PERFORMANCE AND DEVELOPMENT EFFECTIVENESS OF THE SARDAR SAROVAR PROJECT



TATA INSTITUTE OF SOCIAL SCIENCES
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PREFACE

The Tata institute of Social Sciences (TISS), Mumbai, was the official agency for Monitoring and Evaluation of Resettlement and Rehabilitation of people displaced in Maharashtra by the Sardar Sarovar Project (SSP) from 1987 to 1994. During this period, the TISS developed baseline data on social, demographic, economic, cultural and environmental aspects of individuals, families and communities in 33 villages in Akkalkuwa and Akrani tehsils of Dhule (now Nandurbar) district, and tracked changes in the habitat and life conditions of people shifted from Manibeli, Dhankhedi, and Chimalkhedi villages to Parveta (one of the earliest resettlement sites in Gujarat).

While TISS moved out of its monitoring and evaluation role in 1994, it continued to track the progress made on various aspects of the SSP. Dam height has been steadily increasing and reached 121.62 m in October 2006; the final and pending phase of installing radial gates will take the dam height to 138.68 m. At full reservoir level, i.e 138.68 m, the water column at the dam height will rise to MWL i.e. 141.21 m.

It is this last stage, which is of immediate concern as it has serious social and environmental implications. However, the governments of the states that stand to benefit from the SSP as well as the Central Government are moving the Supreme Court and Narmada Control Authority for authorisation to raise the dam height. This situation spurred this study, which was undertaken with the objective to review and analyse the costs and benefits of the Sardar Sarovar Dam at the current stage, and its overall implications to the affected people and the nation. The key questions asked were:

- What are the actual benefits realised against projected benefits derivable with the dam height at 121.62m?
- What are the social, economic and livelihoods costs of raising the dam height from 121.62 m to 138.68 m and how do these costs compare with potential benefits from raising the dam height?
- What is the status of compliance on social, environmental and economic aspects of the Project till date and what have been the reasons for non-compliance, if any?

Much of the secondary data for the study came from the Narmada Control Authority, the Governments of Gujarat, Madhya Pradesh, Maharashtra and India; Reports from Comptroller and Auditor General of India; Reports and Minutes of the Narmada Control Authority's (NCA) Sub-Groups on Resettlement and Rehabilitation (R&R) as well as Environment; reports of answers given to questions on the SSP in the Gujarat Legislative Assembly; statements made by ministers and officials associated with the SSP. and other published reports/papers from independent research. This study had access to the reports of various committees set up by Government of India; affidavits and submissions made to the Supreme Court of India by Government agencies as well as information provided by the State Governments in response to RTI questions. The Study also took into account the data and documents of people's organisations, including Narmada Bachao Andolan and other NGOs working on the subject.

The report was developed by my colleague Mr. Himanshu Upadhyay, and supported by Ms. Jaya Goyal, Assistant Professor, TISS and Prof. Subodh Wagle, Dean, IITB-TISS School of Habitat Studies. The Report was guided by an Advisory Group consisting of the following members: Mr. M.J. Vijayan, Delhi Science Forum; Mr. Clifton, National Alliance of People's Movements; Mr. Girish Sant, Prayas, Pune; Ms. Usha Ramanathan, International Environment Law Research Centre, New Delhi; Prof Kamal Mitra Chenoy, Jawaharlal Nehru University, New Delhi; Mr. Sharadchandra Lele, Centre for Interdisciplinary Studies in Environment and Development, Bangalore; Mr. Himanshu Thakkar, South Asia Network of Dams Rivers and People (SANDRP); and Dr. Ravi Kuchumanchi, Association for India's Development, USA.

This report is aimed at generating discussion and deeper analysis in the broader interest of the people and the nation – safeguarding the right to life of the people living and dependent on some of the most fertile lands in the country, and enabling the nation to enhance its food security. The discussion should also incorporate the dimension of economic efficiency – whether the social and environmental costs outweigh the benefits to be derived from raising the dam height, and if there are better options in terms of cost vs. benefits, development effectiveness and social justice. Therefore, it calls for in-depth analysis and informed debate before further raising the dam height to the proposed final level is taken. We hope that this report engenders deliberations that will critically re-examine all these concerns and results in decisions and actions that best serve the country, its people, and the natural environment.

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August 2008

EXECUTIVE SUMMARY

I RATIONALE OF THE STUDY

The Sardar Sarovar Dam on the river Narmada – meant to benefit the 4 states of Gujarat, Madhya Pradesh, Maharashtra and Rajasthan – has been one of the most controversial and hotly debated megaprojects in contemporary India and across the world. However, post 2000, it has slowly become a mere legal issue, and public debate has largely waned. Currently, the people who continue to be concerned about the project are those who have already been displaced and others who are slated to lose lands, livelihoods and habitats during further submergence. During this period (post 2000), dam height reached 110.64 m in June 2004, 119 m in June 2006, and 121.92 m in October 2006, and the final and pending phase of installing radial gates will take the dam height to its final peak of 138.68 m. With a full reservoir level, taking into account the height of the flowing water column, the dam will measure 142 m high when completed. It is this stage, which is the point of contention as it has serious implications to the project's potential to deliver proclaimed benefits while enduring all costs – the financial costs, the social costs of rehabilitating the displaced people and reclaiming lost livelihoods, and the impact on the environment. There is serious apprehension that all the costs will have to be borne with further construction on the dam; the promised benefits may not accrue in full. Further, compliance on rehabilitation and environmental measures may turn out to be non-feasible.

This study was undertaken with the objective to review and analyse the costs and benefits of the Sardar Sarovar Dam at this stage, when efforts are being made to complete the last leg of the dam, raising height from 121.92 m to 138.68 m (and 141.21 m when the water is overflowing). The premise is that at the present height of 121.92 m, the dam could have yielded most of the benefits, especially irrigation, water usage for domestic and industrial purposes, and electricity. After examining current status on the delivery of benefits as per official data, the Report assesses the costs (both financial and social) till date. An indication from official sources on the level of additional financial resources needed to realise originally expected benefits from the dam has been obtained. The analysis has weighed these costs with the benefits the dam has currently achieved on ground and also the future projections of benefits, which it aims to deliver if the dam is completed. In doing so, the Report offers an opportunity to review costs against benefits, and makes the point that it would be useful to do a more comprehensive analysis of social, economic and environmental costs resulting from further displacement of peoples, livelihoods and loss of some of the most fertile and biodiversity-rich lands in the country. An informed analysis and discussion is required before proceeding to raise the dam height to 138.68 m.

II THE SSP: SOME CRITICAL MILESTONES

The Sardar Sarovar Project (SSP) which was first proposed in 1946, became part of the Narmada Valley Development Project, which comprises 30 large dams (of which the SSP is one) on the Narmada River, 135 medium dams and 3,000 small dams. Some salient facts about the project:

- During its early years (1964-1965), the dam height was fixed at 500 feet to prioritise water for irrigation in the arid zones in Gujarat and Rajasthan over the benefits of the power generated.
- The Narmada Water Disputes Tribunal (NWDT) was established in 1969 to resolve conflict arising from water allocation amongst Gujarat, Madhya Pradesh, and Maharashtra, with Rajasthan brought in at a later stage.
- In 1979, the NWDT apportioned the Narmada waters between 4 states and fixed the height of the SSP at 138.68 m (455 feet). It also laid down binding rehabilitation norms by promising the project oustees cultivable and irrigable land and alternative house plots with civic amenities in the 'rehabilitation villages'.
- During the late eighties and early nineties, the SSP faced immense resistance from the affected population. This led to two reviews: an Independent Review by the World Bank, headed by Mr. Bradford Morse and another by the 'Five Member Group' constituted by the Union Water Resources Ministry.
- In the early 1990s, drinking water was added to the project benefits.
- Following a writ petition in May 1994, the Supreme Court stayed the dam construction on 5 May 1995.
- In an interim order in February 1999, it allowed the height of the dam to be raised to 88 m from 81.5 m.
- On 18 October 2000, the Court delivered a verdict allowing the Project to go ahead in principle, but in stages with rehabilitation of the displaced going hand in hand. The Supreme Court mandated that the riparian states ensure compliance with the NWDTA's rehabilitation norms and the clearance conditions set by the Union Ministry of Environment and Forest (MoEF).

III SUMMARY OF PLANNED BENEFITS OF SSP AS AGAINST ITS ACTUAL PERFORMANCE

1. Irrigation

As per the **original design**, the dam was to irrigate 17.92 lakh ha land in Gujarat and 73,000 ha of land in two districts of Rajasthan. The beneficiary states claimed that in the first phase of command area development, a total of 2.46 lakh ha land of would be irrigated. At the time of raising the height to 121.92 m, it was projected that 3.5 lakh ha of additional land will be brought under irrigation. However, much of the irrigation benefits have not been realised because of delays in the creation of distribution networks; the length of the irrigation distribution network was stated to be 75,000 km during the early nineties, and recently, the Gujarat Chief Minister quoted a figure of 90,000 km. However, much of it remains to be developed.

The following are the **actual benefits** achieved so far in irrigation:

- Although Gujarat received Rs 4,887 crores and Rajasthan received Rs 625 crores under the Accelerated Irrigation Benefit Programme from 1996 to 2008 from the Central Government for the SSP command area, creation of the canal network is lagging behind. As per the reply given on the Floor of the Assembly by the Chief Minister during the Budget Session, as on December 31, 2007 about 19% of the canal network is completed.

- Dam-based irrigation is highly dependent on the development of the command area through a network of minor and sub-minor canals. In the SSP, the command area development work is seriously lagging behind in the first phase region in Gujarat – about 41% work on branch canals and 76% work on sub-branch canals remains to be completed in Gujarat.
- The work on minor and field channels has been inadequate to take irrigation water to farmland even in the first phase of the command area.
- As reported in Socio-Economic Review for Gujarat, 2006-2007 and 2007-2008, the maximum irrigation ulitisation has stagnated at 1.53 lakh ha in Gujarat, which is only marginally higher than the irrigation potential created with Command Area Development by the end of 9th Plan (March 2002), at 1.3075 lakh ha.
- A key planning assumption of the SSP was that the Water Users Associations (WUAs) would construct water distribution systems in the village service areas. Although 1,186 WUAs were registered in 2006, only 10% were active and none of them constructed a distribution system. As a result, the use of the Narmada waters is dependent on the ownership of diesel pumps and pipes and is, thus, influenced by local power relations. Farmers are investing in diesel pumps and pipes to lift water from the main canal. As much as 54% of the command area (26,525 ha out of 57,919 ha) in Gujarat is being cultivated by lifting canal water with diesel pumps.
- In Rajasthan, the construction of a 100 km portion of the 458 km-long Narmada Main Canal is far from over despite the Central Government releasing Rs.625.33 crores. The delay in completion of the main canal will further delay the availability of the Narmada waters to villages through sub-canals despite the dam height nearing completion.

2. Drinking Water

The drinking water benefits of the SSP have always been presented as a strong argument in favour of the Project, whenever it was gripped by controversy. Some of the **promised benefits** vis-a-vis drinking water were:

- While out of 9 Million Acre Feet (MAF) allocated to it under the NWDTA, Gujarat put aside 1.06 MAF for municipal and industrial use combined. The number of villages which were promised Narmada water was zero in 1979.
- The number of villages that were promised Narmada water kept increasing due to demand for drinking water by various regions in Gujarat. By 1984, 4,720 villages were identified for receiving drinking water. This rose to 7,235 villages in 1990, and 8,215 villages, 135 towns and 6 municipal corporations in the late 1990s. As per the Gujarat Water Supply and Sewerage Board's (GWSSB) revised master plan in 2005, Narmada water had been promised to 9,633 villages and 139 towns in Gujarat. In addition to this, 1,107 villages and 2 towns in Jalore and Barmer districts of Rajasthan were also to receive drinking water.

The **actual achievements** of the SSP with respect to drinking water:

- Three performance appraisals carried out by the Comptroller and Auditor General (CAG) in 2003, 2005 and 2006 revealed that both in terms of capacity utilisation and villages covered, the performance vis-a-vis drinking water supply from the SSP in the districts surveyed has remained at only 29%-33% of the actual potential.

- Pravah, an NGO in Gujarat, conducted a citizens' survey of 1,074 villages in 7 districts under the Sardar Sarovar-based drinking water pipeline project during June 2004-May 2005. Their report shows that the actual coverage was 1,122 villages (23.1%) in April 2004 and 2,044 villages (42%) in December 2005 as per the GWSSB database.
- Saurashtra has received 20% of the water supplied to the Saurashtra Pipeline Project through the Mahi Canal, while the remaining 80% was diverted to power plants, industries and city municipal corporations in 2003. No recovery of water charges was carried out from these corporations and industries and the GWSSB had to bear the entire expense of 48 crores to make available water for domestic use.
- The CAG report for 2006 found that the industrial units in Kutch received 61.91 million litres of water per day (MLD), which was in excess to the stipulated allocation of 45 MLD. The overall allocation to industries in Gujarat went up from 0.20 MAF to 1.00 MAF. This also meant that the allocation for domestic use was reduced to 0.06 MAF from the original allocation of 0.86 MAF.
- The capital cost of the drinking water supply project is estimated at Rs.7,470 crores (at 2001 prices). Also, the annual Operation and Maintenance cost is estimated to be Rs.541 crores and there have been shortfalls in revenue realisation from water tariffs.

Increases in dam height have not been synchronised with time overruns in the construction of the Narmada canal-based drinking water infrastructure. Much of the water needed for municipal and industrial water supply became available in August 2002 at a height of 100 m. However, even with dam height nearing completion, the realisation of drinking water has been highly inadequate.

3. Power

The SSP is designed to generate electricity at the River Bed and Canal Head Power Houses having a combined installed capacity of 1450 MW in March 2006, at the time of raising the height from 110.64 m to 121.92 m, it was hoped that the increased height would add 3500 Million Units (MU) of power generation.

When it comes to **actual realisation** of power benefits, the realised potential – at 3,601 MU in 2006-2007 – has not been consistent with the dam height achieved. In June 2004, when the dam height touched 110 m, the SSP was ready to generate power but owing to delay in commissioning of the river bed powerhouse, power generation did not start till early 2005. There was also a delay in installing the power turbine generators. Finally, the increase of the dam height from 110.64 m to 121.92 m attributed to 1500-1700 MU of surplus of which only 550 MU was attributable to increased height.

IV SUMMARY OF PROJECTED COSTS OF THE SSP AS AGAINST ITS ACTUAL COSTS

1. Financial Costs

Projected Costs: At the time of the Planning Commission's investment approval, the SSP's projected financial cost was Rs 6,406.04 crores at 1986-1987 price levels.

Actual Costs: According to the report of the 'Working Group on Water Resources for the 11th Five Year Plan', the total cost of the SSP has already touched Rs 45,673.86 crores. The SSP costs are likely to go up to Rs 70,000 crores by 2012.

The CAG report on Gujarat (Commercial) for the year ending 31 March 2001 criticised the Sardar Sarovar Narmada Nigam Limited (SSNNL) for indiscriminate market borrowings. As on March 2006, expenditure on debt repayment constituted 37% of the overall expenditure. In the period 2001-06, the CAG reports indicated that almost 53% of the expenditure, to the tune of Rs.5586 crores was related to debt repayment by the SSNNL. The CAG reports have also pointed out how the SSNNL granted undue favours to contractors, and how cement companies formed a cartel, while tendering for supply of cement. There has also been a Public Accounts Committee report that reported large-scale corruption in Sujalam Sufalam, a project linked to the SSP.

2. Human Displacement Costs

Projected Costs: At Full Reservoir Level (FRL) of 455 feet (138.68 m) the dam will submerge 37,533 ha of land in 245 villages in Gujarat, Maharashtra and Madhya Pradesh, displacing 48,304 families as noted in the latest status report by Narmada Control Authority (2007). The planned mammoth canal distribution network of 90,000 km will take a toll of approximately 80,000 ha of land.

Actual Costs: This study estimates that the cumulative number of families that are yet to be rehabilitated as per binding rehabilitation norms of NWDTA and Supreme Court judgments at the present height of 121.92 m and those to be affected if the height is increased to FRL i.e. 138.64 m, is approximately 40,000 in Madhya Pradesh, Maharashtra and Gujarat. With regard to the quality of rehabilitation, although the Supreme Court binding rehabilitation planning procedures with time schedule, norms and provisions that promised the project oustees, cultivable and irrigable land and alternative house plots with civic amenities in rehabilitation villages, state governments have not complied with these norms. This has led to dilution of oustees' rehabilitation entitlements. For instance, the NWDT has clearly laid down land based rehabilitation measures, but the Madhya Pradesh government introduced the Special Rehabilitation Package (SRP) in 2001, under which the state has been disbursing cash in lieu of land submerged.

Further in 2002, the state government introduced an arbitrary distinction between permanently and temporarily affected families, which resulted in a drastic decline in the number of Project Affected Families (PAFs). The Supreme Court in 15 March 2005, disapproved of such a distinction and asked the state governments to rehabilitate all the affected families and major sons, providing all rehabilitation entitlements as laid down by the NWDT. Following this, the SRP (Cash for Land) was suspended by the Review Committee of the NCA on 21 March 2005. However, the SRP was revived again by Madhya Pradesh government on 16 June 2005. The decision of the NCA to allow the height to be raised to 121.92 m on the basis of "assurances" to cover all affected families for rehabilitation benefits constitutes clear violation of the undertaking to the NCA and Supreme Court of India.

3. Environmental Costs

Projected Costs: The project has several adverse impacts on the ecology of the region in addition to submergence of 13385.45 ha of forest land. As stipulated by the Ministry of Environment and Forests, the phased catchment area treatment, compensatory afforestation, command area development, survey of flora, fauna and carrying capacity, seismicity and health aspects, are some of the environmental safeguard measures that are to be planned and implemented *pari passu* with the progress of work on the project, and a report to this effect was to be provided by 1989. These were the conditions detailed in conditional environmental clearance for the SSP dated 24 June 1987.

Actual Costs: An assessment of these issues reveals that environmental safeguards are not being effectively implemented. The catchment needs to be properly treated in order to prevent erosion of the soil and siltation in the reservoir as both contribute to degradation of water quality of the reservoir and reduce the life span of the dam. Of the original catchment area of 24,42,440 ha that was to be treated, the NCA committed to treat less than 6.5% of the total catchment area, by devising a classification of the catchment as "critically-degraded" and "non-critically degraded" catchment area. As per CAG audit report findings 2000-01, Maharashtra had spent only Rs 0.22 lakh on catchment area treatment. Thus, with such a miniscule allocation and expenditure, it is clear that even limited Catchment Area Treatment has not taken off. Photographic and documentary evidence of submerged forests in reservoirs of various dams on the Narmada, confirm that forests have not been cleared, again leading to degraded water quality due to eutrophication.

