the Centre set up a high-powered Task Force under Mr. Suresh Prabhu, former Union Minister of power. The irony is that the very order that presumed an all India consensus on the subject went on record to suggest how the Task Force would go into binding consensus among the states.

Another irony about this far-reaching order is that there is no mention of the ten years deadline, though the deadline is presented as part of the project. Justice Kirpal was cautious enough not to put the deadline in writing lest it raise delicate constitutional questions of the court’s jurisdiction in the realm of executive policy.

Interlinking of rivers as a solution for drought and flood is not a new proposal. It was Sir Arthur Cotton who had originally proposed the networking of rivers more than a century ago, and Dr. K.L.Rao, the Minister of Power and Irrigation in the Cabinet of Smt. Indira Gandhi, reviewed this proposal in 1972. Both were no doubt eminent engineers. Sir Cotton’s prime concern was for inland navigational network and Dr. Rao’s concern was for irrigation and power. Neither could perceive that far wider issues were involved.  

Mr. Rao persecuted his plan, to link to Ganga and Cauvery. In 1974, Captain Dinshaw J Bastur, an air pilot, submitted a similar proposal named ‘Garland Canal’. The Government prepared its own plan in 1980 and in 1982 the National Water Development Agency (NWDA) was set up to carry out detailed studies. It envisioned a 30 years plan but following the Supreme Court directive, the Task Force has published a time table which lists 2016 as the date for completion of the project. No explanation has been

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3 See, Sailendra Nath Ghosh, Linking up rivers: A Recipe for Disaster, Mainstream, December 14, 2002
4 See Sudhirender Singh, Linking Rivers: a Dream or a Nightmare? The Hindu, Survey of the Environment 2003, at 41
provided how this is to be managed. Such a project should have been preceded by a study of:

i) Financial Viability
ii) Technological Viability
iii) Ecological Viability
iv) Detailed Environmental Impact Assessment

The NWDA plan has divided the project into two broad components. The Himalayan part, with 14 river links is estimated at Rs. 3,75,000 crores and the peninsular component with 17 river links is estimated at Rs. 1,85,000 crores.

Not only does the economics of the plan appear to be extremely improbable, serious reservations are also raised about its claims. It is an open fact that these rivers do have massive flood flows-estimated at 30,000 to 60,000 cubic metres of water per second (cusec) during a few days in the monsoon. The plan envisions tapping these flood flows, storing these in the reservoirs and draining this water over thousands of kilometers of canals to “parched” agricultural lands in Southern, Western and Central India. While this may sound good, the finer analysis reveals that only 4500-cusec water is to be lifted from a total flood flow of 60,000 cusecs\(^5\). How lifting only 7.5% of water flow can solve, or even mitigate floods is a mystery. The other issue not being raised is why water rich riparians like the Cauvery basin and delta are today parched and water scarce.

Capturing all the water of a river and stopping its natural flow to divert it outside the basin is tantamount to killing it. Countries with a history of playing around with rivers and trying to control them, are now investing billions of dollars to restore them by removing dams and embankments. In the U.S. alone, more than 100 dams were removed between 1999 and 2002. In 2001, over 115 miles of the river Baraboo were restored in Wisconsin. Attempts are now on to revive the Colorado in the Southwestern U.S. as its water dry up before reaching the Ocean. An $8 billion plan has been passed in California

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to revive some of its rivers. In Spain, protests have stalled the second phase of water transfer from the Ebro river to the country’s south.\textsuperscript{6}

In such a situation when we see that countries like the U.S.A, who were the torchbearers and our role models at the time of independence turning towards rapid decommissioning of dams, can we stand alone or look for new role models like China for another half century before we rethink about such grandiose ideas, being sold as the permanent solution to India’s water problems. One can only hope and wish that the government carefully thinks through this project before jumping on to “redraw India’s geography” which can have potentially grievous results for this country in future.

\textsuperscript{6} See, Sailendra Nath Ghosh, Linking up Rivers-A Recipe for Disaster, Mainstream December 14, 2002
CHAPTER – I

PROPOSED PLAN FOR INTERLINKING OF RIVERS

The Prime Minister in his address to the National Water Resources Council (NWRC) commending the National Water Policy (NWP) 2002, for adoption did not refer to the subject of interlinking of rivers. Instead he favored community control over water resources. However, subsequently the government chose to ignore the view expressed by the Prime Minister at the NWRC by setting up a task force to execute the gigantic proposal of interlinking of rivers. Economically, similar enthusiasm was lacking in the case of decentralized initiatives like the rainwater harvesting and watershed development programmes.

The National Water Development Agency which was established in 1982 to work out basin wise surpluses and deficits and study the possibilities of storage, links and transfers, has identified 30 river links, which would connect every major rivers in the Indian mainland, and has prepared a feasibility report on six of these. The interlinking of rivers has two components: the Himalayan component and a Peninsular one. The Himalayan Component envisages construction of reservoirs on the principal tributaries of the Ganga and the Brahmaputra in India and Nepal, along with transfer of water from the eastern tributaries of the Ganga to the west, apart from linking the Brahmaputra to the Ganga and the Ganga to the Mahanadi. The general idea is to transfer the water from the southern

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7 See Raamaswamy Iyer, "Linking of Rivers: Vision or Mirage?", Water : Perspectives, Issues Concerns, at 311
Uttar Pradesh, Haryana, Punjab and Rajasthan and perhaps southwards to the peninsular component. The Peninsular component consists of interlinking of the Mahanadi-Godavari-Krishna-Pennar-Cauvery, diversion of the west flowing rivers of Kerala and Karnataka to the east, interlinking the west flowing rivers north of Mumbai and south of Tapi and interlinking river Ken with Chambal. All interlinking schemes obviously are for the purpose of transferring water from one river system to another, aided by either gravity flows (tunneling through mountains) or by lifting across natural basins. The above links are meant to carry water from surplus areas to deficit ones. There are two areas where we have a surplus of water-the Brahmaputra-Meghna system and the Western Ghats where the rivers carry much of the annual precipitation into the Arabian Sea. The Brahmaputra valley is certainly surplus in water, causing floods annually creating a perennial problem.

