

REPORT

LIVELIHOODS AND THE ECOSYSTEMS AT RISK: OBSERVATIONS AND FINDINGS OF THE 2013 STUDY TEAM

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1. Trip Purpose and Participants

The Center for Energy and Environmental Policy (CEEP), at the University of Delaware, organizes annual study visits to strengthen the understanding and experiences of its researchers in matters of global significance to the field. CEEP has conducted five study visits to India, including its 2013 India Study Program (ISP) (January 11 to 24). For its 2013 Program, it partnered with Korea University's Green School with the aim of learning about the development process and its impact on livelihoods, natural resources, energy, and ecological sustainability.

The ISP 2013 was led by Dr. John Byrne, Distinguished Professor of Energy and Climate Policy and Director of CEEP, and included seven post-graduate researchers from CEEP and three from the Green School of Korea University.

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Logistics planning and support for the 2013 ISP was provided by Meenal Utturkar, who accompanied the study team.

The team visited the Narmada Valley during January 16-19, 2013 and conducted community meetings with tribals, farmers, women, youth, and market committee members in the Valley, covering the three concerned states of Maharashtra, Madhya Pradesh and Gujarat.

Prior to its visit and after completion of 11 community meetings, the members of the Study Team consulted online and hard-copy documents related to dam and canal projects in the Valley.

2. Background

The Narmada Valley hosts the largest of India's water diversion projects. Begun in 1946 the project includes dams of all sizes, canals, reservoirs and other engineered impoundments and distribution systems. Plans for and actual construction of the diversions has nearly always attracted protests and the states through which the Narmada River courses – Madhya Pradesh, Gujarat and Maharashtra – have often contested project proposals. The Government of India responded in 1969 by creating a central authority, the Narmada Water Dispute Tribunal, in order to address ongoing conflicts.

The history of protests and challenges is not surprising. The Valley is projected to host 30 major dams (height \geq 30 meters; storage capacity \geq 6250 hectare meters), 135 medium (height \geq 12 meters and $<$ 30 meters; storage capacity between 125 and 6,250 hectare meters) and 3,000 minor dams (height $<$ 12 meters and \geq 8 meters; storage capacity between 125 and 6 hectare meters)¹ on the Narmada and its 41 tributaries. The largest dam, Sardar Sarovar, has drawn the most attention and controversy. Because it is an interstate river, 1,300 kilometers long with a 1,00,000 square km wide basin, the conflict is often expressed at the state level (especially the states of Maharashtra, Madhya Pradesh and Gujarat).

Under the 1956 Interstate Water Dispute Tribunal Act, conflicts are to be addressed through a central government-created tribunal. In the case of the Narmada Valley, the Tribunal issued a decision in 1979 which stipulated specific provisions for rehabilitation, including land-for-land to the landed families and the major sons of the land owners; the rehabilitation of project-affected villages with house plots and civic amenities; and mandatory cost and benefit sharing among the three states.

The World Bank initially was a party to the project, with a loan package of \$450 million offered in 1984. During its participation, benefits to the project affected families (PAF) including land rights, and indigenous people were given additional rights to cultivate forest land in Maharashtra and Gujarat. However, amidst protests and after a comprehensive international review of the project showed serious non-compliance and planning as well as execution problems, the World Bank withdrew in 1994, leaving the central government and 4 state governments (including Rajasthan) to finance and develop the multi-purpose project.

State level policies improved benefits for the PAF community in the wake of intensified social movement demands which questioned the costs versus benefits of the project. To exemplify, alternative livelihoods to the landless were granted in Madhya Pradesh policy.

¹ Classification by Central Water Commission (1987), Ministry of Water Resources (Government of India)

A key actor after the World Bank ended its participation has been India's Supreme Court, which has issued rulings on rehabilitation policy with interpretations in favor of the internally displaced people such as the guarantee of land to major sons of farmers. The tribunal distributed irrigation benefits to Gujarat (91%) and Rajasthan (9%) and 56%, 27% and 17% power benefits to Madhya Pradesh, Maharashtra and Gujarat, respectively. Despite the fact that 90% of the river water is found in Madhya Pradesh, none of the impounded water of Sardar Sarovar Dam up to 214 kilometers is allocated to this state.