For compensatory afforestation efforts, the state governments of Gujarat, Madhya Pradesh and Maharashtra kept aside 46,358 acres. NCA reports that compensatory afforestation has been completed in 42,064 acres of land. However field assessments on 1242 acres of land have determined that 86% of the afforested areas are found to be highly degraded with little or no tree cover. Many audit reviews of district forest divisions, show that the plantations raised on account of compensatory afforestation showed a low survival rate of 0-20%.

Command area treatment by building proper drainage is equally crucial to prevent water logging and soil salinity which are responsible for degrading the land. In the SSP, 52% of the command area faces high to very high probability of water logging and salination. Every year from 1995 onwards, during the monsoons, large parts of the command area where the canal network is more advanced suffer from water logging resulting in crop loss.

V FINDINGS ON IMPLEMENTING AGENCIES

One of the very visible yet neglected issues that has resulted in numerous conflicts over the SSP has been the lack of accountability of agencies responsible for protecting and securing the rights and entitlements of the vulnerable people affected by the dam. As a result, though there have been multiple agencies empowered to carry out the necessary tasks, violation of rights of people and environmental pre-conditions continues with impunity. This is the situation in a project monitored by the Supreme Court of India. When the responsible and empowered government institutions and agencies fail to be faithful in reporting to the Supreme Court, the affected people have no way of realising their rights and entitlements.

Narmada Control Authority

- Both the NCA and the R&R sub-group of the NCA have not been able to enforce compliance with the NWDTA guidelines on R&R and the conditionality pertaining to the *pari passu* clause. Further, both have allowed policy dilutions, leading to deterioration of the quality of R&R, through distortions such as the arbitrary distinction between the the "Temporary" and "Permanent" PAFs as well as continuation of the SRP.
- The NCA permitted the dam height to be raised to 121.92 m in 2006 on the grounds that all PAFs affected due to increase of height from 110 m to 121 m were rehabilitated. In doing so, the NCA failed to consider the crucial fact that barely a year ago, i.e., in September 2005, the R&R sub-group of the NCA had acknowledged that R&R of oustees had not taken place in consonance with the Supreme Court's order.
- The issue of backwater estimates of Maximum Water Level (MWL) of the Dam has not been settled yet. In absence of this, about 10,000 families are not informed whether their homes would be submerged if the Sardar Sarovar dam is completed by installation of gates. Thus, by delaying this decision, the Narmada Valley Development Authority (NVDA) and the NCA are placing at least 10,000 families in a precarious situation.
- The Environment Sub-Group of the NCA has failed to ensure compliance with the conditions for clearance given by the Ministry of Environment and Forests (MoEF). It has also failed to carry out monitoring and review of environment mitigation measures such as Catchment Area Treatment, Compensatory Afforestation and Command Area Development.

Sardar Sarovar Narmada Nigam Limited (SSNNL)

- As per the 11th Plan Working Group of the Planning Commission, the financial costs of the SSP have risen from Rs 6,406 crores (at 1987 prices) to Rs 45,000 crores. Apart from contribution of inflation and other economic factors, there are factors emanating from SSNNL's indiscriminate resource mobilisation that have led to a mounting debt repayment burden on the people of the Gujarat state.
- The NVDA and the Government of Madhya Pradesh: Both NVDA and MP Government have not implemented the mandatory rehabilitation clauses prescribed by NWDTA by diluting the recommendations like land-based rehabilitation and provision of house-plots at R & R sites with civic amenities. While NWDTA and the Supreme Court directives provided PAFs with rehabilitation entitlements, NVDA diluted such entitlements to mere cash compensation by introducing the SRP offering cash-for-land and also offering cash for house plots. The SRP has been reported to be highly ineffective in rehabilitating the displaced people in Madhya Pradesh; there also have been reports about fudging of PAF numbers and large-scale corruption.

Grievance Redressal Authority

- GRAs were constituted to address complaints of non-compliance with R&R related requirements. However, they did not monitor compliance and fix responsibility for non-compliance on agencies like the NVDA, the SSPA, the NDD, and the NCA.

- In fact, the GRA in Madhya Pradesh seems to have overstepped its mandate by extending legal opinions for State governments. The Maharashtra GRA failed to integrate ongoing studies on rehabilitation process by YASHADA and continued to report "substantial compliance".
- The GRA in Madhya Pradesh has also failed to check the policy dilution and violation of NWDTA's binding rehabilitation clauses. Even when the Supreme Court questioned the Special Rehabilitation Package of the MP government and the arbitrary distinction between temporarily and permanently affected PAFs and reaffirmed the entitlements of major sons for land based rehabilitation, Madhya Pradesh GRA, in its legal opinion, presented its own interpretation of the Supreme Court judgment and upheld SRP.
- The GRAs failed to report the status of the pending cases of rehabilitation to the NCA, which has had implications for the decision to allow raising of the dam height from the year 2000 onwards.

The Planning Commission

The Planning Commission should have followed up to ensure compliance of the conditions attached to the costs clearance on project costs granted by it. The Commission should have reviewed the project's financial viability subsequently when revised cost estimates were submitted. Although the revised cost estimates remained unapproved, this information—which was crucial to public interest—was never made public, until the CAG's Performance Audit on Accelerated Irrigation Benefit Programme (AIBP) in the year 2004 revealed the same to the Parliament.

The Prime Minister

The Supreme Court judgment in 2000 placed the responsibility on the Prime Minister to resolve disputes in case a dispute remained unresolved in Review Committee of the NCA. Such an event arose in the year 2006, and the Prime Minister could have reviewed the non-compliance and violation of NWDTA in the light of the report by the group of three ministers. However, he chose to appoint the 'Oversight Group' (OSG) instead and then relied on the report of OSG to allow construction to go on.

VI POLICY RECOMMENDATIONS

Short to Medium Term Measures

1. The option of not installing radial steel gates need to be investigated to assess the costs and benefits of this option. If steel gates are installed, there would be irreversible consequences, since the submergence, displacement and ecological impacts rise exponentially in this final phase. As per one estimate, if steel radial gates are not installed and the current height is accepted as the FRL, then there would be a very marginal loss of power generation of about 13.06%. This marginal power loss would progressively reduced to zero when MP builds projects upstream and Gujarat and Rajasthan build irrigation networks, as no surplus water would be available for power generation at River Bed Power House (RBPH).

Freezing the heights at current levels would have no negative impact on Gujarat and Rajasthan's share of water as per the NWDT for irrigation and drinking water benefits.

Moreover, it is argued that taking such a decision would decrease the huge social and environmental impacts substantially, by reducing submergence land by more than 20,000 ha and the number of oustee families by 30,000 approximately. It is also estimated that by not increasing the height of the dam from the current level, about 50% of the proposed submergence area can be saved, all cost of construction for increasing the height will be saved, and most of the affected people in Madhya Pradesh will not have to be displaced.

2. PAFs are entitled to cultivable and irrigable land for rehabilitation as per NWDTA and Supreme Court's directives and the State is duty-bound to give them. As the state has tried to sidestep this responsibility by providing uncultivable land or cash instead, many families have not shifted out. This has become a contentious issue as according to the State, the families offered the uncultivable lands or cash are considered rehabilitated but on the ground, the affected families are able to barely sustain themselves and their livelihoods.
3. A high-powered independent inquiry into corruption, which is reported to be of unprecedented scale, should be carried out to identify the agencies responsible and book them under the law as also to review the present policies and practices related to R&R in the context of the NWDTA and state policies. A mechanism needs to be evolved, to ensure that misappropriation of the funds and benefits meant for the PAFs is stopped fully, with immediate effect.
4. The 2 sub-groups of the NCA, viz., R&R Sub-group and Environmental Sub-group should have better representation of civil society organisations and academic institutions to review the progress on rehabilitation as there have been huge irregularities in the official PAF figures. The authorities have reduced the displaced families to mere numbers subject to random maneuvering.

Medium to Long Term Measures

1. The focus of investment in the SSP should be in building the canal network because despite a height of 121.92 m, only about 29-31 % of target villages in Gujarat have been receiving regular water supply, as shown in the citizen's monitoring report as well as performance audits by the CAG. Secondly, the figure of irrigation coverage has stagnated at only 1.53 lakh ha of area which was achieved at the height of 110.64 m. Data obtained under the RTI shows that during each of the last three calendar years (i.e. 12506.55 MCM in 2005, 19294.57 MCM in 2006 and 19909.58 MCM in 2007) much more water than the allocated share of Gujarat and Rajasthan (i.e. 11718.345 MCM) was available at the SSP, and therefore any further increase in dam height would have no effect whatsoever in realising the targets on irrigation and drinking water.
2. While currently a large amount of money is reported as having been spent on compensation and rehabilitation, the task of resettlement and rehabilitation of all the PAFs in compliance with NWDTA has not been accomplished. The Government of Madhya Pradesh should follow NWDTA norms of land-for-land compensation to the PAFs.

VII SUMMING UP

It is strongly recommended that the dam height at 121.92 m should not be raised further by installing 17 m high gates which would take the dam height to be 138 m, at least until the past obligations are fulfilled, the benefits of 121.92 m are completely realised, and a honest comparative analysis of future costs and benefits is carried out. Such a decision would also ensure that concerns on social and ecological impacts are addressed, responsibility for non-compliance is fixed, and violators are penalised.

The sky-rocketing costs of the total project point to the need for a fresh review of the costs and benefits of the project. This is required especially to convince the people of India that the financial, human, and environmental costs of further construction to raise the height further are defensible in view of the additional benefits that the additional height through gates would bring in. It is obvious that this evaluation of additional costs and benefits needs to be carried out in a transparent, participatory, and accountable manner.

While deciding about the impending final stage construction to raise the height of the dam to 138.68 m from the current 121.92 m, a comprehensive picture of costs and benefits needs to be considered. As the findings of this report suggest, the projected benefits of the dam up to the height of 121.92 m are yet to be harnessed or realised.

Efforts need to be focused first on harnessing and realising these benefits. Further, the obligatory measures for the R&R of the PAFs affected by the dam height of 121.92 m need to be completed without any dilution of the R&R package. Similarly, the requisite actions for mitigation of environmental damage caused by the dam height of 121.92 m have to be completed as per the clearance conditionalities. The concerned agencies are duty-bound to discharge these legally mandatory responsibilities fully before trying to raise the height beyond 121.92 m. It would be illegal, inefficient and unjust to incur expenditure on additional construction, displace more communities and inflict further environmental damage, when the previous obligations in this regard are not fulfilled and, more importantly, when the benefits due to the existing dam wall are yet to be fully harnessed and realised.

SARDAR SAROVAR PROJECT
EXAMINING SOCIAL, ENVIRONMENTAL AND FINANCIAL COSTS

1

INTRODUCTION

The Narmada is the longest river in Central India, as well as the longest west flowing and fifth longest river in the South Asian peninsula. It rises near Amarkantak, in Shahdol district of Madhya Pradesh (MP), at an elevation of about 2,700 feet. After traveling a distance of more than 965 km, the Narmada forms an approximately 35 km long natural border between MP and Maharashtra, and a 40 km long natural border between Maharashtra and Gujarat. It then flows for an additional distance of about 160 km through Gujarat and finally enters the Gulf of Khambhat (Cambay), and drains into the Arabian Sea.

The Sardar Sarovar Project (SSP) is one of second largest among the 30 large dams planned to be built on the Narmada River and its canal network is suppose to be the largest in the world. The SSP is a multipurpose dam with the primary rationale of providing irrigation and drinking water. Power generation is another added benefit together with water for industrial use, development of fisheries, flood control etc. Located in the State of Gujarat, the dam is going to benefit 4 States of Gujarat, Madhya Pradhesh, Maharashtra and Rajasthan, with Gujarat deriving maximum of its benefits.

The benefits of the SSP however have accompanied huge costs - financial as well as social & environmental costs. The SSP is slated to impound water to a Full Reservoir Level (FRL) of 138.64 m by submerging 37,000 ha land of 245 villages in Gujarat, Maharashtra and MP. The length of irrigation distribution network was stated to be 75,000 km during the early nineties[1] and the mammoth distribution network itself would take a toll of approximately 80,000 ha. For a brief history of the SSP, please refer to Appendix 1.

SOCIAL COSTS: DISPLACEMENT AND REHABILITATION

> The displacement of the people due to major river valley projects has occurred in both developed and developing countries. In the past, there was no definite policy for rehabilitation of displaced persons associated with the river valley projects in India. There were certain project specific programmes for implementation under the provisions of Land Acquisition Act, 1894 used to be given to Project Affected Families. This payment in cash did not result in satisfactory resettlement of the displaced persons, the requirement of relief and rehabilitation of PAFs in the case of Sardar Sarovar Project was considered by NWDT and the decision and final order of the Tribunal given in 1979 contains detailed directions in regard to acquisition of land and properties, provision of land, house plots and civic amenities for the resettlement and rehabilitation of the affected families. The resettlement has thus emerged and developed along with Sardar Sarovar Project. (Supreme Court majority judgment, 18 October 2000)

The NWDTA provides mandatory stipulation on rehabilitation, as the Supreme Court has noted, for the first time in the history of displacement in India. The NWDTA laid down unambiguous directions on rehabilitation of oustees getting affected by displacement due to submergence of the SSP, and had defined the linkage in Clause XI (sub clause I and IV).[2]

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[1] While recently while replying a question on the progress of canal network, the Gujarat CM used the figure of 90,000 km.

[2] Please refer to Appendix 2 for further details.

The NWDTA's rehabilitation clauses unambiguously establish that for any oustee the arrangements for his/her rehabilitation (i.e. irrigable agricultural land and house plot in) R&R sites with all civic amenities have to be put in place *one year in advance*. Further as per Clause XI, Sub Clause V (3) (iii), Gujarat was required to intimate to Madhay Pradesh (MP) and Maharashtra the **area coming under submergence at least 18 months in advance** and ensure the completion of rehabilitation in all aspects **at least 6 months prior to submergence.**

In the case of B.D. Sharma Vs. Union of India and Others (Writ Petition No 1201 of 1990), the Supreme Court reiterated the above mentioned provision of the NWDTA explicitly when it ruled that rehabilitation has to be completed 6 months prior to submergence in all respect.

Compliance with the rehabilitation clauses of NWDTA has been an issue of intense debates in recent past. While concerns over non-compliance were addressed to the Narmada Control Authority and courts earlier; in 1999, the Supreme Court approved constitution of a Grievance Redressal Authority (GRA) for Gujarat, and later for Maharashtra and MP in 2000. (Some considered this as dilution of the gravity of violations on this aspect.) The Authority was assigned the task of looking at those cases as grievances individually. In last 7 years, GRAs seem to have handled non-compliance and violations of rehabilitation clauses of the NWDTA in somewhat soft manner, as it failed to satisfy the parties brining their grivences. In fact, the GRAs have also at times taken liberty to interpret the rehabilitation-related clauses as well as recent orders of Supreme Court.[3]

It was estimated at the time of NWDTA in 1979 that 6,417 families would be affected due to submergence. In 1986, the Department of Environment and Forests put the total number of affected persons as 66,675 (or about 13,335 families). In 1994, the Five Member Group gave a figure of 40,245 families. In 2000, the Supreme Court acknowledged a figure of 40,287 families and in 2006, in an affidavit submitted by Union of India, the number of affected families was put at 43,000. However, from the year 2002 onwards, there is a trend to diminish the number of project affected families (PAFs). Recently, states by themselves have also declared PAFs as *ineligible for rehabilitation.*

1. Rehabilitation of Oustees from MP

The largest submergence would occur in MP where lands belonging to 193 villages are slated to be affected. However, statements in review missions by the World Bank, reading of the January 1992 Action Plan, report of the Independent Review and Comptroller and Auditor General's (CAG) audit report for MP (Civil) for the year ending 31 March 1998, suggest that the appraisal of extent of submergence and number of affected people has always been an issue that has not been assessed with adequate consideration.

The first World Bank review mission on R&R in 1985 reported GoMP officers as saying that all oustees would go to Gujarat. The 1998 April/May review mission observed that when it came to implementation, MP appeared to have done nothing. The 1989 April/May and 1990 April/May review missions were told by GoMP not to go into the submergence region because of their opposition to the project.

[3] Cited from: GRA, MP's Order on What it Prefers to call SRP's Legal Validity.

The Independent Review Report (1992) discussed in detail 3 resettlement sites (namely Guttal, Suriya and Golagamdi) in Gujarat, where affected families from MP (namely Bhavati, Akadiya and Jalsindhi) had moved in 1990 and the problems faced by them. The Independent Review Team studied the resettlement plans of the GoMP and underlined the fact that "its resettlement sites are to provide only 10 % of the land needed for its oustees."

Thus, though the process of land acquisition and piecemeal resettlement of the affected population from MP on R&R sites in Gujarat started in the early 1990s, the pace and preparedness remained slow till 1998.

A CAG audit report for MP (Civil) for the year ending 31 March 1998, stated that, "MP had rehabilitated only 746 PAFs out of 33014 PAFs". May be it was such a slow progress on rehabilitation that made Justice Kirpal write in the majority judgment, that in the state of MP there "seems to be no hurry in taking steps to effectively rehabilitate MP PAFs in their home state". The majority judgment also asked all the 3 Governments to prepare resettlement and rehabilitation master plan within 4 weeks.

Instead of identifying alternate cultivable agricultural land with irrigation facilities, MP continued to send oustees a signal that read that there was no land to rehabilitate them in the state, and encouraged migration to Gujarat even in the face of increasing cases of oustees who had accepted rehabilitation in Gujarat returning to the submergence villages.

Although the NWDTA granted oustees of Maharashtra and MP right to get rehabilitated in their home states, in the late 1990s, authorities resorted to deny them this right by sending them letters from the Sardar Sarovar Punarvasvat Agency (SSPA)[4] containing a land offer for some piece of land somewhere in Gujarat or MP. The information on the SSPA website shows that 14,124 PAFs from MP are likely to be resettled in Gujarat as on 31 December 2007; while Narmada Valley Development Authority (NVDA)[5] has recently claimed that 5,815 PAFs have opted to get resettled in Gujarat.[6]

It was repeatedly pointed out by oustees that resorting to such ex-parte land allotment was denying them their legal entitlements as per the NWDTA to get rehabilitated (i) in their home state, and (ii) on cultivable land with irrigation facilities.

(i) Special Rehabilitation Package (SRP): Violation with Impunity

On 15 May 2001, the NVDA proposed to move away from compliance with the mandatory rehabilitation norm of "land for land" as stipulated in the NWDTA, by proposing – what even in the words of their document was referred to as – an *amendment*. The "Special Rehabilitation Package" (SRP) involved an "offer" for oustees to give up/surrender their legal entitlement to alternative land, by opting for cash with which to "purchase" the land. This had no legal sanctity as the Supreme Court judgment had ruled out any "review/ amendment" of NWDTA till the passage of 45 years, i.e. 2024. At a subsequent

[4] An agency of Sardar Sarovar Narmada Nigam Limited that is primarily responsible for carrying out R&R works of PAFs from Gujarat and also of those PAFs from Maharashtra and MP who opt to get resettled in Gujarat.