The mandate of the NWDA is to complete the feasibility report of link schemes. The steps involved in the implementation of the link schemes after the completion of the feasibility reports are:

- Negotiations and interstate agreements among the concerned states to arrive at a consensus regarding the shaving of surplus water and other project related agreement.
- Preparation of detailed project reports.
- Techno-economic and environmental approvals and investment clearance by the Planning Commission
- Financing arrangement and mode of funding
- Execution of link projects

The project is claimed to be an answer to the country’s problem of recurring floods and the droughts in different areas, the generation of cheap hydroelectric power is also put forward as a justification. It is being hailed as a phenomenal project to unite all the people of the country and give a developmental impetus of unprecedented magnitude. It would-

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• 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 Rs. 25,000 crores by the loss of crops due to drought conditions and flooding in many parts of the country
• Save 3000 crores a year in foreign exchange by avoiding importing oil because of the cost effective navigation provided along the long coastline and the National Water Way which will become a reality by implementing the project.
• Unify the country by involving every Panchayats as a share holder and implementing 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
• Mitigate the flooding problems which recur in the north-east and the north every year
• Solve the water crisis situation in many parts of the country particularly in the northwest, western and southern India by providing alternative, perennial water resources.

The real benefits of the National Water Grid, therefore, would accrue from the additional water supply that it would create. The Himalayan and the Peninsular components of the project are expected to provide additional irrigation of about 25mha and 10mha respectively. Before the feasibility and desirability of this objective can be examined, we need to look at the larger picture of India’s food and economic situation.

**The Larger Picture**

From the food perspective, we will need an additional 300 million tones of grain in order to meet the demand of our approximately 1,640 million people in 2050. This would
require more than doubling the current food production. From an overall economic perspective, the objective of increasing irrigation potential is being sought due to agriculture’s contribution to the economy. (According to the Chairman of the task force for interlinking of rivers, the project will increase India’s GDP by 4 per cent)\(^9\)

In as much as water is a critical input for agriculture, the desired increases in food production and economic growth can be achieved through two paths:

a) by developing more water resources, and
b) by increasing the productivity of water utilized.

The two approaches are not mutually exclusive, but it is primarily the first approach that characterizes India’s progress since Independence.

Today, India ranks first in the world in terms of irrigated area, ahead of China and the U.S. Overall, we have developed over 75 per cent of our surface irrigation potential, and furthermore, an increasing number of areas are reaching the point of full or over exploitation of groundwater.\(^10\)

Naturally there is a limit beyond which we cannot develop our water resources. This brings us to the issue of enhancing the productivity of water. It is the consensus of experts, and as such is now enshrined in our National Water Policy, that the potential of yield enhancement measures in India far exceeds that of new water resources development\(^11\). The irrigation efficiency on India’s major irrigation projects has been found to be in the range of 25-35 per cent, implying that for every three units of water that are beneficially provided to the crop, seven are wasted. Combined with the fact that the agriculture sector accounts for 83 per cent of India’s total freshwater use, the amount of water potentially available through efficiency improvements dwarfs the water resources that would be developed by the National Water Grid.

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\(^9\) See, The Hindu, Jan, 9,2003 at 9


Advanced drip-and micro-irrigation techniques in India have demonstrated on-farm water efficiencies in the range of 80-90 per cent, and concomitant crop yield increases of 20-100 per cent depending on the crop. Although high costs are often cited as a deterrent in implementing water efficiency and yield-enhancement programs, it is still a cheaper solution than enhancing supply at the price tag of the National Water Grid. Pursuing a giant water-supply augmentation project while enormous quantities of water are being wasted at the farm and basin levels is akin to getting a bigger bucket of water with a bigger hole in its bottom. Clearly, if food security and economic growth is the concern of the policy makers, then it would perhaps be a better alternative to use the additional water for agriculture in those areas where there is a greater potential to increase the produce and thereby earn more income. The priority, therefore, should be to develop additional irrigation potential on good soils within the basins, instead of transferring water for agriculture across basins. For example, only two-thirds of the net sown area of the fertile plains of Uttar Pradesh is irrigated. Combined with the improvements in water efficiency, the additional potential can be translated into an increased agricultural output.

So we can see that our concerns regarding food security and a sustained economic growth can be taken care of, without spending huge sums of money for transferring water from Bengal to Rajasthan or Kerala to Tamil Nadu, by improving the efficiency of water already available to agriculture through irrigation. In such a situation, an argument in favor of interlinking on grounds of food security and economic growth seems indefensible. In addition, in the introduction to this paper, it has already been shows that the claims about flood mitigation as a result of interlinking of rivers, are highly inflated and fallacious with very little possibility of any change in the flood situation affecting the north and north eastern parts of India, by a diversions of mere 7 to 8 per cent of flood water.