India's Ministry of Environment and Forests has also played a vital role in project planning by specifying important pre-conditions including measures for environmental losses due to projects such as compensatory afforestation, command area treatment, command area development, fisheries development, etc.

Although serious pre-conditions have been specified by the Supreme Court, state Ministries, and the Tribunal, many do not appear to have been followed. Admittedly, above 10,000 indigenous families are granted land for cultivation and habitation in this project. However In each of the 11 community meetings conducted by the Study Team, a host of irregularities and apparent violations were reported. The rights of affected people, protections for the environmental and natural resources, and adherence to laws were reported to have been violated involving thousands of families of indigenous people, farmers, fishermen, traders, artisans, and laborers. The Study Team is extremely worried about the fate of all these families not yet rehabilitated, and still living in the affected area mostly below the present dam height (i.e. 122 meters). These families number between 40,000 and 50,000 and hence it is a formidable proposal put forth by the project planners to lift the Sardar Sarovar Dam height from 122 meters (the present height) to 139 meters, which will flood not only these farms and the other common properties such as shops and markets, schools and dispensaries, community centres, temples and mosques and other cultural amenities, but also a large number of houses of all those who have yet to shift from their original village.

The study team has especially noted with great concern that there are more than a million trees standing in the dam affected areas, most of which are in the affected area at the present height of the dam and the rest, in the affected area of the proposed final height. It is also to be noted that there is a large area of primary forest and hundreds of years old trees in the Nimad area of Madhya Pradesh. This biomass, if decayed, will lead to emission of greenhouse gases. With important worldwide deliberations underway about climate change, this project impact should be seen as an unacceptable environmental risk, when alternatives readily exist.

The cost of the project now exceeds its original estimate by a factor of ten with the latest projection anticipating a total cost of above 40,000 crore Indian Rupees. Surprisingly, we were

unable to locate a detailed review of the major escalation in cost which by now should have been brought into the public domain.

3. Observations

3.1. Energy and Water

Two key rationales for the extensive hydraulic engineering in the Valley are:

- Improved water access, affordability, and reliable supply, especially for irrigation
- Low-cost, reliable supply of electricity, including to farmers.

Government reports commonly cite these rationales and often rely on logical principles to justify them. Thus, water supply in an area reliant on monsoonal flow for much of its volume would seem to logically require diversion in order to distribute available water to those months without rain. Similarly, the cost of hydroelectric power is commonly observed to be lower than other forms of generation and in areas where interruptions in service are needed, added electrical capacity should be a welcome stimulus to the regional economy and an improvement in daily life.

However, an inspection of documents and conversations with farmers, fishermen and marketing committee officials in the Valley reveal empirical conditions contrary to the assumed benefits of the projects.

Farmers and fishermen in the 11 community meetings conducted by the Study Team reported decreased water access and less reliable supply. Many factors led to these actual conditions, but key ones include:

- Family relocations to barren or low fertility lands which require more water and more expense to maintain livelihoods
- Family relocations to lands without water distribution systems that would support them (often because projects in the Valley prioritize infrastructure needs of large water users)
- Saline penetration into freshwaters, leading to fouled fishing areas and significant fish kills
- Displaced families who have yet to receive alternative land (in some cases, families reported being without promised land for more than a decade).

In all of these cases, water access, affordability and reliable supply have suffered. The 11 community meetings conducted by the Study Team cannot be regarded as a random sample but all visited communities had been project-affected for years – more than enough time to provide legally required alternative land commensurate with livelihood needs. According to village leaders and marketing committee members in the three states we visited, the problems reported by farmers and fishermen are typical and ongoing, suggesting that a serious deficiency

exists – projects designed to address water needs of agriculture and fish culture have in fact frequently resulted in less water, higher expenses to maintain livelihoods, and significant supply uncertainties for families.