[5] An authority that has a role of developing projects over the Narmada, land acquisition and R&R of PAFs in MP.

[6] SSP Oustees' Rehabilitation Complete, *Central Chronicle*, February 26, 2008.

63rd NCA meeting, held on 20 November 2001, valid objections were raised. The Minutes noted,

> Secretary, Ministry of Social Justice and Empowerment was of the view that land for land policy should be strictly followed as stipulated in the NWDT award. The amendment/ provision should cover the fundamental aspects of NWDT. Regarding amendment suggested by GoMP, he suggested that all facts should be furnished before the Law Ministry to ascertain whether the amendment shall be acceptable in the Court of Law before taking any decision in this regard.

However, the Department for Narmada Valley Development of the GoMP unilaterally approved the SRP by carefully avoiding the word *amendment* and instead referring to it as *"additional liberalised"* rehabilitation package and financial assistance in a GO dated 27 November 4 December 2001. In the 51st meeting of the R&R Sub-Group of the NCA held on 7 January 2002, the said *"additional liberalised"* rehabilitation package was discussed and Minutes noted that "The chairman observed whether this GO is in consonance with the stipulations of NWDT award and the Supreme Court judgment, needs to be verified. He, therefore, felt that the order of GoMP be examined by Union Ministry of Law." In simple terms, the Narmada Control Authority (NCA) indicated that the move was not finding favour with it.

Similarly, the NVDA also took unilateral decision to dilute its responsibility on providing houseplots to PAFs with civic amenities at R&R sites as per NWDTA's rehabilitation clauses in its 117th meeting held on 27 September 2004 by declaring cash compensation of Rs.50,000 in case a PAF opted for availing of the same. It is reported that PAFs were categorically told that, except for one person in the family, others would not get house plots, while NWDTA and Supreme Court judgments direct the State to provide for all PAFs house plots with all civic amenities.

There are some major issues with the provisions by the NVDA. Firstly, the SRP mechanism is a violation of the NWDTA and the Supreme Court judgments, which lay the onus of acquiring and allotting cultivable and irrigable land on the State Government. In fact, in its 2000 judgment, the Supreme Court remark that, while in the past irrigation projects, cash compensation was the norm that resulted in the destitution of affected families, the core rehabilitation principle and practice of land-for-land in the SSP is exemplary. Sub Clause IV (7) of Clause XI of the NWDTA refers oustees, who are eligible for land-based rehabilitation, as not merely "be entitled to" but the operative phrase is extended by referring to them as "be allotted to" after using a conjunctive *and*. The sub-clause itself has been marked as *Allotment* of Agricultural Land.

Secondly, the practicality and judiciousness of this process itself needs to be probed. The operative question is whether the State can modify legal entitlement given by law to a citizen and absolve itself from responsibility to *allot* on pretext of inability? Further, can the State escape the responsibility by enticing (or by coercing as some allege) a citizen to trade those *entitlements* by granting cash and assume that a citizen will be able to access equivalent to legal entitlement in the marketplace?

While the Supreme Court is presently entertaining litigations that challenge the SRP, it is important to scrutinise the SRP mechanism and inquire into its practice by GoMP by reading NWDTA provisions alongside and practices for implementation of the same as adopted by the Governments of Gujarat and Maharashtra. While the Governments of Gujarat and Maharashtra have acquired private lands and alloted the same to the PAFs,

SRP mechanism of disbursing cash for land and expecting a PAF to purchase land is confined only to MP.

(ii) Game of Numbers: Inventing Distinction between Temporarily and Permanently Affected Oustees

Between 8 February and 14 May 2002, the NVDA and the NCA seem to have invented a distinction between temporarily and permanently affected oustees. The figures in Table 1, sourced from NCA documents, shows change in a number of affected people.

TABLE 1
Status of R&R at Dam Height EL95 m of MP PAFs

Date	Total No. of PAFs	Claimed as Resettled			Balance	Option of Balance		Source of Information
		MP	Gujarat	Total		MP	Gujarat	
29 Aug. 2001	5397	1182	2385	3567	1830	1378	452	Agenda of 50th Meeting of R&R Sub-Group
11 Nov 2001	5379	1394	2381	3775	1603	782	821	RCNCA (CMs) Meeting
8 Dec. 2001	5397	1399	2418	3817	1580	1217	363	Agenda of 51st Meeting of R&R Sub-Group
7 Jan 2002	5397	1466	2691	4157	1240	1150	90	Minutes of 51st Meeting of R&R Sub-Group
8 Feb. 2002	5397	1466	2691	4157	1240	1150	90	Agenda of 52nd Meeting of R&R Sub-Group
14 May 2002	1883			1873	10			Minutes of 53rd Meeting of R&R Sub-Group
31 Jun. 2002	1883	967	916	1833	0	0	0	Quarterly Status Report, NCA
31 Dec. 2002	1883	967	916	1883	0	0	0	Half Yearly Status Report, NCA

A brief review of contents of Table 1 and Table 2 is quite revealing. On 8 February 2002, the number of PAFs at the dam's height of 95 m was 5,397; within a matter of 3 months and 6 days, the number of PAFs diminished by 3,500 (Table 1). Similarly, while the number of PAFs affected at the dam's height of 100 m was 7,913 on 8 February 2002, it diminished to 3,071 as reported in NCA status report on 31 June 2002 (Table 2). It kept changing till 13 May 2003, when the NCA R&R Sub-Group permitted to raise the height to 100 m, making these reductions in the numbers of PAF an obvious and justifiable case for another phase of increase in dam height.

A change in the nomenclature by adding the adjevtive "permanently" and "temporarily" to qualify affected persons was effected with a view to show "temporarily affected" as coming under submergence at a higher elevation and defer their rehabilitation till a later date. The GoMP indulged in such a practice even when the statutory definitions of an "oustee" and "family" as per the NWDTA (contained in Sub Clause 1(1) and 1(3)) made no such distinction. Even the insertion of these qualifiers was not so obvious in the text of the minutes of the 53rd Meeting of the R&R Sub-Group that was held on 14 May 2002 – a meeting where the crucial decision of raising the dam's height from 95 m to 100 m was taken. The diminished figure of PAFs came to be marked with an asterisk and an explanatory footnote was included only in the text of a subsequent quarterly status report dated 31 June 2002. Rehabilitation, despite the unambiguous directions of the NWDTA,

seems to have reduced to be merely a matter of reporting numbers at meetings, where crucial decisions of raising the height of dam are taken, without scrutinising the reported figures.

TABLE 2
Status of R&R at Dam Height EL100 m of MP PAFs

Date	Total No. of PAFs	Claimed as resettled			Balance	Option of Balance		Source of Information
		MP	Gujarat	Total		MP	Gujarat	
29 Aug. 2001	7913	1327	2584	3911	4002	2554	1448	Agenda of 50th Meeting of R& R Sub-Group
11 Nov. 2001	7913	1587	2684	4271	3570	1902	1668	RCNCA (CMs) Meeting
8 Dec. 2001	7913	1670	3360	5030	2883	2693	190	Agenda of 51st Meeting of R&R Sub-Group
7Jan. 2002	7913	1670	3360	5030	2883	2693	190	Minutes of 51st Meeting of R&R Sub-Group
8 Feb. 2002	7913	1670	3360	5030	2883	2693	190	Agenda of 52nd Meeting of R&R Sub-Group
31 Jun. 2002	3071	1990	1036	3026	45	45	0	Quarterly Status Report, NCA
14 Nov. 2002	3710	2443	1198	3641	69	69	0	Minutes of 54th Meeting of R&R Sub-Group
31 Dec. 2002	3710	2443	1243	3686	24	24	0	Half Yearly Status Report, NCA
13 May 2003	3692	2434	1258	3692	0	0	0	Minutes of 55th Meeting of R&R Sub-Group
31 Jun. 2003	3692	2434	1256	3692	0	0	0	Half Yearly Status Report, NCA

In the subsequent Quarterly Status Report of the NCA for the quarter ending on 31 June 2002, the diminished figure of 1,883 families was marked with a footnote stating that,

> The GoMP has resettled only those PAFs (i) whose agricultural land is coming under permanent submergence and (ii) whose habitation is coming under permanent or temporary submergence due to a 1 in 100 years flood.

But, while numbers of families at the height of 95m and 100 continued to diminish, the number of families affected at the dam height of 110 m was being shown as 12,681 throughout the meetings of the NCA's R&R Sub-Group between 29 August 2001 and 14 November 2002. But in a report dated 14 November 2002, the figure came to be marked with a footnote,

> This number may change after declaration of Land Acquisition awards. PAFs whose lands are temporarily submerged due to 1 in 100 years flood have not been considered for R&R.

In fact, after 6 months, on 13 May 2003 (Table 3) the figure of PAFs affected at the height of 110.64 m got diminished to 5,607, from an earlier figure of 12,681. It was mentioned with a footnote marked to it stating, "tentative". The NCA's status report dated 31 June 2003 showed the number rising by 3,800.

TABLE 3

Status of R&R at Dam Height EL110 m of MP PAFs

Date	Total no. of PAFs	Claimed as resettled			Balance	Option of Balance		Source of Information
		MP	Gujarat	Total		MP	Gujarat	
29 Aug. 2001	12681	1809	2802	4611	8070	5489	2581	Agenda of 50th Meeting of R& R Sub-Group
11 Nov. 2001	12681	2005	2896	4901	7708	5288	2420	RCNCA (CMs) Meeting
8 Feb. 2002	12681	2079	3653	5732	6949	5219	1730	Agenda of 52nd Meeting of R&R Sub-Group
14 Nov. 2002	12681	2175	3628	5803	6878	5452	1453	Minutes of 54th Meeting of R&R Sub-Group
13 May 2003	5607	-	-	-	-	-		Minutes of 55th Meeting of R&R Sub-Group
31 Jun. 2003	8406	5893	2016	7909	497	291	206	Half Yearly Status Report, NCA
31 Mar. 2005	8860	6628	2232	8860	Zero	-	-	2 weeks after Supreme Court judgment on NCA website under the Status

In April 2004, we witnessed the dam wall rising again, from 100 to 110.64 m and yet another round of arguments before the Supreme Court on the non-compliance with rehabilitation clauses of the NWDTA. Issuing directions on an ongoing litigation, the Supreme Court directed affected families on 23 July 2004 to approach the GRA for rehabilitation. The bench had hoped that the authority would decide the claims preferably within 3 weeks and posted the application for further hearing.[7]

(iii) Supreme Court Disapproves the Arbitrary Distinction

It was only on 15 March 2005, in a judgment the Supreme Court took issue with the GoMP on the grounds that it had not implemented the Court's earlier directions on rehabilitation of submergence impacted families, in letter and spirit. The judges went on to say that even in the stipulations of the NWDTA, which was accepted by the GoMP, no distinction was made between permanently affected or temporarily affected families. The judges pointed out that had the tribunal wished to make a distinction, the definition of 'oustees' would not have been so worded. "We are of the opinion that all the applicants who were both permanently and temporarily affected by submergence by reason of raising of the height of the dam to the present height would be entitled to the benefit of the rehabilitation package", they ruled.

However, the judges stopped short of reviewing the matter retrospectively and saying that since the applicants affected at the height from 90-95 m, 95-100 m and 100-110.64 m who were shown as "not qualified to be rehabilitated" by marking them as "temporarily affected" did actually qualify for rehabilitation as per the NWDTA definition of *oustee* and

[7] Narmada Oustees asked to Approach Authorities, *The Hindu*, July 24, 2004.

family still remained non-rehabilitated as on 15 March 2005, the decisions to raise the height from 90-95 m, 95-100 m and 110-110.64 m were in violation of the law, as per Sub Clause IV (6)(ii) of clause XI of the NWDT award.

This landmark judgment of the Supreme Court clearly had far reaching implications and consequences. The GoMP was directed to extend the rehabilitation to those PAFs to whom it had not accorded rehabilitation earlier by addressing them as "temporarily affected". What it meant was that the GoMP will have to rehabilitate, not only 12870 PAFs affected between 110.64 and 121.92 m, but also a backlog of PAFs affected at 110.64 m whom it had not rehabilitated so far. However, the Game of Numbers continued as indicated in Table 4.

Minutes of 62nd meeting of R&R Sub-Group held on 12 September 2005 reported the figure of backlog of PAFs affected at 110.64 m to be 13233. So, MP needed to rehabilitate 26103 PAFs before raising the height further. However, all it took for raising the dam height to 121.92 m was R&R Sub-Group reporting at 63rd meeting held on 8 March 2006 that out of 16156 PAFs affected – between 110.64 m and 121.92 m – 2238 PAFs have been rehabilitated in Gujarat and 13918 PAFs rehabilitated in MP.

On 3 July 2006, the Oversight Group (OSG) appointed by Prime Minister along with the help of the NSSO verified the Action Taken Reports and came to the conclusion that 15,561 PAFs were affected between 110.64 m to 121.02 m, and not 16,156 PAFs as stated by R&R Sub-Group. So, this time even after the NCA R&R Sub-Group allowed visibility to 595 PAFs, the OSG ensured, by their zealous oversight, that they got erased.

TABLE 4

Status of R&R at EL 121.92 m of MP PAFs

Date	Total no of PAFs upto 121.92 m	PAFs between 110.64 m and 121.92 m	PAFs resettled in		110.64 m backlog to be resettled	Balance to be resettled between 110.64 m and 121.92 m	Total Balance to be resettled	Source
			Gujarat	MP				
26 Aug. 2004	21730	12870	865		Zero	12005	12005	Minutes of 60th meeting of NCA the R&R Sub-Group
12 Sep. 2005	30690	17288	4262	13026	13233	169	13402 (6854 landed/ 6548 major sons)	Minutes of the 62nd meeting of the R&R Sub-Group
31 Dec. 2005	28472	17049	4729	12468	13233	11545	24778	Status Report, Narmada Control Authority
18 Feb. 2006	24421				No Mention	No Mention		Press Release by NVDA
6 Mar. 2006		17255	3339*			13916*		Letter from Prof. Soz to Shri L C Jain
8 Mar. 2006		16156	2238*	13918				Minutes of 63rd meeting of R&R Sub-Group
7 Apr. 2006	23322		4355	18967				Status report placed as annexure 2 in UoI's application
17 Apr. 2006	24421		5456	18965				Press Release by NVDA
3 Jul. 2006	24421	15561	5456	18965				Oversight Group report

Note: * These figures correspond to figures between 110.64 m and 121.92 m

(iv) Second Generation SRP

Although delayed, the 15 March 2005 judgment had a serious effect on the agencies responsible to ensure the compliance of NWDTA's rehabilitation clauses. In a meeting of Review Committee of NCA on 21 March 2005, the Chairman ordered suspension of the Special Rehabilitation Package till the situation was reviewed.

Even after this Supreme Court judgment, the Department for Narmada Valley Development of the GoMP issued a GO dated 16 June 2005 revising the Special Rehabilitation Package (SRP). In addition to the Review Committee staying the SRP on 21 March 2005, in a meeting held between Chairman of the NCA and two chief secretaries of MP and Gujarat on 21 July 2005, the Chairman stated that rehabilitation must be carried out in accordance with the directions of Supreme Court dated 15 March 2005.

What then remains a valid legal question – as yet unanswered – is whether a party state(s) can uniletarally take decisions that go against the letter and spirit of a decision taken by the Review Committee of the NCA. While underlining this legal question, one needs to recall that on 18 October 2000, the judgement did actually imagine a situation where a decision cannot be taken by the Review Committee of NCA (RCNCA) due to a dispute between the party states and the dispute remaining unresolved at RCNCA. Even the 18 October 2000 judgment did put the onus of resolving the same on the Prime Minister. In the backdrop of this, the actions of GoMP to bring a GO unilaterally that goes gainst the letter and spirit of RCNCA decision and then seeking an opinion of GRA, MP even as chairman of NCA reiterates the RCNCA decision raise serious questions.

On 30 July 2005, the Commissioner (Field), NVDA, Indore sought an opinion of GRA of MP[8] on the grant of the SRP and whether it violates NWDTA's rehabilitation clauses. On 18 August 2005, the GRA (MP) upheld the SRP. Pronouncing its view on what it calls *SRP's legal validity*, GRA stated, "making a provision for Special Rehabilitation Package to an oustee family, which has become entitled to allotment of agricultural land cannot be said to be a provision which in any manner violates any provision of the Award or any direction of the Supreme Court". The question arises here that whether such an interpretation of Supreme Court's order dated 15 March 2005 by GRA, while not referring the conflict–over understanding on the *intent and content* of the said order–between NCA and NVDA back to the bench that passed this order was in itself an appropriate action or did it constitute overstepping of its mandate by the GRA.

In the 62nd meeting of R&R Sub-Group held on 12 September 2005, the R&R Sub-Group (of NCA) held SRP as violative of the NWDTA's rehabilitation clauses. Having examined GRA's legal opinion in detail, chairperson R&R Sub-Group stated in a letter to GoMP that all eligible PAFs are to be allotted land and in case GoMP differs with NCA's directions, it needed to take it up with NCA again. Despite clear and strong directions in Supreme Court's order dated 15 March 2005, MP seems to have kept on invoking the issue of SRP and repeatedly went on against the RCNCA decision, chairman NCA's reiteration of the same and chairman NCA's disapproval of such actions rather than getting on with the task of rehabilitating the backlog of oustees affected at the height of 110.64 m, who had not been rehabilitated.

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[8] GRAs were constituted by the Supreme Court's directive to redress grievances of PAFs. Thus, NVDA seeking a legal opinion of GRA on a Supreme Court judgment itself shall be taken with a pinch of salt.

Even while R&R Sub-Group was taking such a view on SRP, the NCA directed the GoMP that it should complete rehabilitation of all the affected families at the height of 121.92 m by 31 December 2005. The Government told NCA that "out of 30690 PAFs in 177 villages, 17288 PAFs have been rehabilitated including 4262 PAFs in Gujarat. The remaining 13402 PAFs were yet to be rehabilitated. These include a backlog of 13233 PAFs affected at the current height of the dam (i.e. 110.64 m)."

Thus, up to this time, it is clear that the R&R Sub-Group and the NCA itself were of the opinion that SRP contravenes the Award and judgment of Supreme Court. It is important to note that this position of the R&R Sub-Group and the NCA is accurate while the opinion given by the GRA (MP) is not in conformity with the Award and orders of this Hon'ble Court. It is also pertinent to point out that the GoMP was bound to comply with the directions of NCA and refrain from SRP since the Award emphatically states that the State Governments are bound to comply with the directions of the NCA (As per the Narmada Award, Chapter IX, Clause XIV, Sub-Clause 8 (3) (v) and Sub-Clause 13).