Therefore the only other ground on which the Supreme Court could have intervened and passed an order for interlinking of rivers is the drinking water problem being faced in
various parts of southern and western India. An intervention on this ground would indeed be commendable, as because denial of drinking water to people would amount to a denial of ‘right to life’, a guaranteed fundamental right under Article 21 of the constitution. However one would have to look at the water situation in different parts of the country and analyze all the possible avenues from which the shortfall can be met before declaring interlinking as the only solution to the drinking water problem being faced by the country today. It is extremely doubtful whether Supreme Court considered all the options in this regard and examined the water situations in the various parts of the country. A closer scrutiny would have surely dissuaded it from coming to the conclusion, which it has reached. More than the mere shortage, the examination of the entire situation should also consider the causes of scarcity of drinking water. In doing so, one would surely notice that much of this scarcity is man made and can surely be tackled with better planning.

A detailed picture in this regard would be presented in the next chapter. But assuming for a while, that all these simple measures of tackling our drinking water scarcity problems is ignored, of which there is a very good possibility, one needs to simultaneously explore the pros and cons of a venture of interlinking of rivers, the potential benefits arising out of it and the possibilities of damages in the form of environmental, ecological, social and economic that it presents. Therefore an isolated study of interlinking assuming it to be the best option available to us today is proposed to be done in the coming chapters and then a statement on its viability and feasibility as a sustainable solution to India’s water problems will be made.

12 See Narmada Bachao Andolan V. Union of India (2000) 10 SCC 664, where the court held, “... right to water is a basic need for the survival of human beings and can be served only by providing sources of water where there are none “See also A.P. Pollution Board v Proof. M.V.Nayudu (2001) 2 SCC 62, where it was held, “the right of access to clean drinking water is a fundamental right to life.” See further, Attakoya Thangal v UOI. 1991(1) KLT 580, where the court pronounced the fundamental right to sweet water.
The concept of interlinking is evidently appealing to considerable sections of the general public and to policy makers. In a country which quenches its thirst fed with erratic rainfall patterns and its skewed distribution, uneven climatic pattern ranges from the overfed Cheerapunji, receiving the maximum rainfall in the world to the generally arid and semi arid regions of the western and southern India thriving on as little as 100 millimeter cubic rain. It is in this backdrop that interlinking of rivers is proposed as a major policy option to rejuvenate the parched lands, the signed earth and the frayed tempers.

However, even as all these claims may be true about the impending water crisis, on a careful examination of the entire proposal to interlink major river basins, the National Commission for Integrated Water Resources Development Plan (NCIWRDP) made following observations: “There seems to be no imperative necessity for massive water transfer. The assessed needs of the basins could be met from full development and efficient utilization of intra-basin resources except in the case of Cauvery and Vaigai-

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13 For instance, the Brahmaputra-Meghna-Barak Basin receives 677-bcm rain of which only 24 bcm is used because of the topography. See India Today, January 20, 2003.
basins. Therefore it is felt that limited water transfer from Godavari would take care of the deficit in Cauvery and Vaigai basins\textsuperscript{15}.

The point which needs to be understood over here is that it is not primarily drinking water needs but the large demands of irrigation that lead to proposals for long-distance water transfer, though the waters so transferred may also be used to meet drinking water requirements. However the belief that interlinking is necessary to ensure adequate and safe water supply to everyone and everywhere is usually misplaced. Domestic use currently accounts for a mere five percent of the total use of water harnessed through canals, wells and tube-wells. The requirements are no doubt growing rapidly but will still be relatively small compared to those of other uses. Interlinking is hardly justified as the solution for this problem. Even if interlinking were justified for other reasons, it will not be possible to take the water to all the habitations without huge investments in a centralized distribution network. Decentralized local rainwater harvesting, by reviving and improving traditional techniques can meet essential requirements for domestic purposes more effectively and at a far lower cost.

2.1 IMPLEMENTATION OF THE PROJECT

The popular appeal of interlinking of rivers is based on the understanding that an enormous amount of water of our river flows into the sea and that if only this is prevented, and water transferred from water abundant rivers to water-deficit areas, there will be adequate supply for everyone in every part of the country. At another level, the project is seen as promoting national integration and a fair sharing of the country’s natural water wealth. Both these presumptions are far too simplistic.

Whether the linking of rivers will promote integration or generate more disputes and tensions is a moot question. While the principles on the basis of which riparian states can share water have been established over time internationally and in the various agreements between States, the transfer of river water from a surplus basin to a deficit one has no

\textsuperscript{15} See, NCIWRDP’s Report, September 1999
such agreed principles. The states that are not riparian are assumed not to have any claims
to the water of the rivers. Therefore a transfer of water from one basin to another, which
is going to be used predominantly for commercial purposes like agriculture in the areas in
which the water will be transferred should be done only by mutual consent and a
commercial agreement by which the state (or country) that receives water pays the donor
state a certain amount. It water from Beyond or Bihar is sought to be transferred to
Gujarat or Rajasthan, it is only legitimate that these states pay for the water that they get
from other states or part with some other resources which they have in plenty and which
are lacking in the water rich states of north and north-east, say resources like solar
energy, which these states manufacture in bulk. Any other basis for 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.