Reports published on actual water distribution in the Valley raise important concerns. For example, a report published by the Tata Institute of Social Sciences (TISS) in 2008 notes that in Maharashtra, water withdrawals are sinking many villages and leading to displacement of many adivasi communities in apparent violation of Indian law. Additionally, much of the water intended for agriculture is instead serving industrial applications and thermal power production. For example in 2006, the Sardar Sarovar Project (SSP), the largest infrastructural project in the Valley, was found to provide 61.91 million liters of water per day (MLD) for industrial uses (TISS, 2008). This exceeded the 45 MLD allocations to industry and reduced the domestic use allocation to 0.06 million acre feet (MAF) from the required 0.86 MAF allocation. The water endowed to agriculturalists in Maharashtra is essentially being siphoned off in a process that is contributing to pollution and severe water shortages where there was once clean abundant freshwater.

Water scarcity in this monsoonal area may also be exacerbated by other project inputs. For example, canal construction and associated excavation debris can create barriers to the natural hydrological cycle in the region. These structures may be preventing aquifer replenishment, as less water will be able to percolate through the soil. Diverting water could therefore lead to shortages in drinking and agricultural water in areas that have typically had reliable access.

As well, the water diverted to thermal power plants can be fouled during the electricity generation process and returned to the waterways untreated. This would affect the quality of the water available to downstream users and may eventually require expensive water treatment facilities.

The second rationale for extensive hydraulic engineering in the Valley is energy supply. Here again, the Study Team learned that performance is in conflict with what is promised in project documents. In terms of electricity, for example, the dam has consistently produced less power than forecasted by project authors.

Documents accessed by the Study Team indicate that the Tribunal gave priority to water supply over electricity generation and this may explain the observed under-performance. But if so, this raises a question about the advisability of the interstate benefit structure, especially from the perspective of Madhya Pradesh's farm and fishing communities and Maharashtra's business sector. Over 90% of the water distributed under the Tribunal's decision is taken from Madhya Pradesh and provided to Gujarat, while this state and Maharashtra can claim 50% of electricity generation. With supplied electricity well below forecast, Madhya Pradesh's farmers and fisher

folk appear to be paying a heavy price, as are farmers and businesses in Maharashtra, the location of the largest dams, and its associated displacement impacts. If the pattern of electricity under-performance continues, neither state will realize promised energy benefits while bearing significant water losses and displacement impacts.

An additional concern is the diversion of capital investment from readily available local energy resource development that would have been consistent with reliable water supply. The Valley has ample renewable energy resources which could be harvested on scales that meet local needs without large dams and the problems of water access, affordability and reliability of supply they pose. Costs of renewable energy generation have declined considerably in the last decade and may be competitive with retail electricity prices in the Valley. Also important, these options offer a measure of local control that could offset the undesirable interruptions that are routinely experienced by rural families in Madhya Pradesh and Maharashtra (as reported by participants in community meetings throughout the two states).

In sum, the water and energy rationales for extensive hydraulic engineering of the Narmada Valley are questionable at this stage of the project's development. Rather than more water and energy, less of both appear to be the experience of many villages; rather than reliable water and electricity supply, high levels of uncertainty appear to be pervasive; and rather than improved access, fisherman and farmers report diminished energy and water availability at affordable cost. Before further build-out occurs, it would be prudent for these experiences to be examined in greater detail as part of a systematic study of village impacts and concerns.