(v) Endorsment of Legality of SRP by NCA and Decision to Raise Height to 121.92 m

In the 63rd Meeting of the R&R Sub-group dated 8 March 2007, a meeting in which the decision to raise the height to 121.92 m was taken; NCA seems to have taken a U-Turn. It reported only 16156 PAFs affected between 110.64 and 121.92 m, and claimed to have rehabilitated them all even as the disbursal of payments in two installments was not yet over. In this basis, it permitted to raise the dam height. The Union Water Resources Minister, Saifuddin Soz immediately decided to put the decision on hold and review it.[9] But, meanwhile, construction at dam site had already started and no specific action was taken to halt it. Probably, in response to the agitation by NBA, on 5 April 2006, the Prime Minister constituted a Group of Ministers comprising Prof. Saifuddin Soz, Minister of Water Resources; Smt. Meira Kumar, Minister of Social Justice and Empowerment and Shri Prithviraj Chavan, Minister of State in Prime Minister's Office to carry out a field visit to ascertain the claims on rehabilitation.

After visiting the submergence villages and R&R sites in MP, the report submitted by Group of Ministers on 9 April 2006 was quite critical of the situation on ground.[10] The report, inter alia states that, "The complaints from various quarters that the Rehabilitation and Resettlement of oustees of Sardar Sarovar Dam has not taken place in consonance with the orders of the Supreme Court have been found to be correct". Subsequent meeting of Review Committee of NCA remained inconclusive and the issue was referred to the Prime Minister who did not take decision on either way. The Supreme Court heard the petition challenging the decision to raise the dam height on 17 April and refused to stop the dam construction but warned that it would do so if rehabilitation was found to be inadequate. The court having declined to stop the dam construction indicated that the Prime Minister can step in to resolve the dispute as per some of the directions given by the Supreme Court in its judgment dated 18 October 2000. The Prime Minister decided on 24 April to set up yet another committee headed by former Comptroller and Auditors General of India, Mr. V.K. Shunglu (that came to be known as Shunglu Committee or the OSG) to carry out an intensive verification of rehabilitation claims. Subsequently, at 2 further hearings

[9] Parsai, G. (2006). Centre Puts on Hold Decision on Narmada Dam, *The Hindu*, March 11, 2006.

[10] Full text of report of the Group of Ministers was subsequently printed on the front page of *The Hindu* on April 17, 2006.

on the SSP on 1st and 8th May, the Supreme Court refused to again suspend the construction work at dam site. The report of the Shunglu Committee submitted to the Government on 3 July 2006 was largely sympathetic to the claims on rehabilitation put forward by the NVDA, MP.

(vi) Shortfalls in Financial Disbursal under SRP

Observations in CAG's reports on MP (Civil) for the previous 3 years indicated that there have been shortfalls in disbursal of funds allocated for rehabilitation. In other words, the GoMP has not been able even demonstrate any achievement on this front.

Even as the OSG, headed by V.K. Shunglu report, submitted on 3 July 2006, awaited legal arguments in the Supreme Court, the CAG audit report for the State Government (civil) for the year ending 31 March 2004 was tabled in the MP State Assembly, after a considerable lapse of time. The figures from the audit report suggested that the Department for Narmada Valley Development recorded a savings of Rs. 507.32 crores as against the Rs. 1,273.28 crores that were budgeted for. While detailing the reasons for such savings, the audit report suggested that *saving* (read, non-expenditure) of Rs. 166.56 crores was mainly due *to slow progress of land acquisition and rehabilitation work in the submerged area of Sardar Sarovar*, and hence was an indication to *shortfall* in rehabilitation process.

Similarly, the CAG audit report for GoMP (Civil) for the year ending 31 March 2005 notes that "saving worth Rs. 114.73 crore on Expenditure on Land Acquisition and other work in submerged area of Sardar Sarovar occurred partly due to no progress in the work (Rs. 94.25 crore)". The 2006 CAG audit report for GoMP (Civil) (which entered the public domain in January 2008) notes that "savings worth Rs. 72.50 crore and Rs. 64.00 crores occurred on *Land Acquisition and other works in submerged area of the SSP* and *SSP (submerged) Special Liberal Package*, due to *non-receipt of compensation assistance by displaced persons* and non-receipt of funds under SRP from Gujarat". This audit finding needs to be read along with the Press Release of Public Relations Directorate of GoMP, dated 18 February 2006 which claimed, "Under Special Rehabilitation Package Rs. 89.18 crores have been disbursed so far." So, even as the GoMP was claiming to have rehabilitated all PAFs affected at the height of 121.92 m, they had not even disbursed around 40% of what was proposed in budget towards SRP. It can be surmised that, even though the cash compensation under the questionable SRP mechanism was not completed, NCA took the decision to allow raising of the height to 122.92 m.

There are many unanswered questions here, including: Why is it that reports by the NVDA to the NCA that claimed completion of rehabilitation did not come under question and criticism by the OSG?

While this and such other shocking details indicating non compliance was conveniently brushed aside by the Shunglu Committee, the Prime Minister took a decision based on its report on 8 July 2006 and observed that relief and rehabilitation work must be accelerated during the period when there would be stoppage of construction work due to impending monsoon (although that did not mean stoppage of submergence, which engulfed several villages and schools). In its order dated 10 July 2006, the Supreme Court considered the decision of the PM.

However, Gujarat resumed construction from October 2006 and by December the dam height was raised to 121.92 m. The applicants before the Supreme Court have filed a contempt petition in January 2007 in this regard charging the concerned authorities and concerned states for being in contempt of the Supreme Court having violated its directions.

The Supreme Court on 10 March 2008 while hearing the PIL filed by eminent citizens and the Interim Applications has passed orders requiring the State of MP and the Applicants to file affidavits and counter-affidavits before the matter is posted for final hearing.

(vii) Diminishing Number of PAFs Eligible for Land-based Rehabilitation!

In the 62nd meeting of the R&R Sub-Group held on 12 September 2006, records that at 121.92 m there are 6854 landed PAFs affected at the height of 121.92 m, who are entitled for land based rehabilitation as per NWDTA and 6548 major sons of these landed PAFs, who are entitled for land based rehabilitation as per directions of Supreme Court's 15 March 2005 order. However, from the 63rd meeting of the R&R Sub-Group held on 8 March 2006 onwards the number of PAFs entitled for land based rehabilitation dwindles to 4262 and then increases to 4286, as stated in counter affidavit filed on behalf of NVDA and State of MP dated 24 April 2006 and has further gone upto 4453 PAFs.

In March 2006, a monitoring report of Narmada Control Authority reported that out of 4,262 PAFs affected at the height of EL 121.92 m, who are entitled for land based rehabilitation, 3834 oustees (90 %) have opted for Special Rehabilitation Package and 428 PAFs have been allocated Government land. But, while such a claim was being made about the popularity of the SRP, in a counter affidavit filed on behalf of GoMP and NVDA, an assertive but unsubstantiated claim that SRP indeed made oustees to purchase the alternative land was made with reference to just *1043 PAFs*. Further, in the report of OSG a similarly unsubstantiated claim was made citing NSSO findings, "NSSO found *1137 persons* (only one third of those who "accepted" SRP) had drawn the second installment and purchased land". This clearly shows that acceptance of SRP by PAFs was not leading to purchase of alternative land.

Further, on page 15 of OSG (OSG) report, it is stated that "out of 4286 PAFs, 3879 (almost 90.5%) PAFs have *accepted* SRP, while 407 (9.5%) PAFs have opted for government land".[11] The diminishing figure of those who had been allocated Government land from 8 March 2006 to 3 July 2006 itself raises a question on the validity of the claim that the quality Government lands offered to oustees were in compliance with NWDTA's rehabilitation clauses. OSG report stated on page 16, "It seems that the quality of land available in the Land Bank was by and large average; it was not irrigable and cultivable." But, even after acknowledging this fact, OSG fails to ascertain and vet it along with the binding rehabilitation clauses of NWDTA and state that the very act of offering Government land that were "not irrigable and cultivable" was non-compliance, violation and contempt of

[11] In a shocking revelation, the Counter Affidavit filed by the GoMP on March 3, 2008, states, 'the number of PAFs allotted land has reduced to 214 PAFs (4.99%) and number of PAFs opted SRP has risen upto 4,239 (or 98.90%)" The figures do not add up and reconcile with the figures of the PAFs eligible for land-based rehabilitation being quoted by OSG, viz 4,286! Naturally the question arises that why has the figure of PAFs eligible for land-based rehabilitation gone up? Is it due to the fact that numbers of PAFs were unduly declared as 'ineligible' earlier by authorities? If that is the case, reading of the counter affidavit, along with OSG report, suggests that rehabilitation of all PAFs did not take place *pari passu*.

NWDTA and Supreme Court orders that referred to NWDTA's rehabilitation clauses as binding on all 3 states. There is a section in OSG report that is titled as *Validity of Special Rehabilitation Package*, but discussion on *Validity of Government land allocation in terms of NWDTA* is conspicuous by its absence.

If rehabilitation in all aspect was over on the date when R&R Sub-Group of Narmada Control Authority and NCA approved raising the dam height, then why did National Sample Survey Organisation (NSSO) and OSG (OSG) noticed PAFs giving up those allocated lands and shifting to "accept" SRP? That neither NSSO not OSG seems to have asked this question or inquired into it remains a puzzling question.

As per the detailed break up in OSG report, 319 PAFs (7.9%) had simply *no* intimation concerning allotment of land; 94 (2.4%) were not satisfied by the Land Bank offerings; and 886 (21.9%) opted for 'other' reasons. The Report prefers merely to highlight those who accepted the SRP, at the cost of others who did not do so. The reasons given, for the refusal to accept land allocated to them by 3294 PAFs as reported to the NSSO are the following:

- 1020 PAFs (27.5%) found the allotted land *too distantly located*
- 437 PAFs (11.8%) found simply the allotted land 'not suitable for cultivation'
- 82 PAFs (2%) found the offered land un-irrigable
- 515 PAFs (13.9%) lacked intimation of allocation of land/ and other assets
- a good number of PAFs (at least 97 out of 1352), counted differently by Action Taken Report and the National Sample Survey have received 'less compensation payment' than due to them.

Similar trend on irregularities in SRP remains for PAFs under 'major sons' category.

(viii) Fake Registration and Financial Irregularities in SRP

From December 2005 onwards, the number of reported "land purchases" seems to have increased. There were allegations that this was due to fake registration.

On 21 August 2006, in a reply filed on behalf of the Government of India (GoI) to the Supreme Court, it was admitted for the first time that there is *a case of fake registry.*

However, simultaneously, it was claimed that "1934 PAFs have purchased land". Thus, it emerges that out of 3,834 PAFs who have opted for SRP, even accepting the unverified claims on land purchase at their face value, *half of those who had opted for SRP were not able to purchase alternate land,* even as the dam wall construction proceeded and the dam water overflowed 121.92 m at dam site.

On 3 May 2007, 78th Meeting of R&R Sub-Group noted, "out of 4044 PAFs affected at the height of 121.92 m who have availed SRP, 2496 PAFs (61.7%) have purchased land".

However in the same month, a report dated 25 May 2007 Naib Tehsildar, Badwani district with regard to fake registries in Badwani having conducted an inquiry into fake registries in Badwani, particularly in village Piplud stated that "this is an open pilferage of state exchequer and required further investigation to expose all those behind this fraud."

It is a moot question that, of the 61.7% PAFs buying land from SRP compensation, what proportion are the cases of fake registration?

By 13 September 2007, NCA admits 19 cases of fake registry where as NVDA admits 16 cases of fake registry amidst those who availed SRP and claimed to have purchased land. On 13 November 2007, the NVDA, which conducted an inquiry into fake registry scam under SRP, stated that out of 2777 registries, 758 (27.2%) registries are fake, while 2019 (72.7%) registries are correct.

The corruption in rehabilitation work in MP was noticed during the audit by Accountant General's office in the year 2004. In October 2004, AG's office in Gwalior brought certain financial irregularities to the attention of the Government and asked it to institute an inquiry. In December 2004, AG's office decided to initiate a special audit of all NVDA field formations by scrutinising vouchers received from 36 divisions of NVDA pertaining to the period between April 2002 and December 2004. In November 2004, 37 officers were suspended from NVDA office in Badwani[12].

On 16 October 2007, NBA filed a Public Interest Litigation (Writ Petition No 14765/2007) in the Jabalpur High Court alleging large scale corruption in various aspects of rehabilitation. This PIL was heard on 3 March 2008 by a bench comprising the Chief Justice A K Patnaik and Justice Prakash Shrivastava. The high court issued notices to respondents in this matter and stayed all proceedings against PAFs in the SRP scam.

(ix) Reality of R&R Sites for Oustees Displaced in MP

When OSG verified Action Taken Reports of NVDA for PAFs getting displaced at EL 121.92 m, even as monsoon of the year 2006 was already on the anvil, NSSO teams located and interviewed PAFs in submergence villages. The survey of R&R site clearly showed that all those sites were not complete in all aspects, leading to their categorisation as average and poor. Following OSG report all that NCA has done on this problem was to constitute 6 monitoring teams to oversee *upgradation* of these R&R site rather than admitting that NWDTA's rehabilitation provisions are not complied with.

Even one and a half years later, several problems associated with R&R sites have been reported. With regard to the 26 affected villages of Alirajpur Tehsil (Jhabua district) and 8 villages in Badawani district from Kharya Bhadal to Borkhedi, the main problem is the lack of even a single R&R site.

While for most other villages, R&R sites with all civic amenities are being established for rehabilitation of PAFs losing less than 25% of their landholding, or PAFs loosing house; the same has not been attempted for these aidvasi submergence villages. As mentioned while discussing about ex-parte allotment, initially NVDA seems to have assumed that all PAFs from these villages would opt to resettle in Gujarat and hence did not prepare any R&R plan for them.

Later, on realisation that all PAFs from these villages were not opting to resettle in Gujarat, NVDA seems to have tried to "convince" them to accept encashment of their *houseplot with civic amenities entitlement* for Rs.20,000 and Rs.50,000 in cash. It is

[12] For details on these audit findings, please refer to Upadhyaya, H. (2006). Drains that Dewater State Exchequer, *India Together*, October 2, 2006.

reported that some PAFs who insisted on getting legal rehabilitation entitlements were allotted houseplots ex-parte at far away R&R sites established for other villages. For instance, some PAFs from Kakrana were allotted houseplots ex-parte in Umda (about 150 km away), PAFs from Kharya Bhadal were allotted houseplots in Khedi (about 100 km away). R&R Sub-Group ought to have taken a view on this.

The GoMP, in its most recent counter affidavit filed in the Supreme Court on 3 March 2008, admits this fact, though it adds that *reason for not establishing R&R sites for these villages is because they are located in remote areas or are forest villages.* The moot question is whether adivasis living in remote areas on the banks of the Narmada are not legally entitled to R&R sites with civic amenities just as other PAFs. While on the one hand there are no R&R sites for dozens of adivasi villages, on the other hand the NVDA is reducing the required number of R&R sites at will. The number of sites that are required for R&R purposes has been reduced consistently by the NVDA from 114 (cited from: pages 2-9, Annual Action Plan and Indicative Long Term Plan for R&R, NCA, 1993) to 79 (cited from: para 3.2 on page 18 of the OSG report). Subsequent to the submission of OSG report, 6 R&R sites which the OSG termed as 'very poor' and in need of immediate upgradation have now been cancelled by the NVDA, thus reducing the number of R&R sites to 73.

It is reported that, in several villages, PAFs returned from Gujarat and demanded either change of the R&R site or agricultural land or showed prefererence to resettle in MP itself. Many adivasis families from villages of Anjanwara, Doobkheda, Amba and Bhitada (district Jhabua), Kukra, Kari and Jhangarwa (district Badawani) initially chose to resettle in Gujarat and were forced to return to their villages due to various problems including violent host communities around their 'resettled sites'. These adivasi families returned 10-15 years back and still await resolution of their problems.

(x) Eviction Notices being Served on People when Rehabilitation is Remotely Away

However, even as this overview is being written, people from several villages in Badwani district, that are likely to be submerged at the height of 138.68 m, have reported that they are being served notices – dated 14 January 2008 in a few cases – asking them to vacate their properties affected by the SSP at the height of 138.68 m by 30 June 2008.

In case the states wish to install gate raising the height of the dam to 138.68 m before monsoons of 2008, and create the likelihood of submergence, they should have received the intimation from Gujarat 18 months in advance (i.e. 31 December 2006). Following this, they should also have ensured arrangements for rehabilitation in all aspects – and serving notices is only one of that – one year in advance (by 31 June 2007), and further ensure the completion of rehabilitation in all aspects at least 6 months prior to submergence (by 31 December 2007). Thus, the process of serving eviction notices to PAFs likely to be affected at FRL (138.64m) living in submergence villages is in gross violation of the NWDTA Clause XI, Sub Clause V (3) (iii), which requires setting of such date of vacating properties affected to be 6 months prior to likely submergence.

While NWDTA gave mandate to Narmada Control Authority to ensure the implementation and compliance, Minutes of 79th meeting of NCA held on 16 November 2007 states, "The Authority also noted that as per the practice, the figures of PAFs submitted by the respective State Governments and *NCA does not carry out independent verification of*

figures submitted by the States as there is no mandate to verify authenticity of the figures."

However, GoMP did provide a check and scrutinise scope vide GO F245/27/2/2003/994 in the year 2003 by mandating that Action Taken Reports (ATRs) claiming rehabilitation status be placed before Gram Sabhas for suggestions/ additions and deletions. This however was soon forgotten and has not been complied with in the year 2006 also. On 6 March 2006, Mr. Saifuddin Soz (in a letter to Mr. L.C. Jain) stated that the NCA, as part of its field verification, would send individual letters to all Gram Panchayats/Nagar Panchayats enclosing the ATRs of the concerned village/town so as to get their feedback. Even the person whom this assurance was given received the letter assuring this process, a day after the decision to raise the dam height from 110.64 m to 121.92 m was taken. Only a few villages have received ATRs for verification.

From the statistical tables that unfold the game of numbers, one can easily discern a pattern of striking off PAFs, even those previously acknowledged as PAFs, from PAFs list. It is reported that, in addition to these PAFs, there have been others who have been claimants and have put forth grievance redressal applications protesting against their omission and disentitlements. Even in their case, the NVDA refuses to comply with corrections suggested by the Gram Sabha.

(xi) Extent of Submergence Area

The extent of submergence area has always been an issue that eluded definite and final number, even as the NVDA kept repeating that the issue is settled. In the Agenda Notes for the 50th meeting of the R&R Sub-Group scheduled on 29 August 2001, it was admitted that the area under submergence in MP has increased by 12.75 % (i.e. from 20,722 ha, an earlier figure which was based on simply drawing contour lines on village maps, to 23,425 ha) after physical verification and could increase further. However, NCA did not elaborate on what it meant in terms of its impacts on affected people. Surprisingly again, within a few months after reporting this, subsequent NCA meetings started showing diminished figure of PAFs, after acknowledging that submergence area in MP was 12.75% higher than earlier estimates.