There are also important institutional and legal issues to be sorted out. There is no
mechanism as of now to deal with matters concerning inter-basin transfers. In this regard
a proposal that is being floated is that the rivers should be nationalized and the control of
the water grid should rest with the centre. It is highly unlikely that the states will agree
to rest the controlling authority with the centre. In the absence of consensus among the
states over the project, if the centre goes ahead with existing laws and procedures for
dealing with water allocation between the states within the same basin one can safely
assume that this project is going to breed further animosity and give rise to a plethora of
litigations. We know from experience how contentions, prolonged and difficult this
process is. This caution is both wise and understandable, given the complexity of the
issues induced and the fact that courts have no means to enforce the judgment on river
water disputes and the record of compliance by Governments is at best mixed. These
questions are pertinent and basic to a considered assessment of the river-linking
programme. In the absence of satisfactory answers, criticisms of the decision to go ahead
with the implementation of the project are reasonable and legitimate.

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16 Water i.e. water supplies, irrigation and canals, drainage and embankments, water storage and water power have
been included in list II under entry 17, giving the states the sole authority to legislate on the subject. However this
power is subject to the power of the Union mentioned n entry 56 of list I, which includes, regulation and development
of inter-state rivers and river valleys to the extent to which such regulation and control under the union is declared by
2.11 POSSIBLE LINKAGES AND THE DETERMINATION OF SURPLUS WATER

A closer examination of the interlinking idea raises several questions. First, it is based on the presumption that there are large surplus flows in some basins and that the physical transfer is feasible in terms of physical engineering and can be accomplished economically without creating any adverse impact.

The Himalayan component of interlinking project envisages linking the Brahmaputra to the Ganga upstream of Farakka to meet the needs of Bangladesh and West Bengal. Unless the Ganga flow can be augmented, India is bound by its agreement with Bangladesh not to disturb the flow into Bangladesh of the Ganga\(^\text{17}\). The Brahmaputra-Ganga link has two possible alignments, one of which is through Bangladesh and the other passing entirely through Indian territory (the Siliguri chicken neck). Bangladesh has already rejected the proposal for linking Brahmaputra through Bangladesh\(^\text{18}\). The other alignment through Siliguri involves large scale lifting of water and does not appear to be economically viable. Thus both the proposed links have serious problems without addressing which the interlinking of the Ganga and the Brahmaputra is not possible. Without this linkage the whole idea of transferring water from north to south and western India becomes impossible because it is the Brahmaputra valley, which has surplus water, and not Ganga and therefore this link is absolutely crucial.

Another important factor, which is going to be very crucial for the successful implementation of the project, will be the timely release of water from the surplus basin to the deficit basin. It would be imperative for this to have a basis for the determination of surplus basins and the magnitude of the surplus. The bad experience in the Cauvery basin

\(^{17}\) The Indo-Bangladesh Ganga waters Treaty of 1996 bind both India and Bangladesh.

\(^{18}\) Bangladesh has expressed its concern over the project on the ground that it might affect the flow of Ganges to the Bangladesh and affect its environment and ecology adversely. See, the Hindu, Oct 1, 2003, at 14.
should serve as a lesson for any endeavor at sharing of river water between various states and should certainly be kept in mind before determining any basis for future. The volume of flows during the flood season is misleading as a basis for judging surpluses. Nor can the regions where floods occur be considered water surplus. Most of them may have floods during the monsoon but have inadequate water for use in the dry season. Substantial tracts in these regions do not have the benefit of irrigation. Estimates of surplus made by Central agencies such as National Water Development Agency are hotly contested by the states\(^\text{19}\).

A more serious difficulty arises from the fact that most of the flow in practically all rivers occurs during southwest monsoon. Published data from official sources show that 90 per cent of the flow in south Indian rivers occurs between May and November. Data on the Indo-Gangetic and Brahmaputra river basins are classified. Being perennial, the proportion of the total flow occurring during these months may be somewhat smaller but not all that much smaller. For instance, over 80 per cent of the annual flow in the Kosi is between May and November, and almost three fourths between June and October.

The monsoon happens to be the season when rainfall in the aggregate is adequate for crop growth. Of course in some regions, such as Rajasthan and parts of Gujarat and the Deccan, even the Kharif rain is far too low and variable for productive agriculture. In some others, more water could help switch to more productive crop patterns. These “deficit” regions are far from those considered “surplus” requiring transport over very difficult terrain and long distances.

Moreover, since the surplus occurs in the rainy reason and the demand in the dry season, it is not enough to merely carry the water from one point to another. Large storages will be necessary. One needs to know the quantum of water to be stored, and whether and where potential sites on the required scale are available. The maps and the sketchy

\(^{19}\) Orissa and Andhra Pradesh are united in their opinion that Mahanadi and Godavri have no surplus water for transfer to Cauvery and Vaigai Basins. Also states like Bengal, Bihar and Punjab do not agree to the argument that there is surplus water in the Ganga system that can be released westwards for non-riparian states like Rajasthan.
accounts in the media and official pronouncements tell us little on these aspects. If these maps accurately reflects the concept of the interlinking project sought to be implemented, it will only mean that instead of the surplus flows flowing to the Bay of Bengal via the Ganges and the Brahmaputra and the Mahanadi, they will flow to the sea through the Krishna, the Godavari, the Pennar or wherever\(^{20}\).