3.2. Participation and Violation

The Sardar Sarovar Project received clearances from the Ministry of Environment and Forests in 1987 and from the Planning Commission in 1988 provided certain pre-conditions were satisfied. Following are some of the aspects of the project that were covered in the pre-conditions:

- a detailed rehabilitation master plan
- a phased catchment area treatment scheme
- compensatory afforestation plan
- a plan for command area development
- a detailed survey of flora and fauna
- a thorough study of the carrying capacity of surrounding area
- details of seismicity for the area
- a study of the health aspects associated with the construction of the dam

For rehabilitation as well as the environmental pre-conditions of the project to be satisfied, civil society participation was strongly recommended. Accordingly, the administrative machinery of

the project sought the participation of local civil society actors in the planning process for the resettlement and/or compensation of people affected by the projects. The community meetings conducted by the Study Team, however, revealed the harsh reality. Firstly, the clause of participation itself was violated throughout the Valley. Secondly, in areas where systematic consultation was sought by the PAFs, changes were made in the nature of rehabilitation or compensation. Tasks were left incomplete, with no land available, no adequate finance and concerns of the local populace remained unaddressed. It was revealed through the intense narrations provided at the community meetings that for the PAFs in the Valley, the power to participate in the process did not bring the power to influence the decision-making.

State officials and those overseeing the projects continue to violate the rights of the local people by failing to consult them as regards the plans for the projects, by failing to take the time and make the effort to talk to the local people in their towns and villages, and thus failing to take the people's real needs into consideration.

Gross violations regarding the following issues were highlighted in the community meetings as those of primary concern:

- It is legally binding on officials to adhere to pre-approved rehabilitation norms for project oustees that require land to be given to these PAFs to replace the lands they had lost due to the projects. However, the local community revealed to the Study Team that many families affected by the 1993-94 submergences are still awaiting the allotment of their share of cultivable and irrigable land. Land offered to the PAFs for farming, we are informed, is mostly barren, uncultivable and irrigation is not provided. The affected families obviously and rightfully, have rejected this treatment. No good offer is being made in Madhya Pradesh and we learned that unlike in Maharashtra and Gujarat, Madhya Pradesh has not and does not intend to purchase or acquire private lands for rehabilitation. Large tracts of land, on the other hand, are being diverted to companies in the same state.
- With respect to the Special Rehabilitation Package that provides monetary compensation for lands lost, over 1,450 families have received only one installment of the package and, hence, have been unable to purchase land to for their homes and farms.
- Those who were rehabilitated were promised alternative house plots with civic amenities in 'rehabilitation villages'. Plots are allotted. In some cases the agricultural land offered is 100 to 200 kms away from the plots offered or allotted, and hence were rejected. Many house plots changed after they were reported to have been allocated, and illegally transferred to influential persons from within or outside the affected village, always for a 'price'.

- To be uprooted from one's village and ancestral home is also to have one's livelihood uprooted. The farmers, fishermen, potters, and others from rehabilitated villages who have depended upon traditional knowledge and the cultural and ecological contexts for their livelihoods, have yet to find alternative livelihoods, although the same has been guaranteed under the Policies and Action Plans.
- The preferential allocation of benefits to industries and the ensuing constant conflict because of the mismanagement of resources and lack of proper planning has led to delays and stays in the construction of the canal networks. As of today, not more than 30-35% of the canal work has been built. Thus, those farmers, especially at the tail end of the river, who were promised irrigation for their existing lands, have not received the benefits of the dam.

3.3. Reimbursement of the PAF – Cash for land vs. land for land

In an increasingly urbanizing world, money can be exchanged for almost anything as 'price' gradually replaces the 'value' of life, resources and even sentiments. With the obvious shortage of fertile land easily available to provide as compensation, the state has tried to implement a plan substituting cash for the promises of land. The following issues are of main concern to the Study Team and were expressed by community members throughout the trip:

- The state offers an equivalent of two years income from farming as the cash substitute for land. It might seem like a large sum of money, compared to typical earnings of PAFs, but it is not enough to compensate for the expenses incurred in re-establishing a farming enterprise, according to families meeting with the Study Team.
- For these communities, land is much more than a mere resource. For generations together, they have lived on and cultivated this land. The Valley holds a traditional, historical and cultural value for people. Culture and identity are tied together with the land. Submerging these areas including places of worship, shrines and monuments, weakens an entire culture. It is impossible to place a price on the value of what will be lost for people. Making cash payments as compensation for the loss of a culture would be reductionist and would imply a failure to recognize the multi-dimensionality of the issues related to resettlement and rehabilitation of people.
- The Narmada Valley currently supplies the bulk of the sugar cane, fruits, and vegetables for surrounding states. If land is not provided to PAFs, disenfranchised people will not find suitable land to farm. And even when oustees find lands to farm, it takes considerable time before family farms can be organized to yield earlier volumes. In some cases,

recovery has proven to be impossible. The delay in production will cause an exacerbation of the already growing problem of food insecurity.