A letter from Commissioner (Rehabilitation/ Field) of the NVDA (MP) to NCA and SSNNL dated 4 February 2007 admitted that increase in submergence zone due to backwater level in tributaries needed to be considered, if not already done so far. The Central Water Commission (CWC) has repeatedly written to Sardar Sarovar Construction Advisory Committee (SSCAC) in this regard. In a letter dated 20 October 2004, the CWC stated that afflux level in major tributaries be considered and backwater levels be computed considering the tributaries and nallahs as well. In the monsoon of the year 2007, in 2 villages, the observed water level were higher than the computed Maximum Backwater level.

TABLE 5
Number of the PAFs in the Recent Period

Date	Total number of PAFs affected at FRL 138.68 m	Number of PAFs resettled			Balance to be rehabilitated	Source
		Total	In Guj	In MP		
29 Aug. 2001	35716[13]					50th R&R Sub-Group meeting
26 Aug. 2004	33014	14452			12005 (PAFs affected between 110.64 m to 121.92 m) and 6557 (PAFs affected between 121.92 m to 138.68 m)	NCA Status report August 2004
29 Apr. 2006	38647					Letter from commissioner, Rehabilitation (Field), NVDA
9 May 2007					14619	NCA meeting news in *The Hindu*
31 Aug. 2006	39369	24999	6034*	18965^	14370	NCA Status Report, Sept 2006
31 May 2007	39369	24946	5981*	18965^	14423	NCA Status Report, June 2007
7 Jan. 2008	37143					NVDA Press Release
22 Feb. 2008	37975	37942			33	NVDA Press Release

Notes:
* Out of these, 5456 PAFs were those who were affected at the height of 121.92 m and were rehabilitated as per NVDA Press Release dated 17 April 2006 and Shunglu committee report dated 3 July 2006.
^ The figure remained stagnant at this level, suggesting that till 31 May 2007, MP has not rehabilitated a single PAF affected between 121.92 m and 138.64 m.

TABLE 6
Maximum Water Level: Estimated and Observed

Sl No	Name of village	Water surface level without dam	Maximum Backwater level	Observed water level	Name of tributary
	Tehsil Thikri, District Badwani				
1.	Mandwada	142.12 m	145.06 m	146.96 m	Nahali-Kundi
2.	Mehgaon	143.89 m	145.06 m	146.87 m	Deb

This indicates that the computations of the backwater-level are erroneous, suggesting that the contribution of the tributaries has not been taken into account. There are several tributaries and nallahs draining to the Narmada. The consequence of ignoring the effect of their contribution to submergence would be catastrophic for the villages on their banks. It appears clearly NVDA has learnt no lessons from previous disastrous experiences in submergence zone of Bargi and Narmada Sagar dams where these problems occurred.

[13] The figure here was an upward change in the figure of PAFs in MP that was being mentioned at 33,014 till the 50th R&R sub-group meeting. So, after this the figure again descending to 33,014 in August 2004 clearly suggests that the R&R sub-group was retracting its position along side the trend of diminishing number of PAFs that had set in by then.

In July 2007, about 90 houses were submerged in village Khaparkheda (Tehsil Kukshi, District Dhar) by waters rising in a nearby nallah. Several families affected by this event merely received compensation by district authorities under RBC, but they still remain to be rehabilitated.

The consequences of failing to consider the tributaries/nallahs will also be faced by the R&R site that are being established precariously close to the MWL such as Chandankhedi, Nisarpur. This was already witnessed during the monsoon of the year 2007, when about 450 houseplots at the R&R site of Dharampuri (district Dhar) were submerged by the floodwaters of the tributary Khuj.

(xii) "Confusion" over Backwater Levels

The letter from Commissioner (Rehabilitation/Field) of the NVDA, MP to the NCA and SSNNL dated 4 February 2007 stated that according to the Clause XI, sub clause II (2), all the buildings and the land appurtenant to such buildings are to be compulsorily acquired which are between FRL (138.68 m) and MWL (141.21 m) including backwater level effect. The letter indicated that NVDA is still not very clear about the extent of submergence due to backwater effect of MWL.

In the 78th meeting of NCA, it was been reported that a sub committee along with CWC experts had been in a process of carrying out survey of backwater level of MWL.[14] This issue gains all the more relevance in the backdrop of submergence that occurred in Maharashtra during 2005 due to backwater level of Almatti Dam. The water level rose beyond FRL (519.60 m) despite a conditional clearance from Supreme Court (2000) that level would be so regulated, that there won't be submergence in Maharashtra beyond FRL. Comment from the CAG report on this is reproduced in Box 1.

Even when NVDA didn't have estimates on backwater effect at MWL, there had been intense pressure to install gates by SSNNL many a times in the year 2007. As the recently uploaded file on SSNNL's web site—without much publicity—informs, it was only in September 2007, that SSNNL had carried out an inspection of radial gates lying in stockyard at dam site for last 15 years.[15] The inspection found that certain portions of the gates were corroded and would require rectification. The site mentions SSNNL's claim to have invited Expression of Interest (EoI) for rectification of radial gates, but we are not told about any further progress.

The issue of backwater estimates of MWL still hanging over the fire as we write this. Effectively, the NVDA and the NCA may be altering the life situation of 10,000 families of the Narmada valley by not letting them know that their homes could be submerged if the Sardar Sarovar dam is completed by installation of gates, while going to media with claims of having completed rehabilitation[16]. Even in the case of Narmada Sagar Project, the backwater effect and resultant submergence was estimated only after Jabalpur High court issued directions for the same.

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[14] Parsai, G. (2007). Assess SSP Backwater Effect, *The Hindu*, May 9, 2007.

[15] Accessed from http://www.sardarsarovardam.org/Inspection_corrected.pdf

[16] SSP Oustees' Rehabilitation Complete, *Central Chronicle*, February 26, 2008.

BOX 1

Submergence Due to Backwater Effect of MWL in Almatti Dam

The height of the Almatti Dam in Karnataka, constructed (1978-1989) on the river Krishna, flowing down from Maharashtra was the subject matter of a Supreme Court case. Technical studies conducted in the past by GOM indicated that the territory of Maharashtra in the vicinity of Sangli Town (RL-518 Meters) would come under submergence, if the full reservoir level (FRL) was kept at 519.60 M Supreme Court allowed FRL upto 519.60 M (2000) expecting the issue of submergence, to be adjudicated by a competent tribunal. Clearance for raising storage level to 519.60 M was accordingly given by GOI (Central Water Commission abd Planning Commission) subject to the condition that water storage level shall be so regulated, by discharging sufficient water, that there woul not be any submergence in the territory of Maharashtra. In monsoon-2005, the Karnataka Governmentdid not care to pre-deplete the the reservoir for avoiding submergencein Maharashtra till 31 July 2005. Water storage due to heavy rainfall had reached full reservoir level (FRL-519.60 M) on 26 July 2005 itself. First letter for releasing water from Almatti Dam was written on 3 August 2005 to Karnataka after Sangli got flooded fully. The Government of Karnataka from 31 July 2005, started releasing water from 519.60 M to 519.10 M on 4 August 2005. Sangli remained under prolonged submergence for seven to eight days mainly due to back water effect of Almmatti Dam, affecting many families, to whom GOM had granted relief assistance of Rs.58.78 crore. This could have been avoided, had the conditional clearance to the project by GOI been timely monitored by keeping close vigil on water levels in the Almatti dam by keeping a note of it in the State DMP.

Source: CAG Report for Maharashtra (civil performance) for the year ending 31 March 2006, pg.34.

Once gates are installed the reservoir can hold waters to a Full Reservoir Level (FRL) of 138.6 m, and this is *final stage*. In the event of floods, the waters may rise above this level and they can reach up to a maximum water level of 141.21 m at the dam site. However, the NCA wish the State Governments to assume waters would hold at 138.6 m at the dam site, even during floods, and rehabilitate people and submit Action Taken Reports (ATRs) for submergence upto FRL, leaving thousands of families between 138.6 m and 141.21 m, not only un-rehabilitated, but also uninformed about their submergence. The strange thing is that the NCA and State Governments are well aware that as per the Narmada Tribunal Award, the backwater curve when the dam is at FRL 138.6 m, has to be computed taking the Maximum Water Level (MWL) as 141.2 m. However, the backwater computations at FRL 138.6 m have been done assuming the MWL would reach even during high floods will also be 138.6 m, and since only these are available, the chairperson of NCA has directed, **"for the time being, GoMP should submit action plan continue R&R works with available backwater levels upto FRL."** Meanwhile it has requested the CWC to compute the actual backwater levels at FRL = 138.6 m and with MWL = 141.21 m!

The CWC has accepted in a response dated 17 August 2007 to an application under Right to Information Act that the full backwater impacts of the SSP have not yet been assessed. It states: "The computation was worked out for the construction stages of SSP and the flooding in the upstream tributaries of the Narmada River in submergence zone *was* not considered in earlier backwater computations. As per decision taken in the 78th meeting of the NCA held on 3 May 2007 the back water studies is being carried out afresh considering the completion/ construction of number of projects upstream tributaries also. A sub-committee has been formed consisting of the members of all beneficiary states and central government agencies."

There is no excuse for not having the correct backwater levels at MWL 141.2 m since the Narmada Tribunal Award (NWDTA) required State Governments to have this computed, surveyed and marked on maps within 6 months of the publication of Tribunal Award, which was published in 1979!.

This would amount to using the ATRs based on the available backwaters computed at the lower maximum water level of 138.6 m and complete construction of the dam without even informing people that the backwaters are not of those at MWL = 141.2 m. Based on NCA's instructions, the State Governments in their ATRs don't mention the MWL figure and only mention the FRL figure! The Narmada Tribunal Award clearly states that the people living between FRL = 138.6 m and MWL = 141.21 m need to be rehabilitated as well as those due to backwaters at MWL = 141.21 m. All these PAFs will face the threat of submergence without even knowing that they are in the submergence zone. Not only the CWC has to compute the backwater curve at FRL=138.6 m, with the proper MWL of 141.2 m, but also based on this, State Governments have to survey the villages, mark the submergence regions in maps and then initiate the process of land acquisition.

(xiii) Relevant Narmada Tribunal Award Clauses

The Tribunal hereby determines that the height of the Sardar Sarovar Dam should be fixed for Full Reservoir Level + 138.68 m., (+455') and MWL at (+) 140.21 m., (+460'). Gujarat shall take up and complete the construction of the dam accordingly. (Clause VII: FRL and MWL of the Sardar Sarovar Dam)

As soon as practicable after the publication of the decision of the Tribunal in the Official Gazette and in any case before expiry of 3 months thereafter, both MP and Maharashtra shall furnish to Gujarat 3 sets of Majmuli/Taluka maps of all talukas in their respective territories likely to be submerged wholly or partly under Sardar Sarovar. These maps shall indicate village boundaries. Within 3 months after the receipt of the Majmuli/Taluka maps Gujarat shall mark thereon the boundary of the area situated below the FRL as also that between FRL and MWL including the area affected by back water resulting from MWL and shall return one respective set so marked to MP and Maharashtra. (Clause XI V(2)(i))

However, despite such unambiguous direction in NWDTA, we witness an inexplicable statement in the Minutes of the NCA's 79th meeting, which reads:

> The GoMP representative stated that as per the Action plan of NCA, after the dam height of 121.92 mtr, the next stage shall be the final stage i.e. for FRL and after completion of R&R for FRL, no person should be left but who are going to be affected by FRL and backwater as per provisions of NWDTA.

Actually, no person should be left after the completion of R&R for FRL as this is the "final stage". However, the above amendment proposed in agenda of NCA's 79th meeting to minutes of its 78th meeting admits clearly that there will be people left who are going to be affected by FRL and backwater!! The minutes as originally recorded are equally telling:

> The GoMP representative stated that as per the stipulations of the award, the property between MWL and backwater due to highest flood level are to be acquired. But GoMP has been provided backwater levels for carrying our R&R only upto FRL 138.68 m and corresponding backwater effect. He said that if the NWDT stipulations are to be considered then a fresh set of survey would be necessary.

The Action Taken Reports with back water at 138.6 m are not adequate for the purpose of raising the dam to its full height. They do not adhere to the NWDTA and this has been admitted as such in NCA minutes. Not only does it go against the grain of NWDTA, it also clearly violates the Observations on Land Acquisition recorded in OSG Report (page 4): *"Land acquisition obligations for the Dam/Reservoir are (a) all privately owned land below FRL and (b) all buildings with their appurtenant land below MWL."* However, this paraphrase by OSG does not match with the operative phrase in NWDTA, viz., *all buildings with their appurtenant land situated between FRL +138.68 m (455 feet) and MWL +141.21 m (460 feet) including backwater effect.* This puts a huge question mark on credibility of OSG and capability of reading and interpreting the NWDTA, in addition to the questions raised on its biases earlier.

What are needed, at this final stage of dam construction, are accurate back-water levels at the maximum water level that can occur at Sardar Sarovar dam site, i.e. 141.2 m, when the dam is taken to FRL 138.6 m. Corrective action must be taken immediately and states should be provided backwater curves at 141.2 m as decreed by Tribunal Award. It is grossly illegal, unfair, and inhuman to provide these after the gates are installed and dam is constructed. This is because, not only information should be provided to people that they are in the submergence zone, but their residential buildings and appurtenant lands should be surveyed, acquired, and their rehabilitation must be carried out on priority basis.

(xiv) Tapu Affected Villages

The issue of villages that will be rendered tapu (i.e., islanded/ physically isolated/ socially unviable) has not been addressed comprehensively in MP. In the Minutes of 70th meeting of R&R Sub-Group of NCA it has been acknowledged that village Kesurpura will become a tapu and that identification of other such villages that will be marooned is in the pipeline. However, it appears that NVDA's focus is towards identifying only abadi (house sites) and not agricultural land. This problem has repeatedly been raised in respect to Jalsidhi, Kakrana, Khudar Faliya, Borkhedi, Karondiya, Bhawariya, Khaparkheda, Eklera, Malangaon and several other villages. Incidentally, in the 'Latest Progress on the Decisions Taken/ Directions Issued' in 70th minutes' section reported in the latest 79th meeting of NCA, it is stated that GoMP is yet to report any progress on this aspect. It is expected that NCA would take cognisance of the as yet unavailable backwater levels for MWL and survey of land getting marooned and direct NVDA to carry out the same, without any further delay before NVDA goes to press on R&R claims.

2. Displacement and Rehabilitation in Maharashtra

The Narmada forms the northern boundary of Maharashtra where, in 33 villages, adivasi communities have been living since generations, as agriculturalists and forest produce gatherers and fisherfolk. These villages falling in the Akkalkua and Akrani Tehsils of Maharashtra are to be severely affected. The loss to be borne by the Adivasis due to Sardar Sarovar dam is not only in terms of their agricultural land but also of good forest land (6,488 ha) and also loss of livelihoods and ways of living from fishing activities from the river. The habitats which are integrated adivasi communities would also lose their social fabric and cultural milieu, which can't be substituted, although loss could be reduced, if (unless) those are rehabilitated in the appropriate social environs and as single units.

The GoM sought the permission of the Ministry of Environment and Forests to release 2,700 ha forest land near Taloda to resettle oustees in 1990. By 1992, some 400 families from Akkalkuva village adjacent to Gujarat had relocated to Gujarat.

(i) Scale of Displacement

The number of affected families in Maharashtra has always been a matter of dispute which could not be resolved even after a number of official surveys. The Government itself conceded on the increased number of PAFs in stages. In 1979, the NWDTA mentioned a figure of 648 families to be affected in Maharashtra; in 1991, it was stated to be 2,464 in the Maharashtra 1991 Master Plan;[17] and most recently this figure has been put at 3,995 as reported in Yashada report and the note by the Narmada Development Department, Maharashtra dated May 2006,[18] i.e. 2 months after the crucial decision to raise the height of the dam to 121.92 m was taken.

The process of finalisation of the families left to be recognised as PAFs, led to the formation of a Joint Task Force with nominees from the State Government and the NBA under the Chairpersonship of the Revenue Commissioner, Nasik, in September 2001. The Task Force concluded that 1,088 families should be immediately declared as PAFs.[19] It also concluded that these 1,088 families along with the 568 declared families were still residing in the original villages as on July 2002 when the report was finalised. Additionally, the Task Force revealed that 1,277 persons in the original villages were above the age group of 18 years but were not declared as major sons due to the cut-off date being 1987, which was too early compared to one for many villages in MP – where land acquisition began between 2000-04 and so the cut-off-date turned out to be comparatively closer to the date of submergence. Since then the process of rechecking the family claims is on till date.

During the last few years, since the Task Force recommended re-checking of number of families likely to be affected by the Collector and the Commissioner, the process led to declaration of hundreds of families in groups as PAFs. Today, estimates put the figure of undeclared families who still have claims unchecked and yet to be settled at 300. However, Maharashtra has never reported this process officially either to the NCA or the Court but always reported 'substantial compliance'. Again, the moot question is whether the state has initiated the land acquisition process and rehabilitation process along side declaration of affected families as PAFs?

Submergence in Maharashtra commenced in 1993 at the dam height of 69 m when 13 houses got washed off in Manibeli, the first village in the state, from the dam site. The GoM was unable to resettle all the families with entitlements, who were then compelled

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[17] Having noted this figure from the Maharashtra 1991 Master Plan, the Morse Committee report states that, 'the figure is still no more than approximation; some officials told us that they expect this number to increase to 3500. TISS researchers, in 1992, estimated the number as 2,784. Critics of the project have insisted that it would reach as much as 5,000.

[18] The figure of declared PAFs displaced on the website of Relief and Rehabilitation division of Revenue and Forest Department is 3,698, with a rider that 'the process declaring of PAFs is still in progress'. http://mdmu.maharashtra.gov.in/pages/projectrelatedrehab/rehabilitationPAFShow1.php last accessed on March 9, 2008

[19] The report of the Task Force on Rehabilitation of PAFs, Maharashtra, July 2002.

to protest against the dam and displacement. Submergence took a toll of increasing number of villages in 1994 and thereafter with every higher level that the dam was taken to. The GoM continued to report 'substantial compliance' and permit raising the height, while the process of resettlement with forest land released for rehabilitation kept falling behind.

(ii) Monitoring and Evaluation by Yashada and Further Ground Realities

The State Government appointed an official Monitoring and Evaluation Agency,viz., Yashada, a public sector academy based in Pune, to evaluate the process of resettlement and rehabilitation. According to the Yashada Report of 2007, there were approximately 1,174 families still in their original villages and not rehabilitated as on October 2006. The same was endorsed by the State Government in early 2007. Although the report does not indicate the level of the dam at which these families were affected, the lists of residents in the valley suggest that most of those fall below 122 m. It is therefore inexplicable that just when the report was being concluded, the GoM produced an ATR showing PAFs at 122 m as rehabilitated, thus demanding to raise the height beyond 110 m.