### 2.2 AN ECONOLOGICALLY DESTRUCTIVE EXERCISE

Enthusiasts of interlinking project tend to be dismissive of the concerns over the environmental and human consequences of the project. They claim that these fears are vastly exaggerated or argue that they are unavoidable costs of “development” and that they should not be allowed to hold back the project. One has to be extraordinarily insensitive not to recognize the consequences of ignoring these aspects in our water resource planning in the past. They are reflected in the callous manner in which displaced persons have been treated, land degradation due to misusage of water, depletion of groundwater and the growing pollution of water resources. The experience of the Indira Gandhi Canal is a stark example of the problems arising in the wake of bringing in vast amounts of water without adequate understanding of and concern for its impact on the fragile desert ecology. Among the long list of adverse ecological impacts is the destruction of innumerable sensitive aquatic ecosystems because of changes in temperature and flow regimes. This alteration of the chemical and biophysical properties of the river has not only caused the loss of estuarine fisheries downstream of the dam, in many instances, but has also impacted water quality very severely. The losses due to poor water quality in India are staggering. The World Bank estimates the health costs of water pollution alone to be equivalent of three percent of the GDP\(^{21}\). With the majority of the Indian rivers being severely polluted, interlinking them may actually increase these costs. Furthermore, with the widely recognized failure of the Ganga Action Plan, contaminants from the Ganga basin are expected to enter other basins and destroy the natural cleansing

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\(^{20}\) See, A Vaidyanathan. Interlinking of rivers, The Hindu, 26 March, 2003 at 8

\(^{21}\) See, Sanjay Pahuja, linking rivers- A Sustainability Perspective The Hindu Survey of the Environment, at 23
processes of other river basins. If the clean-up of the main rivers involved in this interlinking project has been such a dismal failure, does it not portend doom for the sanitation levels of other rivers? The new areas that will be riverfed after the introduction of the scheme may experience crop failures or rotting due to alien contaminants and compounds carried into other streams from the dirty Ganges.

It has been argued that similar projects have been undertaken elsewhere without catastrophic consequences. This claim may be true, but only partially. If we project the success of interlinking in France or Israel to support a similar project in India, we can’t probably overlook the dismal failure at Aral Sea caused by a similar venture, resulting in the virtual death of that sea. That is now recognized as a great environmental disaster, perhaps the greatest ever, and desperate attempts are being made to reverse the phenomena. Even the widely perceived leader of the 20th century in the field of water resource planning, the USA has realized its folly in building big dams and has taken up the task of large scale decommissioning of dams every year and restoring the natural flow of rivers like Colorado. In such a situation, because China has embarked upon its massive three Gorges Project, whose impact will be seen only in the due course, that cant serve as a good model for us to follow, as argued by some sections. With the “linking of rivers” project, we may actually be headed for other unforeseen disasters and may discover them too late. The situation therefore demands exercise of a degree of caution before we embark on this enterprise.

With the recognition of “precautionary principle” under the environmental jurisprudence of our country22, the “onus of proof” is clearly on the government to show as to how a project like interlinking of rivers, fraught with serious consequences and its potential for irreversible damage, is environmentally benign. This would require a thorough Environmental Impact Assessment and feasibility studies of the proposed links. Let the information be put into the public domain for experts and all the concerned groups to

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22 See, Vellore Citizen’s Welfare Found V. Union of India, AIR1996 SC2715, where Justice Kuldip Singh has explained the meaning of this principle. See also, A.P. Pollution Control Board v Prof. M.V.Naidu, (1999) 2 SCC 718
offer their informed comments. This massive undertaking is too important a matter to be left entirely to the internal processes of the Government.

Till this is done, it is difficult to believe that the interlinking programme has been worked out in sufficient detail to qualify for serious examination, leave alone immediate implementation.

### 2.3 THE PROBLEM OF DISPLACEMENT

The interlinking project if implemented would lead to construction of canals running into thousands of kilometers and some 200 storage dams. The obvious fallout of this massive construction would be the displacement of around four and a half lakh people and the submergence of nearly 79,000 hectares of forest land. It is a recognized principle of international law that no human being can be sacrificed at the altar of economic growth and while encouraging any development project, its effect on the community must first and foremost be taken into consideration. The ILO Convention 107, which has been ratified by India, under Article 11, recognizes both collective and individual rights over the lands, which the indigenous and other tribal and semi-tribal populations have traditionally occupied. The Convention protect them by forbidding their removal from their habitual territories without their free consent, and in cases where removal of these populations is absolutely necessary, Article 12 of the Convention speaks about providing a humane or effective settlement. There also stands a unanimous resolution of the UN Commission of Human Rights, adopted in March 1993, which held forced eviction as gross violation of human rights.

In the light of these international obligations and with the doctrine of incorporation as carved out by the Indian judiciary in the context of Article 51 of the Constitution, especially in the light of the Visakha dictum, the state is under an obligation to protect

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24 See Vishakha v State of Rajasthan, AIR 1997 SC 3011
the interests of the tribals and the backward populations, which are sections which have been the worst hit as a result of these kinds of developmental project²⁵.

This obligation of the state to secure the lives of ‘project affected persons’ has led to the enactment of the 73rd and 74th amendments of the Constitution, as also the Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996 whereby the village communities for the first time have been granted legal recognition as a community entity. It has also recognized their control over their commons including their water resources. It is important to note, that the significance of command over community resources has been recognized not in isolation, or as a mere economic issue, but in relation to the cultural identity of the people itself. Thus, through the new Act, the state recognizes the relationship between the communities and the commons, hence bestowing a very significant and pivotal role to the village communities to safeguard their interests and empowering them to meet the challenges both from within and outside.

With the recognition of tribals and local communities’ claims over their community resources under the Constitution, any attempt at usurping the rights of the local communities, by allowing a centralized state to act undemocratically on the principle of trust doctrine, for operationalizing river linking project in the garb of ‘public interest’ would be in clear violation of the constitutional norms and our international obligations.