- People receiving cash payment may choose to not use it to purchase land, but instead may use the money to migrate to other cities and towns. In this case, agriculture will suffer, and the influx of immigrants from the Valley into urban centers may stress the already strained resources of those settlements.

4. FINDINGS:

On the basis of its investigation and interaction with people as well as the study of selected important documents and reports, the Study Team has reached the following findings:

- The large scale of displacement along with impact on the forest, fertile agricultural land, fishing and habitat outweighs the benefits of Sardar Sarovar, one of the two largest dams in the Narmada Valley. The story may prove to be the same in the other 29 large dams which are under construction in the Valley.
- A complete review is needed to assess the feasibility of measures to mitigate loss and protect the ecosystem and generations of original inhabitants. Until this review is completed to the satisfaction of the PAF community, no further construction should take place.
- Narmada Valley is home to one of the oldest civilizations on earth. Its culture should be considered for preservation as a World Heritage Site.
- An extensive water and energy audit is needed to find practical alternatives which can enable recovery from the decades-long harm attributable to the project
- Paying cash in place of land and other benefits in rehabilitation should cease. The evidence from this project is that it has failed to meet the needs of the PAF community.
- Canal network should not be permitted in the already irrigated region because it would cause unjustifiable destruction of prime land, the ecology and agriculture in the area.
- The CEEP research community is prepared to volunteer services in support of project reviews, energy and water audits and other actions necessary to bring about culturally sensitive, environmentally sustainable, and locally sensible economic and social futures for this very special place and people on our earth.

5. SUMMARY

Multiple damming of the Narmada River and its tributaries has been called India's "greatest planned environmental disaster" (Arundhati Roy, 1999). The visit of the Study Team to the site where this project is unfolding and talking with communities being affected by the project has revealed that it is becoming a deep social and environmental wound. From inaccurately projecting the number of people that would be affected by the project to inaccurately mapping the costs incurred versus the benefits accrued, the project appears to lack justification and its vision seems deeply flawed.

While certain officials argue that only a relatively small number of people are affected by dam and canal projects, it has been noted that only those displaced by submergence are included in the PAF list. The impact of the project itself is far wider than submergence. And when that figure is juxtaposed against the number of people actually residing in the region, the proportion of lives affected paints a much grimmer picture (Vaghollkar and Das, 2010). The people of the Valley are paying for the project with their homes, their lands, their livelihoods, their identities and even their lives.

Industrial needs for water and electricity have been given priority over the needs of local people most affected by the submergence and displacement, leading to an unequal distribution of benefits. Whereas one of the major rationales for this project has been to provide water to villages, inadequate planning of the canal network and drinking water supply network has affected target achievement. Both the water supply and power generation targets are far from being realized and the distribution of water and power is materially different from what was planned, especially in Gujarat. Many places in the river valley, especially in the downstream area of the dam, would turn into dry regions as the dams upstream (SSP and others) on the river further restrict the flow.

A more democratic process of project operation enabling local populations to influence the decision-making is needed for containing the tragedy of the Narmada Valley. It is highly inadvisable to proceed with a higher height of the Sardar Sarovar Dam until all aspects of the project are understood and steps are taken with the full support of the PAF community to ensure that all pre-conditions are fulfilled, including rehabilitation of current families displaced by the project. A change in the paradigm of energy provisions is needed, shifting from centralized large scale systems to appropriate scale decentralized projects which bring more and equitable benefits with minimum environmental cost.

Without a change in course, human rights will be violated and sensitive habitats, including those hosting national forests, will be compromised. Solutions are available and affordable to avoid these results.

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