(iii) Rehabilitation Status in Maharashtra

In order to review the process of resettlement and rehabilitation the GoM appointed the Daud Committee in 2001, which released its report in 2002. The Daud Committee found that the 1987 cut off date for determining a major son was unjust and recommended that in order to fulfill and apply the spirit of the NWDTA definitions of an oustee, the 1987 cut off date for determining who is a major son be the year of resettlement to the alternative site. The Daud Committee also concluded and criticised that land rights were not granted to the Adivasis in 24 affected villages, which are categorised as Forest Villages. The Daud Committee thus, effectively put a question mark on the Government's claims of rehabilitation.

However, the suggestions of the officially-appointed Daud Committee were not implemented. After protests by NBA, a Joint Task Force Committee, a Rehabilitation Planning Committee, and an Overview Committee for Policy Related Decisions were formed. In response, the GoM passed a Government Resolution (GR) dated December 2003 resolving that the Daud Committee recommendations would be implemented, but subject to NCA's financial support; this did not happen.

As late as in February 2005 when the dam height was 110 m, the Action Taken Report (ATR) submitted by Maharashtra claimed that 712 PAFs were to be affected between 110-122 m. All, except 30 families, were claimed to be rehabilitated. However, ground level surveys by the NBA claimed that in reality 413 families remained to be rehabilitated. The ATR further stated that 220 affected families were given ex-parte allotments. The Daud Committee proved that a sample of ex-parte allotted plots were non-existent or unacceptable and recommended that the practice of ex-parte allotment be discontinued. Since Maharashtra had taken a decision in September 2001 to discontinue ex-parte allotment, claiming them as "rehabilitated" in the ATR was not consistent with Government's stated policy. Further, those affected at 69 m, 80 m, 90 m, 100 m, and 110 m of height, but not rehabilitated were excluded from this report. Thus considering that the ATR gave the data for those affected between 110 & 121.92 m, the number of PAFs

claimed to be "rehabilitated" due to ex-parte allotment so far, is likely to be much higher than the reported 220. Currently, some estimates put this figure at 400.

The GoI passed the Scheduled Tribes and Forest Dwellers (Recognition of Rights) Act of 2006 that makes formerly "encroacher" forest dwelling Adivasis eligible for compensation and rehabilitation. Many forest land cultivators who were not declared (since they were not even major son of the landholder PAFs) can receive land titles under the new Act and will be entitled to 2 ha of land and other rehabilitation facilities. The number will increase significantly because of the 33 affected Adivasi villages in Maharashtra, 24 are categorised forest villages.

The Supreme Court Judgment of 2005 further upheld the entitlement of each major son to 2 ha of land against 1 ha that was previously approved by the Maharashtra State R&R Policy. The GoM initially denied this order's applicability to Maharashtra but later passed a GR in April 2007 declaring entitlement to 2 ha land for major sons. As per the official documents, this necessitates that 1,076 ha land be located and allotted to major sons at the rate to be determined by land holders.

The Collector of Nandurbar District, through his letter regarding the PAFs—who had lost land *but had not yet rehabilitated*, to be included under Antyodaya Scheme—admitted that there were still 1,100 families residing in their original villages and were yet to be rehabilitated. There are also families at the resettlement sites who are entitled to but did not receive land for land. However, all the villages in Maharashtra are already affected, compelling the families who lost land some years ago to shift to a higher height in the mountain range and depend on degraded patches of sloppy farmland. This had implications on their health being affected due to the stagnant water and increased incidence of malaria and gastroentritis. They are also cut off from the services and markets due to the huge pondage with many paths drowned and rendering local canoes not functional. The Government provision of mobile dispensary and boat transport is highly irregular and many times dysfunctional, as reported to us by the villages in Chimalkhedi, Danel, Bhadal and Savarya.

(iv) More Acquisition and Displacement Likely

Furthermore, the CWC says the surveys for water levels are not fully complete. The current water levels do not include water levels for tributaries, and, hence, the submergence level, just as in MP, is not yet fixed in Maharashtra. When the first phase was completed in 2002, the Tapu Survey Report declared 61 additional families not declared as affected earlier. The second phase of the survey by an expert committee in 2005 suggested that more villages should be surveyed and decision as to whether they can be provided with jettys, higher roads, etc. or be declared affected and hence to be resettled, be made. This exercise has been recently completed, but the report is not yet ready, making hundreds more await recognition as PAFs and live on the edge with an uncertain eerie feel of getting cut off once the waters rise. Thus, though the GoM has taken the important step of conducting a Tapu Survey, it has to take it to its logical conclusion. On the other side, not only has MP failed to recognise the need to survey lands getting marooned at backwater/ afflux level of MWL, it does not even have the survey for backwater level of MWL.

(v) Where is the Land?

In order to resettle all the eligible families, about 3000-4000 ha of land is required. As of 2007, the Government had approximately 300 ha of private land available. The GoM is considering offering higher price to purchase more land.

It was after years of struggle and opposition to the construction of dam on the ground of pre-requisite rehabilitation compliance that the state used political processes to get forest land for rehabilitation, going even against the conditions put forth by MoEF in its clearance under Forest Conservation Act, 1980 and 4200 ha of land was diverted to non-forest use in 1990 and in 1994. The Government could resettle about 2,000 families into the 5 resettlement sites developed on this land, only after clear felling 2,700 ha of forest. However, it was realised later that at least 1,500 ha of it could not be used for resettlement on the account that it was rocky and uncultivable. The State Cabinet resolution in January 2004 resolved that 1,500 ha of alternative forest land should be diverted for rehabilitation replacing the uncultivable land, provided earlier. However, no such proposal has yet been submitted to the Central Ministry of Environment and Forests.

Furthermore, there has been no assessment of the quality of land provided to those resettled. Many were given poor quality resettlement sites or poor quality land. About 700 families have shifted to Gujarat. Many of them received partially or fully uncultivable lands and hence some had to return to Maharasthra. These families are not rehabilitated even today. Therefore, other families do not intend to shift to Gujarat creating further pressure on the GoM to acquire land.

At the resettlement sites, there are a few hundred families that have shifted without getting due land allocated. There are other problems such as no adequate water, roads, infrastructure, and other civic amenities. There is water-logging of the land and some of the new sites have also experienced submergence such as Vadchhil, Wadi and Tharawad. The people continue to struggle for their rights and dues and take to strong protest in the situation of resettlement sites also getting submerged.

(vi) History of Submergence and Compensation

In Maharashtra, PAFs whose fields and homes got submerged were offered compensation on the basis of revenue rules for natural calamities. Revenue officials carried out *panchnamas* determining the value of their crops at the time of their submergence and estimated compensatory grant to help them rebuild their homes.

In 1994 in Akkalkua Tehsil compensation was given to 37 PAFs who shifted to R&R site. Another 34 PAFs were not rehabilitated. The total amount paid out was Rs. 126,615. Those who did not shift received Rs. 115,056 in compensation. In Akrani Tehsil in the same year a total of Rs. 8360.60 was paid out to PAFs. However, a number of PAFs who did not shift did not receive the entitled amount of Rs. 8,977.50.

In 1997-1998 in Akkalkua a total of Rs. 23300.00 was paid to 26 PAF's. In 1999 a total of Rs. 556,150 was paid to 143 PAF's in Akrani, and Rs. 167,100 was paid out to 450 PAFs in Akkalkua. In 2003, 15 villages in Akrani and 8 villages in Akkalkua were submerged affecting a total of 342 families in Akkalkua and 289 families in Akrani. The compensation reported given by the GoM is Rs. 78,000 and an additional Rs. 215,000 for trees. However,

in Akkalkua according to actual Panchammas made in the villages no compensation was given. In Akrani the compensation reported as given was Rs. 4,526,670.[20]

In 2004, 428 families in Akkalkua and Akrani were affected including 110 homes and 706.40 ha of land.[21] No survey was done by the Government and no compensation given. In 2006, the latest submergence, an additional 491 PAFs faced submergence. 487 fields and 20 homes in Akrani Tehsil and 477 fields and 181 homes in Akkalkua Tehsil were submerged. No compensation has been given for any of this submergence.[22]

Based on these numbers, the total amount reported as paid out thus far is Rs. 6,228,571. And while this is the reported amount given, village level surveys reveal that all of the compensation reported was not received by PAFs. Discrepancy between the reported amount paid out and what was actually received by the PAFs may be due to leakage in the system.

Due to the struggles of the affected people, the GoM was forced to give compensation to those, whose land and houses were affected due to submergence. However the compensation is both incomplete and inadequate – also for the reason that this compensation is offered on the basis of revenue rules for natural calamities. Given the inadequate compensation and rehabilitation experiences, affected adivasi families continue to live and do not intend to leave in spite of facing severe deprivation and continue to live in unsubmerged part of the village.

(vii) Costs of Rahabilitation

There is an immeasurable social cost resulting from the complete submergence of villages, drastically disrupting the lives and cultures of those residing in the village. There is both an ecological and social cost for the submergence of forest. This cost, while unquantifiable, should not be forgotten in assessing the cost of the dam project when weighed against its benefits.

These unquantifiable social costs are in addition to the actual prices for compensation as well as resettlement and rehabilitation. In Maharashtra current land prices for irrigable land is Rs. 90,000 per acre (non-irrigable land is Rs. 60,000 per acre). The estimated cost of resettlement and rehabilitation is Rs. 7 lakh per person. As estimated in the report by Yashada, the GoM would need to spend Rs. 208 crores approximately to rehabilitate all the affected families.

While currently lakhs of rupees have been reported as spent for compensation and rehabilitation, the task of resettlement and rehabilitation of all the PAFs in compliance with NWDTA has not been accomplished. Much more needs to be done to resettle these already affected.

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[20] Letter written on 25 March 2004 from Tesildar Akrani to Keshov Vasave, Planning Group Member. Re: Compensation.

[21] NBA Survey.

[22] All information in the charts was derived from: Right to Information: Block Level, Tehsil Offices of Akrani and Akkalukua. Applications were submitted on 16 November 2006 (Akrani) and 13 November 2006 (Akkalkua). Information received on 31 January 2007 and 12 January 2007 respectively.

3. Displacement in Gujarat: Resettled but not yet Rehabilitated

The displacement due to Sardar Sarovar Dam or Navagam Dam in Gujarat dates back to a distant morning in 1961, when villagers in Kothi came across a bulldozer to flatten the standing crop on their fields to carve out a helipad. From that fateful day till today the local population of the 6 villages that lost land for dam site, rock filled dykes and other ancillary works continue to be pushed around on the margins on their own land. While the displacement did occur in these villages in early 1960s and 1980s, by that time Gujarat had evolved no Resettlement and Rehabilitation policies. Thus, 1,600 ha of land was acquired from 950 families from 6 villages of Kevadiya, Waghodiya, Kothi, Limdi, Navagam and Gora.

Oustees were sent notices of land acquisition for public purpose – the construction of the Sardar Sarovar Dam – and told that they would be paid cash compensation and given jobs on the dam site. Their lands and houses were acquisitioned for the project colony as early as 1961-63 giving them a measly Rs. 80 to 250 per acre, but they were never recognised as project-affected persons. The World Bank's 1985 Project Appraisal Report on Sardar Sarovar prepared before granting of the loan stated that the people of the 6 villages fall in the category of oustees since they are "displaced from their 'usual habitat' due to the carrying out of the Project". But, the Government of Gujarat (GoG) did not relent.

However, in 1992, due to the pressure mounted by the Morse Committee and the World Bank, the GoG was compelled to dole out some compensation. The amount offered was Rs.12,000 per acre subject to a maximum of Rs.36,000! This offer still stands – as revealed by a standard reply by Narmada district collector to oustees protest again the recent tourism plans at dam site – while the market value has gone up by 5 times during the last 15 years.

It was only in 1987-88 that Gujarat developed a resettlement policy for Sardar Sarovar oustees after considerable pressures from non-governmental organisations and World Bank missions. However, the R&R policy by Gujarat constantly changed through successive GRs, posing several challenges for implementation. The policy also followed closely the central measures laid down by the NWDTA, although NWDTA definition of an oustee was restricted to those affected by submergence. Since rehabilitation clauses in NWDTA aimed at primarily resolving the inter-state disputes and protecting Maharashtra and MP oustees, by guaranteeing them resettlement. Adopting such a definition restricted the access to land-based rehabilitation for those getting affected due to irrigation distribution network and dam site colony, etc.

The claim of having performed comparatively well on finding land through private purchase, allotting it to oustees and trying to put in place R&R sites with civic amenities appear to be valid but only if taken at the face value. If one engages in a serious scrutiny of what post resettlement life is like for many oustees, one gets shocked to find even after one and half decades later, unresolved problems persist at R&R sites such as Parveta that were marked as "model for how Resettlement and Rehabilitation should not be carried out" in reports by Monitoring and Evaluation agencies. From 1992 onwards, PAFs have also exercised the option of returning to original villages under distress after realising that they cannot sustain livelihood at R&R site such as Malu. When Supreme Court appointed GRA under the chairpersonship of Justice P.D. Desai and he toured the area to put the

house in order. At least 9,000 grievances submitted to GRA were those related to uncultivability of land and other serious livelihood issues.

Some issues of rehabilitation in Gujarat are:

(i) Irrigation "Share in the Benefit" for the PAFs

The claim by GoG that it has built up the required canal network for utilisation of the ponded water itself is not borne out by the latest statistics, indicating that not more than 10% of benefits have been realized, as far as irrigation is concerned. The question as to how much of the share is received by PAFs resettled in Gujarat is equally important to probe into. Visit and investigation into a few R&R sites in Gujarat revealed that the situation is pathetic.

Out of the sites visited by the research team in Narmada district, the resettled families have not received irrigation through minors, sub-minors and field channels even at one site. The Government and the SSNNL seem to have neglected most of the rehabilitation sites as well as the host communities in the very first stretch of command area. It was reported that, apart from responding once in a while to come and inspect, there is no input, nor investment from the SSNNL or the SSPA to repair breached minors or to finish the lining work in this area. There is neither a plan, nor the budget; and the PAFs have to invest themselves. Many of the PAFs have faced severe economic losses due to repeated waterlogging, flooding, uncultivability of land and other problems.

While many resettlement sites have not been formally linked to nearby local gram panchayats, in some cases, where they are linked to panchayats, they do not have adequate clout to get panchayat funds for works on R&R sites. Focused group discussion with PAFs at the R&R sites revealed that they get irrigation water through *baknali* i.e. pipe purchased and put in by resettled families to draw water on gravity principle. A handful in each sites get irrigation water through their own diesel pumps. Except a few families at Kukkad R&R site, none has received any help from adivasi sub-plan or under any special schemes. Those who get irrigation water from sub-minor stated that it is highly irregular since it flows only when adequate water is released from canal points by officials and covers only the stretch that lies adjacent to sub-minor. In Parveta, PAFs had no water in peak time when the crop needed it the most. Having lost their monsoon crop due to flooding and waterlogging, they only waited for irrigation water with crossed fingers. When that too deluded them in Rabi season, it broke their back and compelled them to look around for manual labour.

The price of water over the price of progress already paid heavily by the PAFs is another bone of contention. The tariff for irrigation water was Rs. 157 per acre per watering in the year 2002 and has steadily escalated thereafter. Over and above this, hiring charges for diesel pumps and costs of pipes have made the access to irrigation water unbearable for a large of resettled families.

There are 37 cases in just 3 R&R sites of PAFs who have received notices that their tractors or land is being attached, i.e. confiscated by the district co-operative banks for not being able to pay back their loans on time. In the first place, the PAFs had to buy tractors because—as indicated in the reports by Monitoring and Evaluation Agencies—the lands given to these PAFs were un-cultivable and needed heavy use of tractors.

(ii) Cultivability of Land Allotted and its Capacity to Sustain Livelihood

The GoG was compelled to identify private land, purchase and allot the same to the PAFs, once it became public that the Government waste land which it claimed to be available was utterly bad and mostly uncultivable and when it became clear that denuded forest land was not available due to Forest Conservation Act, 1980. Thus, initial claim made by government in 1980s that there would be no dearth of land and about 38000 ha of land belonging to these two categories would be available to accommodate not only Gujarat PAFs but all those of Maharashtra and MP who would choose to resettle in Gujarat proved to be completely inaccurate. The search by the government for private land was responded to mainly by absentee-landlords, who wanted a better price for the land at the cost of the landless labourers and sharecroppers.

Corruption in sale and purchase of this land came to the fore much later when investigations by Economic Offences Wing put under scanner land deals involving 200 acres of land in villages of Dhantej and Tulsipur.[23] A officer of the level of deputy collector, along with two patwaris, made the SSPA buy poor quality of land at high prices. The land valued at Rs. 22,000 per ha was bought for an exorbitant price of Rs. 1.85 lakh. When the farmers who sold their land complained and investigations were initiated, it revealed that fraud amounting to Rs. 72.32 lakh and Rs. 41.32 lakh was committed on public exchequer. The impact of purchase of such bad and degraded lands at higher cost has mainly been on the PAFs. They were given lands which get waterlogged, salinised or lands with patches of *Daabh* (deep-rooted grass preventing cultivation) and even rocks. Once a PAF accept such a land allotment, umpteen number of complaints, visits to officials at all levels, huge expense of money on applications and every effort including reaching out to GRA has failed to get a proper response. During first few years till nineties, officials used to visit some sites, investigate, and offer to take up some land improvement works but some leveling, little bunding etc that rarely resulted in positive resolution of the problem. In other cases, the authorities would pass a buck from one to another but not even plan a concrete solution.

In one of the affidavits filed by GoG, it was accepted that 43 R&R sites had chronic problems of salinisation and waterlogging. Very little or nothing is done on these R&R sites, as reported by many PAFs at many of these R&R sites, such as Parveta and Krishnapura in Naswadi Taluka. A few PAFs from Maharashtra resettled at Parveta received orders for exchanging their bad lands but even those were not implemented. Since last may years, officials categorically deny any possibility of purchasing new land on the ground that prices have escalated and they have only those land rejected by others to offer in exchange.

The destitution faced by PAFs who have been given un-cultivable lands or who haven't got land as per entitlement is obvious. Their adult sons are compelled to migrate to either the farms of upper caste farmers from nearby villages or to Surat. Almost every woman in adivasi families who never used to manual labour work on someone else's farms too have to go in for that while men are increasingly resorting to liquor after day's hard work, which their families are finding to be very tragic. Indebtedness is severe and their inability to manage high debt repayment is a matter of great concern. It is even more tragic that the dam which was justified with a purpose of preventing migration from Saurashtra and

[23] We will Chase Narmada Oustees from our Land, *The Times of India*, October 5, 2004.

Kutch has led to migration of natural resource rich communities who were self reliant.

Land as an alternative source of livelihood is the backbone of R&R policy. While around 10% of the PAFs have benefited, almost 80% face and feel severe deprivation and can't manage in the cash based market oriented economy as against their natural resource based subsistence lives in the valley.