Looking at the shoddy manner in which the rehabilitation policies have been implemented in the past, there is very little room for any kind of optimism for this latest misadventure of the Central Government. Under these circumstances, any attempt at denying the tribal communities their rights over their land and water resources invoking the archaic Land Acquisition Act of 1894 would be patently unjust²⁶. The Rural


Development Ministry of the Central Government which has been holding the “Rehabilitation Policy” on its desk for last so many years, just gives a clue about the keenness and the urgency which the government attaches to safeguarding the interests of the ‘project affected people’ who have got displaced from their habitats of centuries, for the implementation of these large scale projects. Under these circumstances, the ill planned and the hasty river linking project would lead to further marginalization and disarticulation of these socially and economically disadvantaged sections of our population, leading to the denial of their basic human right to leave a peaceful life with dignity.
CHAPTER-III

THE FINANCING CHALLENGES

Financing a project of this magnitude is going to be extremely challenging. Conservative estimates of the National water development Agency puts the cost of the project at Rs 5,60,000 crores. However cost overruns on account of delays are quite expected. Conscious of this reality the Task Force Chairperson Suresh Prabhu has himself indicated that the cost may go upto Rs 10,00,000 crores ($ 200 billion). Even the minimum estimated cost of Rs5,60,000 crores at 2002 price equals 25 per cent of our Gross Domestic product (GDP), or two and a half times of our annual tax collection and double of our present foreign exchange reserves. Where is the investible capital of this magnitude available in the domestic market? According to the Government’s Economic Survey for 2001-2002, the country’s Gross Domestic Savings were lower than the cost of the project. The cost is also higher than India’s total outstanding external debt by $12 billion\textsuperscript{27}.

Already the spillover projects of the Tenth and Eleventh plan are expected to cost Rs. 1,80,000 crores on the public exchequer. That leaves little scope of financing the interlinking project from the planned expenditure. The chairman of the task force has suggested that the government can raise the required money through loans, taxes and user charges. Having categorically negated raising external funding for the project, and realizing the difficulty in raising the money entirely through taxes, Prabhu has called on the industry to support the costliest endeavor the country has undertaken. “The Project is all about tangible benefits,” says he. The Federation of Indian Chambers of Commerce and Industry (FICCI) and the Confederation of Indian Industries (CII) are discussing their positions in the light of the potential benefits that might accrue from the project. Following the privatization of a stretch of the Sheonath river in Chattisgarh, the private sector sees a distinct role for itself in managing country’s water resources. The “interlinking of rivers” proposal may indeed provide that opportunity\textsuperscript{28}.

\textsuperscript{27} See Sudhirendra Sharma, Linking of rivers – A dream or a nightmare? The Hindu Survey of the Environment, 2003, at 43

\textsuperscript{28} See, “Private participation to be sought for interlinking of rivers” The Hindu, Feb 12,2003 at 13.
But this may also mean giving up the traditional rights of people over water resources, because the government is seeking not only the capital investment but also recurring expenses towards operations and management. Privatization helps achieve both, as consumers have to pay for every drop, whether for household needs or irrigation29.

With operations and maintenance expected to cost no loss than $631 per hectare, the success of the project will depend on how best the recurring costs are realized from the users. Undoubtedly, the water-stressed communities that stand to benefit from the proposed interlinking will have to incur the costs of sustaining the ambitious project. With this being the likely scenario, one wonders whom the project intends to benefit in the long run30?

Already at the World Water Forum meeting in 2001, water MNCs successfully managed to get the UN to define water as a ‘human need’ as distinct from ‘human right’. By the WTO’s definitions, which are increasingly running the market, human needs can be supplied by the private entrepreneurs for a profit, unlike a human right that accrues equally to everyone.

Under these circumstances the proposal for interlinking of Indian rivers, may give false illusion to the larger public with dreams of water security, though in reality this grandiose scheme may well create conditions where large scale privatization of water becomes the only option. That we seem to be moving blindly towards such a future is the real danger31.


CHAPTER-IV

RAIN WATER HARVESTING: AN ALTERNATIVE TO INTERLINKING

The water crisis faced by India today stems largely from the skewed rainfall that it receives. Much of the 4,000 billion cubic metres of rain the country receives falls in just 100 hours out of the total of 8,760 hours in a year. Therefore, the trick to tackle the severe and widespread water problem of India lies in capturing enough water in these 100 hours in the very areas where it falls in ways, which would lost for the rest of the parched year.

Any attempt by the government to ensure round the year water availability in all parts of the country to meet the basic requirements of people, would succeed only with the participation of people in such programmes. A community’s sense of ownership and control of natural resources has been found to be a key determinant for ensuring this sustainability. There seems to be little hydrological wisdom in letting rainwater flow down into the river, which is then dammed and much energy is wasted to pump this water back to those very fields where this water originally fell as rain. It makes much greater sense to trap the water in small structure in the villages itself. We have rich traditions of community-based water harvesting and management in India, each of them well suited to the needs of a specific environment. The potential of rainwater harvesting in meeting household needs is enormous. It is a fact that there is no village in India that cannot meet its drinking water needs from rainwater harvesting32. Apart from household water needs rainwater harvesting has the potential to meet agricultural requirements as well.