Those who are without land such as those who were left out of rehabilitation under major sons category for not qualifying the criteria on the basis of cut-off-date would have always attempted to go back to submergence villages and try and live on higher mountain slopes, almost of the edge of reservoir. They have been trying to eke out a living by depending on degraded forest land and forest produce, on fish and farming supplementary hilly millets on drawdown lands, rather than carry on with frustrating experience of getting trapped into 'resettled but not yet rehabilitated' status. There are such families in every village in submergence zone in Gujarat, especially in Makkadkheda, Antras, Kadada and in relatively less number in Gadher, Vadgam and Mukhadi. It is reported that the Government is totally unresponsive about their rights and their plight, while the forest department intervenes only with vindictive harassment actions.

The families who have not received any of the entitlements include those who are not recognised as PAFs under major son category due to cut off date, exclusion from original surveys in 1980s, or those who could not get land at the site where other close relatives were settled and await the same till date. There are many families who are not recognised for rehabilitation as they could not claim 'major son' status since as per cut of date in 1987 they were not 18, or could not produce documents to show that. However, they are today 32 to 40 years old and married with 2-3 children to rear. They go for manual labour work or hang on to whatever land their family has got. They have repeatedly resorted to a long trail of applying and following up with the SSPA, the SSNNL, extension officer, as well as writing to GRA. Either no one responds to them or they come to a stalemate where medical test is carried out but report is not received. Some receive a negative reply and then they do not dare raise their head again to claim 'affected major son and eligible for rehabilitation' status.

In most R&R site, one also comes across persons – although few – who are widows or even widows who had ownership rights, and even some farmers who should have been declared as PAFs but were not declared. Their names were excluded either because they were not in submergence villages when the CSS carried out baseline survey or for some other reason. They too have exhausted their energy following up their complaints with due documents time and again.

Threats or intimidation by the police against the PAFs have become a routine occurrence. Any meeting of these 'resettled but not yet rehabilitated' or even public hearings by eminent human rights defenders brings forth police cordons and route blocks thereby restricting movement of affected families. However, at the same time, political party workers from nearby urban centres are allowed to indulge in disruption of meetings. Even a senior journalist from *The Hindu* who was invited along with other media persons to the dam site by State Government was not allowed to converse with the affected families and on this being reported, authorities sought to argue that the police were shadowing her for her 'security'.

Kantibhai Rumal of Savli R&R was arrested for threatening to commit suicide in the dam. There have been 4 such cases where, driven by absolute despair, depression and angered at apathy of the authorities, oppressed individuals have uttered such words or resorted to such actions. While in all these cases the law and order agencies have been quick to humiliate and criminalise those depressed individuals, the government agencies have failed to make officials of the SSPA, the SSNNL, the NCA or the GRA to carry out a dialogue and go into reasons for such desperation at the R&R site.

The recent Fact Finding Report by L.C. Jain, S.C. Behar, et al. (31 August to 2 September 2007) states: "At Parveta, a vasahat (R&R site) in district Vadodara in Gujarat, we spoke to about 200-250 adivasis, originally hailing from villages in Gujarat, Maharashtra and MP, who had come from 33 different R&R sites in Gujarat to attend the Public Hearing. Below is a brief description of problems narrated at the hearing.

- The quality of land allotted to many PAFs is extremely poor and consists of uncultivable land. The unsuitability for cultivation of much of the allotted land is due to a number of reasons: the extremely deep-rooted dabh grass that destroys any crop; the uneven topology of many of the plots, cut across by naalas; and the hard, rocky ground.
- The R&R sites were supposed to be located in the command area of the dam. But this has not happened in many cases, and these sites are mostly without irrigation facilities. Even when the land is close to the water, a common problem is poor or no access to the water, so that the people settled there are effectively without water. This is in complete violation of the Tribunal's directives.
- Infrastructure in the vasahats is poor. One after another people complained of bad or non-existent roads, lack of drinking water with hand pumps not functional, and erratic power supply that affects the functioning of the borewells, where these exist. On the other hand, many vasahats also have serious problems of flooding and water-logging.
- There is no response to the complaints or grievances. Again and again we heard how repeated representations, often involving trips to Vadodara or Ahmedabad, elicited no response. "They simply throw our papers in the dustbin", we were told. The administration is completely indifferent, not just to people's complaints, but even the directives of the GRA, on the occasions when there are any.
- Serious problems persist; even 20 years after the first oustees were resettled in Gujarat, in recognising and allotting land to eligible PAFs. Many major sons, some of whom are now fathers or even grandfathers, have not been recognised as a separate entity entitled to land allotment. Numerous families are thus left out of the process. There are instances where the younger of two brothers has been recognised while the older one has not. According to a survey conducted by the PAFs, there are altogether 1192 families where major sons have been denied the promised compensation. Widows too are not considered eligible in Gujarat (unlike in Maharashtra, where the right of widows to land titles has been recognised. There are also many cases where PAFs have been given less than the full 5 acres of land they are entitled to.
- Numerous cases of withdrawal of land allotment, some more than 15 years after the original allotment, also came up. According to the PAFs, there are 179 such instances in Gujarat, where PAFs have either had land taken away because it was

"mistakenly allotted", or have received notices asking them to return the land. In other cases there was a sudden demand of payment of allotted land or for repayment of compensation given for housing, many years after the PAFs were resettled. PAFs have not only been harassed and pressurised in this way, but in some instances police force was also used against them.

- When PAFs are widely dispersed at resettlement (for instance, the people of village Gadher in Gujarat have been dispersed through 40 vasahats), the loss of sense of community is deeply felt and they become vulnerable to tensions and hostility vis-a-vis the host community. They are frequently dependent on the host community even for water.
- People who owned land earlier, have now become landless labourers.

Overall the quality of life has clearly deteriorated for these PAFs after R&R, despite the numerous directives to the contrary. The principle of improving the quality and standard of life is conspicuous by its absence.

ENVIRONMENTAL AND HEALTH IMPACTS

Large dams are often claimed to be eco-friendly sources of development, "green" or carbon neutral producers of energy, irrigation, and drinking water. However, the construction of large dams often has devastating impacts on the ecosystems. In order for the benefits of a large dam project to be realised, environmental safeguard measures must also be addressed in tandem. In the case of the SSP, a number of environmental issues remain to be addressed including Catchment Area Treatment, Compensatory Afforestation, the CAD, and protection of Flora, Fauna, and Fisheries. An assessment of these issues reveals that environmental safeguards are not being effectively implemented.

In late 1986, the Union Ministry of Environment and Forests expressed its uneasiness with the state of planning in the case of the SSP and the NSP in a note sent to the Prime Minister. In this note, the ministry acknowledged that "the NSP is not ready for approval in an objective sense" and thus given the critical technical and operational linkages between the two projects felt that "it is neither desirable nor recommended that the SSP should be given approval in isolation on technical and other grounds". Expressing further reservations, it was stated that "it is possible that the requisite information would at no time be fully available". However, the same note acknowledged that "a large amount of money (less than 5% of the project costs) has already been invested on SSP". The Ministry recommended setting up of a body with "adequate power and teeth to ensure that Environment Management Plan does not remain only on paper but is implemented; and implemented *pari passu* with engineering and other works".[24] The complete failure of *pari passu* approach was highlighted by S. Maudgal, a senior MoEF official who had experience of assessing river valley projects as early as in 1993 in a paper presented at a workshop organised by the Centre for Development Economics, Delhi School of Economics.

Even as per conditions detailed in *conditional environmental clearance* complete plans for compensatory afforestation, catchment area treatment, and rehabilitation of oustees on non-forest land were supposed to be provided by late 1987 (according to the forest

[24] Kothari, A. and R. Ram (1994). Environmental Aspects of the Sardar Sarovar Project, New Delhi: Kalpvriksha.

clearance) or by 1989 (according to environmental clearance). In addition, complete details of the CAD, survey of flora and fauna, carrying capacity of surrounding area, seismicity and health aspects had to be ready by 1989 (according to environmental clearance).

The Independent Review Report (Morse Committee Report) noted that none of the studies and plans required by late 1987 were actually submitted that year and 1989 deadline also passed by without any complete study or workplan being ready. Since the end of 1989, it has been repeatedly pointed out that clearance should technically be deemed to have lapsed, since the conditions have never been fulfilled. The Agenda notes of 9th Meeting of the Environment Sub-Group of NCA noted:

> ... a number of studies and surveys are still being carried out based on which Environmental Action Plans would be formulated. In the absence of a definite time frame for each of the studies, surveys or action plans, the implementation of the requisite safeguards and action plans pari passu with the construction of engineering works would obviously not be possible. Under the circumstances, the approval granted must be deemed to have lapsed... It is therefore, considered imperative that the project authorities be directed to ... seek renewal of environmental and forestry clearance beyond December 1989.

S. Maudgal noted in his 1993 paper that despite such views of Environmental Sub-Group, NCA unilaterally decided later that fresh clearance was not needed.

In early nineties, Ashish Kothari and his colleagues at The Hindu College Nature Club and Kalpvriksha Environmental Action Group examined environmental impacts of the SSP. The Report of Independent Review headed by Bradford Morse had examined environmental issues in detail and took a serious view of failure of Bank's incremental strategy and GoI's *pari passu* policy to redress the continued *non-compliance* that almost bordered on *defiance*.

In December 1994, when the report of Five Member Group, set up by Ministry of Water Resources in July 1993 was made public, the findings confirmed the critique of the SSP on ecological concerns by stating that "the project proponents does not understand the magnitude of Catchment Area Treatment needed... compensatory afforestation will probably face resistance from people... there is too much complacency about potential threat of waterlogging and salinisation and downstream impacts remain understudied."

(i) Siltation and Catchment Area Treatment

Siltation is a very serious issue in the case of both the NSP and the SSP since the catchment area is so vast and is largely degraded. This implies that the life span of the dam is going to be shortened considerably besides the potential of silt load to cause damage to the turbines and other machinery. Siltation of reservoirs has been acknowledged as a major problem affecting operations of dam in India right from early seventies. The Central Board for Irrigation and Power stated it its publication dated 1977:

> "The annual rate of siltation from a unit reservoir has been 2 to 3 times more than what was assumed at the time of the project design... These measurements have shown that sediment has deposited not only in the dead storage space, but has also encroached on the live storage. Till now it was believed that all the silt would be deposited, and recent measurements have exploded this belief. The encroachment on live storage capacity has affected the reservoir operations."

Now, the rate of silt flow is calculated in all the recent dams, as a part of the project report. In many cases, independent studies had also been carried out to determine what

the rate of siltation would be. It has been found in most of the cases that the observed siltation rates were found to be higher than what was predicted. [25]

The Catchment area is the area upstream of the dam that feeds into the main reservoir. The catchment area needs to be properly treated in order to prevent erosion of the soil and siltation in the reservoir, which both degrades the water quality of the reservoir and reduces the life of the dam. Thus, failure to treat the entire catchment could have severely detrimental impacts on the water quality in the reservoir, the ecology of the watershed, and the operation and lifespan of the dam.

The first and third conditions of the Ministry of Environment and Forests (MOEF) Clearance given in 1987 clearly states that:

- The NCA will ensure that environmental safeguard measures are planned and implemented *pari passu* with progress of works on projects.
- The Catchment area treatment plan and the rehabilitation plans: are so drawn as to be completed ahead of reservoir filling. (Emphasis added).

Pari passu refers to the simultaneous implementation of environmental safeguard measures, alongside engineering works. The meaning of catchment area was further clarified in a letter by the then Secretary of the MoEF, T.N. Seshan, addressed to the Secretary of the Ministry of Water Resources (MoWR), "The Catchment Area should cover both *submergence and free draining catchment.*"[26] (Emphasis added)

In the SSP, the original catchment area was to be found to be 2,442,440 ha, including directly draining and non-directly draining catchment. Despite the stipulations that the entire catchment be treated, NCA divided the catchment into "critically-degraded" and "non-critically degraded" catchment. Of the total SSP Catchment, about 27.96% was found to be "critically-degraded" based on a study by the All India Soil and Land Use Survey.[27] Contrary to the MOEF clearance the NCA maintains that only this critically degraded catchment "was required to be treated *pari passu* with the construction works ahead of the reservoir filling."[28] In 1992 the GoI issued a directive that the SSP was to bear the costs only for critically-degraded, directly-draining catchment. Thus, the original catchment area to be treated was reduced to 1,79,180 ha. This was then further reduced to 1,63,449 ha because "balance area were not available on account of being rocky/ un productive/ under development/ litigation."[29] So of the original catchment to be treated, NCA committed to treat less than 6.5% of the total catchment area below the Narmada Sagar dam.

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[25] Indian Country Study (2000). *Large Dams: India's Experience.*

[26] Ahluwaliya, A. Narmada Control Authority, Sardar Sarovar Project-Environmental Sub-Group Status Meeting Review (mimeo), p. 4.

[27] Narmada Control Authority website. Environment: Studies and Findings. Available at: http://nca.gov.in/env_findings.htm. Accessed 1/17/08

[28] Narmada Control Authority (2006). Environment Management Report, Sardar Sarovar Projects.

[29] NCA Report, p. 14.

Ashish Kothari and Rahul Ram in their December 1994 book, *Environmental Aspects of the Sardar Sarovar Project* pointed out striking discrepancies between various NCA documents stating:

> the targeted figures for the year 1994 are shown as 10,000 ha in NCA's June 1993 document, while July 1993 document asserts that 6400 ha will be treated. In the case of MP, NCA's June 1993 document states that 17,000 ha have been treated till date, while Environment Sub-Group's Minutes of 18th meeting in July 1993 gives the corresponding figure at 11,161 ha – nearly 6,000 ha less than what was claimed as treated just one month ago.

Similarly, they pointed out a contradiction in a NCA document dated 1993, "on page 48 it says that survey work, preparation of a detailed map and micro level watershed development map are all *complete for all states*, while on page 90 it says that the task for determining the net area of sub-watersheds and thus total area of CAT required *still needs to be done*."

The Narmada Control Authority (NCA) maintains that this area has been completed. The balance of the CAT was to be treated later in a Phase II implementation. Maharashtra is reported to have completed an additional 14,904 ha in this Phase II implementation.[30]

However, during the year 2000-01, as per CAG audit report findings, Maharashtra had spent Rs. 0.22 lakh only, that too on "establishment of the subdivisions for soil and water conservation works in the catchment areas under SSP." One can very well imagine the state of Catchment Area Treatment with such a miniscule allocation and expenditure.

(ii) Flora and Fauna and Fisheries

Apart from forests, the reservoir and dam also results in the destruction of various fauna and flora species. According to Patrick McCully, dams can cause the destruction of plant and animal species which are closely adapted to valley bottom habitats and that often do not survive on the edge of reservoir. The number of fish species that can thrive in the relatively uniform habitat created by reservoirs is only a tiny fraction of the number which has evolved in the diverse niche provided by rivers. Because few areas have economically valuable fish adapted to still waters of an artificial lake, fisheries departments across the world have indulged in the practice of introducing into reservoirs a handful of species which can be reared in hatcheries and can support reservoir fisheries. These introductions, which compete with those native species which persist in the reservoir and also spread far upstream and downstream of the dam, have greatly magnified the effects of dams and diversions in hastening the decline and extinction of fish species around the world.[31]

However, NCA claims that no valuable flora or fauna will be threatened by the SSP and that existing eco-systems will benefit from the increased supply of water.[32] This claim assumes that the SSP will effectively provide increased water supply to the proposed Command Area. Further, even if one were to accept that premise, it is scientifically unsound to assume that increased water supply will necessarily lead to improved eco-

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[30] NCA Report, p. 16.

[31] McCully, P. (1996). *Silenced Rivers: The Ecology and Politics of Large Dams*, New Delhi: Orient Longman.

[32] NCA Website. Environment: Studies and Findings. Available: http://nca.gov.in/env_findings.htm. Accessed 1/17/08.

systems, specifically in areas where there are species of plants and animals unique to arid climates.

There have been numerous studies conducted regarding the state of plant and animal life and a number of action plans proposed regarding flora, fauna, and fisheries. These plans, however, remain unfunded.[33]

These plans call for felling of forests prior to submergence. This is both to protect wildlife and also to prevent degradation of water quality in the reservoir from trapped and decomposing wildlife and vegetation. The NCA reports that this felling is taking place regarding the SSP. However, it is reported that photographic and documentary evidence of submerged forests in reservoirs of various dams on Narmada, confirm that forests have not been cleared, again leading to degraded water quality due to eutrophication, in the age of climate change.

The plans also propose sanctuaries for flora and fauna displaced by the dam project. However, of the two proposed sanctuaries nearby the SSP dam site viz., Kathiwara and Mathwad, two separate reports, one by the Divisional Forest Officer in Jhabua and one by the Wildlife Institute of India have found Mathwad unsuitable for sanctuary due to an abundance of human habitation, 33 villages, and a distinct dearth of forest and wildlife.[34] Just as we are writing this, there have been proposals to develop Ratanmal (in MP) as sanctuary. Plans are also afoot for another sanctuary in Maharashtra's Dhadgaon and Pati tehsils of Badwani where there are adivasi populations.

Furthermore, many of the studies conducted focused on preserving the diversity of the fishes, leading the NCA to claim that there will be no threat to the gene pool of the fishes in the Narmada.[35] This does not take into account the impact that drastically diverting water will have on naturally occurring fish species in Narmada and the subsequent economic impact it will have on fisherpeople's livelihoods. NCA reports that some of the mitigating action plans include development of fisheries.[36] Again, however, these plans remain unfunded.[37] Furthermore, development of new fisheries does not guarantee their thriving success and therefore also does not guarantee the preservation of the livelihoods of fisherpeople.

There have been a number of studies, such as the one by the Indian Institute of Management, Ahmadabad, which have led the High Power Expert Group, formed especially for the Sardar Sarovar fisheries development, to plan for this to be the most profitable business. But there seems to be very little thinking and effort to give the affected fisher people the first right to fisheries through cooperatives as was done by the GoMP in Bang and Tawa reservoirs in Narmada.

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[33] Ahluwaliya, A. Narmada Control Authority, Sardar Sarovar Project-Environmental Sub-Group Status Meeting Review (mimeo), p. 4.

[34] *Hindustan Times* (2007). Mathwad Not Suitable For Sanctuary, 27 November, Bhopal.

[35] NCA website.

[36] NCA Report. pg. 53.

[37] Ahluwaliya, A. Narmada Control Authority, Sardar Sarovar Project-Environmental Sub-Group Status Meeting Review (mimeo), p. 4.