Rainwater harvesting has the capacity to contribute towards eradication of poverty amongst a substantial section of rural India. In addition, it can increase groundwater availability through recharge mechanisms and prevent floods by reducing storm water runoff.

A shining example in this regard is the community effort to harvest rainwater and recharge the aquifers in Alwar district of Rajasthan: its success has revived the Arvari, which had not flown in the last 40 years. Similar district-and watershed-level experiences from Maharashtra, Madhya Pradesh, and Andhra Pradesh provide continuing proof that community-based and participatory water management is a realistic and replicable strategy for the nation. It would have the benefit of making each village responsible for its own water storage and use. The cost of such initiatives would be a fraction of the proposed river-interlinking plan and it would be easy to maintain and repair. The social cost of displacement would also not exist or be minimal. Most importantly, by making each village responsible for its own water security, this would encourage more responsible farming practices and would thus serve as a tool for social change, supporting poverty alleviation and providing communities’ rights over resources.

The top priority of our water policy, therefore, should be to develop the potential of decentralized people-centred water management, couple it with modern water science and technology, and harness it to tackle the challenges posed by our current water situation. That would also be the best way to give expression to the views expressed by the Prime Minister, Shri Atal Bihari Vajpayee on April 1, 2002, when in his address to the National Water Resources Council he favored community control over water resources as the model on which the National Water Policy should be shaped for an effective water resource management strategy for the nation at all times in future.
CONCLUSION

India’s ever increasing and widespread water crisis is the result of the culmination of myopic planning, muddled policies and misguided perceptions. As cities grew and towns sprouted, no thought was paid to the emerging mismatch between demand and supply. In the quest for food security, groundwater was pushed as a solution- it was cheaper and quicker-while storage and distribution projects were neglected. The race for industrialization saw no checks on wasteful technology and pollution of water resources. With rapid development and urbanization, traditional systems of managing water resources were dismantled and thrown by the wayside. Today, the very development,
growth and security it sought to build while neglecting the ecological side-effects are under threat.

Water security is indeed dear to all and there is no doubt that the citizens of India have suffered for too long from water security. At this crucial juncture in the history of water resource management in our country, the planners of our country need to proceed cautiously. As much as we may attempt to manage water supply through mega projects like interlinking of rivers, we can no longer underestimate the need to manage our demand and evolve strategies for conservation and augmentation of water bodies. The government surely needs to redefine the need-availability paradigm by redesigning and restructuring demand. Growing water intensive paddy or sugarcane can never be a right of any peasant.

Today when the government is proposing to undertake river linking project as an answer to India’s water concerns there is very little information available in the public domain which can substantiate the tall claims being made by the Government. The total absence from the public domain of any technical and economic assessment report on this project surely creates a lack of comfort and confidence in the public mind on the wisdom behind such an investment decision. The citizens of India certainly expect the government to be completely transparent and professional at all levels, before it gets a clearance for this mega project. This is particularly important at a juncture when the paradigm of water resource management is undergoing a fundamental change, with old ideas falling by the wayside, getting dislodged by more integrated and transparent scientific knowledge. It is an imperative that the people of India are assured that the country will not be investing in a 21st Century project that is developed on the basis of a 19th century knowledge base.⁴⁴

The government has to work on these fronts and has to realize that firefighting cannot be a substitute for structural change. The enormity of the crisis dictates urgency- in thought and action and consideration of the few suggestions mentioned below may go a long way in tackling our water crisis and providing us a sense of security and sustainability at all times in future:

- Reverse the usual approach of proceeding from projections of demand to supply side answers in the form of ‘water-development’ projects; start with a recognition of finite supply and learn to live with it; shift the focus from ‘water resources development’ to ‘water resources management.’

- On the supply side, reverse the ranking of big projects like river linking project as primary and local water-harvesting and watershed-development programmes as secondary and supplementary; treat the latter as primary and the former as projects of last resort.

Where a big project is put forward as necessary, make the planning interdisciplinary from the start, with all environmental, ecological and human concerns fully internalized; and put it through a stringent process of comprehensive and rigorous evaluation to make sure:

a) that in itself it is a good proposition, and  
b) that in comparative terms it represents the best choice out of the available options and alternatives

Transform the cost-benefit analysis into a careful, comprehensive and sensitive multi-criteria analysis34

Give primacy to the affected people, make them part of the planning and decision-making process from the start, and give them the first rights over the benefits of the project.

This would serve as a more holistic and participatory effort of water resource management and has the potential to serve our needs better than the environmentally unsafe and archaic methods of damming the rivers imposed on us by the colonial rulers of the past, a legacy we cannot afford to pass onto our future generations. Rather than trying to play God it may be better to manage within the available water resources.

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Annexure I: Orders of the Supreme Court in brief with respect to the interlinking of rivers.

SUPREME COURT OF INDIA

RECORD OF PROCEEDINGS

Petition (Civil) No.512/2002

“IN RE: NETWORKING OF RIVERS”

Date: 31/10/2002 This Petition was called on for hearing today

CORAM:

HON’BLE THE CHIEF JUSTICE
UPON hearing counsel the Court made the following ORDER

Pursuant to the notice issued by this Court to all the States and the Union Territories in relation to the inter-linking of the rivers, an affidavit has been filed by the Union of India and also by the State of Tamil Nadu. No other State or Union Territory has filed any affidavit and the presumption, therefore, clearly is that they do not oppose the prayer made in this writ petition and it must be regarded that there is a consensus amongst all of them that there should be inter-linking of rivers in India.

In the counter affidavit filed on behalf of the Union of India, it has, inter alia, been stated that after Rao Committee’s report was received, the Government of India has been studying and planning inter-linking of rivers for over two decades. It is also mentioned in this affidavit that the Ministry of Water Resources had made a representation on 5th October, 2002 before the Prime Minister on inter-linking of rivers and in that presentation the Dy. Prime Minister and other senior ministers and officers were also present. It was suggested that a High Level Task Force can be formed which will go into the modalities for bringing consensus among the States. This affidavit further states that the presentation was also made to the President of India on 16th October, 2002 which also shows the interest of the President of India in this project and it is in view of his broadcast to the nation on the eve of the Independence Day where emphasis was laid on the inter-linking of rivers that has given rise to the filing of the present petition.

Learned Attorney General states that a High Powered Task Force, as referred in the Affidavit of the Union of India, has not yet been formed and by the next date of hearing he should be in a position to inform this Court with regard to the formation of the said task force as well as the decision of the said Force. The Union of India has accepted the concept of inter-linking of rivers and in the affidavit spelt out the benefits which will annure after the entire project has been completed.

The State of Tamil Nadu is the only State which has responded to the notice issued by this Court and filed an affidavit. The said State also supports inter-linking of the rivers and in its affidavit has prayed that a direction be issued to the Union of India for constituting a High Powered Committee in order to see that the project is completed in time schedule. Alongwith this affidavit the prospective plan for implementation of inter-basin water transfer proposals prepared by the National Water Development Agency in May, 2000 has been placed on record. We are distressed to note that milestone for the perspective plan indicated in the report of the Agency shows that even though the Pre- Feasibility Reports regarding the Peninsular and Himalayan projects are already completed, the completion of the linked projects ultimately will be by the year 2035 in respect of Peninsular Link Project and 2043 regarding Himalayan Link Project.
It is difficult to appreciate that in this country with all the resources available to it, there will be a further delay of 43 years for completion of the project to which no State has any objection and whose necessity and desirability is recognised and acknowledged by the Union of India. The project will not only give relief to the drought prone areas but will also be an effective flood control measure and would be a form of water harvesting which is being rightly propagated by the Union of India and all the States.

Learned Attorney General states that a more realistic view will be taken and a revised programme on completion would be drawn up and be presented to the Court. We do expect that the programme when drawn up would try and ensure that the link projects are completed within a reasonable time of not more than ten years. We say so because recently the National Highways Projects have been undertaken and the same is nearing completion and the inter-linking of the rivers is complementary to the said Project and the water ways which are so constructed will be of immense benefit to the country as a whole.

The report of the National Water Development Agency refers to negotiations and signing of agreements. This aspect is also adverted to by the Union of India in its affidavit when it mentioned that consent of all the States affected by the inter-linking of the rivers has to be obtained. Learned Attorney General would like to consider this aspect as it is contended by Mr. Ranjit Kumar that if a legislation under Entry 56 of List I of the Constitution is made, the need for the consent would not arise and the Centre would be in a position to undertake the project and complete the same within a reasonable period of time.

It is not open to this Court to issue any direction to the Parliament to legislate but the Attorney General submits that the Government will consider this aspect and, if so advised, will bring an appropriate legislation.

Mr. Ranjit Kumar, learned amicus has drawn our attention to River Board Act, 1956 which has been enacted by the Parliament. Learned Attorney General would look into this in order to examine whether any further piece of legislation is necessary for bringing about inter-linking of the rivers.

The parties are at liberty to file in Court any reports or papers containing studies in respect of the said project.
To come up for further orders on 16th December 2002.
Writ Petition (Civil) No. 512/ 2002

“IN RE: NETWORKING OF RIVERS”

Date: 16/12/2002 These petitions were called on for hearing today

CORAM:

HON’BLE MR. JUSTICE Y.K SABHARWAL
HON’BLE MR. JUSTICE ARIJIT PASYAT

UPON hearing counsel the Court made the following

ORDER

Learned Attorney General has brought to our notice resolution dated 13.12.2002 passed by Ministry of Water Resources, Government of India, inter alia, stating that National Water Development Agency has, after carrying out detailed studies and investigations for preparations of feasibility reports identified 30 links and prepared feasibility reports of six such links. It also notices various basin States have expressed divergent views about the studies and feasibility reports prepared by the said Agency and with a view to bringing out a consensus among the States and provide guidance on norms of appraisal of individual projects and modalities for project funding etc. the Central Government has set up a Task Force, details whereof are given in paras. 3 and 4 of the resolution. para 5 sets out the terms of reference of the said Task Force and para 8 sets out the time table for achieving the goal of inter-linking of river by the end of 2016. Mr. Ranjit Kumar, learned amicus curiae, prays for a short adjournment for filing response thereto. List on 20th January 2003.
MAP 26.2: PROPOSED HIMALAYAN LINKS

NAME OF THE LINKS

1. Kosi-Machhia
2. Kosi-Ghagra
3. Gandak-Ganga
4. Ghagra-Yamuna
5. Sarda-Yamuna
6. Yamuna-Rajasthan
7. Rajashtan-Sabarmati
8. Chunar-Sone Barrage
9. Sone Dam-Southern Tributaries of Ganga
10. Brahmaputra-Ganga (MSTG)
11. Brahmaputra-Ganga (TF/ALT)
12. Farakka-Sunderbans
13. Ganga-Demodar-Sabarmati
14. Sabarmati-Mahanadi

Source: NCAWRDP Report