(iii) Compensatory Afforestation

After enactment of the 1980 Forest Conservation Act, the importance of forest loss to large projects assumed grave proportions, resulting in the Ministry of Environment and Forests (MoEF) making compensatory afforestation mandatory. As such, the environment clearance to the SSP also states the need for Compensatory Afforestation Plan. The critics of the SSP and many eminent ecologists have taken a view that compensatory afforestation would, at best, establish plantations and can never create replacement of forests. In the discussion that follows, the CAF activities in the case of the SSP are examined, using official and scholarly literature on the issue as well as the case study for cross verification of stated claims on ground. The two broad concerns that emerged out of the analysis of Compensatory Afforestation are:

a. Compensatory afforestation has been carried out by Gujarat in dry grassland of Kutch, areas that are completely different on ecological grounds from the submerging forest areas. Senior forest officials from regional offices of the MoEF,[38, 39] accepted this their report; later NCA's Environment Sub-Group stated, "It is impossible to replace the tropical deciduous forests submerging due to the SSP, in the arid district of Kutch... any plantation in Kutch will be only *mitigatory* and not *compensatory*".

b. The retention and survival rate of saplings planted is pathetically poor.

Forests are home to invaluable biodiversity including medicinal herbs, food, crops, fruits, gums, grasses, and wildlife. Simply planting saplings can only lead to plantations, but it cannot replace the biodiversity that is lost with the felling or submergence of natural forest. However, though Compensatory Afforestation might be inadequate, it is still a mandatory mitigating measure that must be undertaken in order to begin to address the negative environmental consequences of forest submergence and mandatory tree-felling. There were several conditions in the MoEF clearance regarding CAF including:

- For every hectare of forestland submerged or diverted for construction of the project, there should be Compensatory Afforestation on one hectare of non-forest land plus reforestation on 2 ha of degraded forest land.
- For the 4,200 ha of forestland in Maharashtra, which was diverted for use for R&R, an equal area of non-forest land or double the area of degraded forest land should be planted.

An area of 13,386 ha of forest land was diverted by the MoEF (excluding 4,200 ha for rehabilitation) for the SSP, of which 4165.91 ha in Gujarat, 2731.00 ha in MP and 6488.54 ha in Maharashtra.[40] As per information obtained under Right to Information Act, the number of trees clear felled in just 9 out of 33 submergence villages in Maharashtra is 5,72,000. The Narmada Bachao Andolan claims through its data submitted to the MoEF that in 4 villages on non-forest land, there are 7000 trees counted. The State Governments

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[38] Kushalpa, K.A. (1992). *Special Monitoring of Compensatory Afforestation in Kutch district, Gujarat* Annexed to the Agenda for the 15th meeting of the Environment Sub-Group of the NCA, August 1992.

[39] Ojha, R.K. (1989). Letter to Chief Conservator of Forests (Central), Ministry of Environment and Forests, Western Regional Office, Bhopal dated 25 July 1989, regarding inspection of compensatory afforestation sites in Gujarat.

[40] NCA Report, p. 19.

of Gujarat, MP, and Maharashtra prepared the plans for plantations of 46,358 acres for compensation. NCA reports that CAF has been completed in 42,064 acres of land.[41]

The NCA also reports on the survival rates for their forest. The rates vary anywhere between 0% and 98%, with 0 indicating that data for that particular forest is unavailable.[42] However, the validity of NCA reports has been severely called into question by many. Field assessments carried out by Deepti Bhatnagar, a University of California researcher on 1242 ha of land under compensatory afforestation as claimed by NCA have determined that 86% of the afforested areas are found to be highly degraded with little to no tree cover.[43]

Since the early years of construction at the SSP, repeated violations of environmental rules and regulations have been pointed out. In 1983, 2493 ha of forest had already been cut in anticipation of submergence by the SSP without clearance, and a document by Narmada Planning Group dated 1986 stated that the same was done "looking into urgency of the project and fearing the submergence of those low lying areas in case they are not clear felled quickly".[44]

It has been pointed out that the CAF process has not sought participation of the villagers who are most directly affected by afforestation. This has resulted in different types of conflicts. Land that has been set aside for afforestation is often the land that village communities use for farming, grazing, and homes.[45] The process of afforestation faced resistance in many villages, with villagers re-appropriating their land for agriculture and replanting the saplings elsewhere.[46] Often a tree species planted were non-native or ecologically incompatible with the area being afforested.[47]

Further, that the State owned Forest Development Corporation even failed to realistically assess the cost and forest loss to be compensated. This is clearly borne out by the following statement from a CAG audit report. The CAG report for Maharashtra (Commercial) for the year ending 31 March 2004 stated: "the accounts receivable and profit of Maharashtra Forest Development Corporation had been over stated by Rs. 3.15 crore due to inclusion of Rs. 5.63 crore towards compensation for loss of forest crop of MFDC on the land acquired by Sardar Sarovar Project, as against the compensation of Rs. 2.48 crore worked out by State Forest Research Institute of MP."

The latest audit report by CAG on MP (Civil) for the year ending 31 March 2007 has severely indicted the Forest Department for its failure to implement Forests (Conservation) Act (1980). Since the implementation of the Forest (Conservation) Act, MP, has diverted 51,018 ha of forest land for non-forest purposes for some 734 projects. While

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[41] NCA Report, p. 20.

[42] NCA Report, p. 21.

[43] Bhatnagar, D. Uprooting Forests: Planting Trees: Success of Compensatory Afforestation Measures Mitigating the Deforestation of Sardar Sarovar Dam, India, Berkeley: University of California, p.18

[44] Kothari, A.R. (1994). *Environmental Aspects of the Sardar Sarovar Project*, New Delhi: Kalpavriksha.

[45] Breiger, T. and A. Sauer (2000). Narmada Valley: Planting Trees, Uprooting People, *Economic and Political Weekly*, October 20, pp 3795-97.

[46] Ibid.

[47] Kothari, A. and R. Ram (1994). *Environmental Aspects of the Sardar Sarovar Project*, New Delhi: Kalpavriksha.

as per the provisions of the Act, the state needed to carry out compensatory afforestation on 73,213 ha of land as mitigation measures, audit scrutiny of the records in nodal office revealed that as on June 2006, compensatory afforestation has not been carried out at all in the case of 289 projects (39% shortfall at projects level) and on 13,441 ha of stipulated land (18% shortfall at land covered) after having been unable to utilise Rs. 82.60 crores (75% shortfall on utilisation of funds) recovered from user agencies towards the same.

The CAG auditors also scrutinised the evaluation reports on compensatory afforestation by the regional office of Chief Conservator of Forests (Central), MoEF, GoI at Bhopal. While a total of 78 inspections were carried out during last two years by the regional office, 67 inspection reports were made available to audit. The perusal of these 67 inspection reports revealed that compensatory afforestation works were not carried out in 34 cases (51 % shortfall) due to non-allotment of funds by the Government in 25 cases, non deposition of funds by user agencies in 5 cases, non availability of non-forest land in 2 cases and non suitability of land for compensatory afforestation work in remaining 2 cases. Out of 33 cases where compensatory afforestation works were carried out, 18 plantations raised during the period from 1998-99 to 2004 had failed resulting in wasteful expenditure of Rs. 8.82 lakhs.

Following such findings, audit had also requested concerned forest divisions to carry out evaluation and assessment of 20 compensatory afforestation plantations during March and April 2007, and in addition a joint verification of 4 compensatory afforestation plantations was carried out during October 2007. It was revealed that these 29 plantations failed and Rs. 15.86 lakh spent on them turned out to be wasteful as survival rate of plants ranged from nil to 10%.

The worst performance was recorded by Jhabua forest division, where audit scrutiny of records in May 2007 revealed that out of 56 plantations raised on 2,608.01 ha of Land Bank during the period from 1997 to 2000 at a cost of Rs. 2.23 crores, 53 plantations showed low survival rate (zero to 20%) rendering Rs. 2.04 crores spent on them wasteful. Similarly, in 6 cases of plantations raised by NVDA, the survival rate noticed was 6 to 17%, rendering the expenditure of Rs. 40.89 lakhs wasteful.

While the findings reported in the latest CAG report present a sad picture on compensatory afforestation in MP generally, it also puts the claim of the 'SSP to be a departure from usual and past record on environment mitigation measures', under serious questions.

However, as claimed in the NCA documents the status of compensatory afforestation on these sites is as given in Table 7.

(iv) Command Area Development

The Command Area of the dam project is the area that will receive the proposed irrigation benefits of the dam and its canal network. Addressing ecological concerns while making available irrigation water is necessary to prevent water-logging and soil salinity. In order for irrigation to successfully result in increased crop yields without degrading the land, it is necessary to address the drainage and land development issues, which need to be taken into account from the commencement of planning the canal network, and other

infrastructure such as express highways, railway tracks and housing colonies so that it does not impede drainage and lead to breaches and water logging.

NCA reports that the command area is 3.43 million ha in Gujarat (of which 1.869 million ha. is culturable) and in Rajasthan it is 0.135 million ha, (of which 0.075 million ha is clturable).[48] , A study of 'Operational Research Group' in Gujarat on the 'Regionalisation of Narmada Command' pointed out that "25.6% of the command area has severe limitations for sustained irrigation, and 26.5% of the command area is not suitable for sustained irrigation at all. In other words, 52% of the command area faces high to very high probability of waterlogging and salinisation if the SSP is completed".

TABLE 7
Compensatory Afforestation as Reported in NCA Documents

Name of Village	Planted		Surviving at hading over		Surviving at present		Survival rate%	
	Type/ Species	Number	Type/ Species	Number	Type/ species	Number	At handing over	At present as per DFO, Badwani
Silavad/ Raychulee, Dist Badawani (86.00 ha) planted in 1998, handed over in 2005	mixed	78150	mixed	43760	Mixed	26693	49%	33%
Khadaki, Dist Badawani (90.81 ha) Planted in 1997, Handed over in 2003	mixed	93030	mixed	20318	Mixed	18454	22%	19%
Semalya Khodara Dist Badwani Planted in 1998, Handed over in 2005	mixed	30985	mixed	15493	Mixed	8676	53%	27%
Mharaj Khedi Dist Khargone Planted in 1990 Handed over in 1996	mixed	33000	mixed	9900	NA	NA	30%	NA
Bahadurpura (35 ha) Dist Khargone Planted in 1990 Handed over in 1996	mixed	4970	NA	NA	NA	NA	NA	40%
Bardevla I (15 ha) Dist Khargone Planted in 1990 Handed over in 1996	mixed	16000	mixed	8000	NA	NA	50%	NA
Bardevla II (18 ha) Dist Khargone Planted in 1990 Handed over in 1996	mixed	21000	mixed	10150	NA	NA	50%	NA
Bardevla III (24 ha) Dist Khargone Planted in 1990 Handed over in 1996	mixed	22000	mixed	11000	NA	NA	50%	NA

Source: NCA documents on CAF activities obtained under Right to Information.

[48] NCA Report, p. 23.

In 1987, when the conditional environmental clearance was granted, one of the conditions appended to it was for complete details of the CAD to be furnished by December 1989. This was not done. Even as the year 1991 drove to the close, the Ministry of Environment and Forests stated in its summary of progress on the CAD that action plans were not available and the time frame for their ultimate availability is "not known".

Plans for the CAD by the GoG and the Government of Rajasthan (GoR) developed after construction on the SSP has significantly progressed. The NCA's Environmental Sub-Group states, "The command area development activities and environmental safeguard measures will be taken when water starts flowing in the canals."[49] As per the information available, this did not happen even after water started flowing through canal from 2001 onwards.

Furthermore, the efficacy of the plan itself was called into question by Prof. Shekhar Singh for a number of shortcomings in 2003, specifically regarding water-logging. The minutes of the 43rd meeting state there are no reports of water logging. However, every year after 1995, it has been reported that in the initial part of the command where the canal network is most advanced, large parts of the command area suffer from water-logging during the monsoon, resulting in crop-loss.[50] This indicates that the CAD is not taking place specifically with respect to drainage.

This needs to be read alongside the observation by Ashish Kothari and Rahul Ram in December 1994 that "if total drainage alone cost are over Rs. 3,600 crores, it is more than likely that drainage will simply be ignored over most of the command, as has been done in so many projects all over India."

In the year 2000 itself, a report from Comptroller and Auditors General on Gujarat (Civil) for the year ending 31 March 1999 that audited performance on the CAD in 37 irrigation projects in Gujarat had pronounced critical remarks. It had pointed out that as against the norm of 20%, expenditure on establishment under the CAD programme ranged between 41 to 56% of total expenditure during 1991-92 to 1995-96. These audit findings also posed several questions for those relying on the break from the past' claims of the SSP planners such as:

a. When monitoring centres required to be set up to keep close watch on the CAD activities were not created in any of the 37 projects, can the SSP be any different?
b. When authorities failed to construct field channels to the extent of 23% (1992-93) and 80% (1997-98) while expenditure on the same was in excess by 43 to 46% for these 37 projects, can the SSP be any different?
c. When the CAD activities were delayed by 2-18 years in the case of 35 projects, what inspires confidence that in the SSP, they will be carried out *pari passu*?
d. When shortfalls in *warabandhi* works ranged between 34% (1992-93) and 83% (1997-98) in these 37 projects, can the SSP be any different?

Prof. Shekhar Singh also pointed out that, while a number of studies had been conducted regarding treatment of the Command Area, many of the recommendations of these studies

[49] Ahluwaliya, A. Narmada Control Authority, Sardar Sarovar Project-Environmental Sub-Group Status Meeting Review, p. 37.

[50] Ibid, p.56.

were ignored. For example one such study suggested that irrigation be avoided in the "supercritical area of the command" which was ignored. Several studies call for a review of the project design and that has been ignored in the plans developed for the CAD.[51]

Furthermore, while irrigation was reported to have begun in 2002, even by the 42nd meeting in 2005, there was no progress reported by the GoG on any aspect of their CAD plan.[52]

Regarding the CAD for the Government of Rajastan, Professor Ramaseshan in the 42nd meeting of the ESG states that, "plan prepared by GoR if implemented as it is, would lead to large scale water logging and salinity in almost the entire command area. He suggested a detailed review of GoR CAD plan needs to be made by Sub-Group."[53]

This inadequate implementation of the CAD will have serious detrimental impacts to the soil quality and crop yields of the command area. We are reporting a case study to show how inadequate the oversight has been by Director (Environment) NCA and Environment Sub-Group on command area ecological concerns. In addition to the Case Study reported below, breaches in main and branch canals have become regular feature during monsoon floods due to poor drainage designs. While Narendra Modi was boasting of having inter-linked Narmada and Saraswati river, the canal was de-linked between Nani Kadhi and Narsinghpur in Mehsana district, near Y-shaped junction from where canal goes towards Kutch. Lakhs of gallons of water flooded out to nearby fields causing damage to crops.[54]

(v) Health Impacts

The environmental clearance for the SSP required plans for the provision of health care facilities to workers and residents of affected areas. The MoEF clearance refers to health aspects as one of the issues addressed by the Enviornmental Appraisal Committee (EAC) of River Valley Project. The EAC advises on malaria control and monitoring of potential breeding sites for malaria vectors and other waterborne diseases.

There have been a number of studies conducted regarding public health issues in the Narmada basin by various universities and also State Health Departments. Based on these studies, the NCA maintains that the most common diseases in the Narmada Basin are malaria, scabies, dysentary, and diarrhoea. The water borne diseases studied were malaria, filaria, and schistosomiasis. Filaria and schistosomiasis are reported by NCA as not being a threat and only malaria is of concern.[55] NCA reported that incidence of hygiene related diseases will decline with the increased availability of water. Governments in the affected states have developed Action Plans to address public health issues.[56] The Action

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[51] Ibid, p.55.

[52] Ibid, p.67.

[53] Ibid, p.34.

[54] Cited from: *Loksatta*, September 18, 2005.

[55] Narmada Control Authority. Environment Management Report: Sardar Sarovar Projects. March 2006 pg 64.

[56] Narmada Control Authority website. Environment: Studies and Findings. Available: http://nca.gov.in/env_findings.htm. last accessed 1/17/08

Plans include health care facilities around the periphery of the reservoir and a hospital at Kevedia near the dam site.[57]

Despite reports of progress and implementation as late as March 2005, these plans remained unfunded.[58] Failure to address all health issues detailed in the plans and non-existing new medical facilities are in violation of the *pari passu* clause of the environmental clearance.

In addition to poor implementation of the Action Plans and continued non-compliance with the *pari passu* clause of the enviornmental clearance, the Action Plan is in itself an inadequate means to address the health impacts of the SSP.Few studies have been conducted on the existing ecosystems and microclimates of the surrounding reservoir area of the SSP. This does not take into account any drastic changes to the eco-system while building a large dam. The resultant large reservoirs, submerged forest, and changes to downstream siltation patterns could create an environment where there is increased incidence of existing diseases and introduction of new diseases into an area. Simply because filaria and schistosomiasis were not a threat to populations when the studies were conducted, does not mean that the incidence of these diseases will not increase once the dam has been completed. Nor does it account for potential new diseases in the area. For example, the GoI documents that the SSP demonstrates a high potential for malaria transmission and a high potential for transmission of Japanese encephalitis thereafter.[59] Construction of the dam requires labor, often in the form of migrant laborers who may carry disease that the local population may not have immunity against, putting local populations at risk.

The drastic alteration of the surrounding environment could have unforeseeable impacts. Drawing experience from other dams in similar climates, however, hypotheses can be drawn. Studies of the Bhakra dam and the Govind Sagar reservoir report high increased incidences of malaria, gastroenteritis, enteric fever, and viral hepatitis due to the stagnant water in the reservoir and lack of potable water for those residing near the reservoir. Furthermore, the enormous reservoir creates a tremendous amount of fog leading to increased respiratory diseases and the reduced visibility due to the fog results in increased accidents.[60]

The poor treatment of the catchment area, the submergence of standing forest, and in general the failure to implement various environmental safeguard measures will result in eutrophication and other processes that will degrade the water quality in the reservoir which will further result in a number of negative health impacts.

Further, the studies do not seem to differentiate between distinct environments found in the Jhabua submergence zone. For example, the 100% adivasi villages in Nandurbar district of Maharashtra, villages in Narmada district of Gujarat and Jhabua district in MP,

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[57] NCA website. Enviornment: Plans and Progress.

[58] Ahluwaliya, A. Narmada Control Authority, Sardar Sarovar Project-Environmental Sub-Group Status Meeting Review (mimeo), p. 4. This is as of the 33rd Meeting of the Enviornmental SubGroup.

[59] Government of India (2000). *India Country Study.*

[60] Dharmadhikary, S. (2005). Unravelling Bhakra: Assessing the Temple of Resurgent India, Manthan Adhyayan Kendra Publishers.

was one of the first areas to be affected by submergence resulting from the construction of the SSP. According to an independent study, the diseases most common in the district are those of the digestive and respiratory system, malarial and typhoid, disease of eyes and skin and TB. Epidemics of cholera, chicken pox, measles and influenza are also prevalent in varying degrees. A major source of disease is the lack of access to safe drinking water since for 95% of the population in villages on the bank of the river, the stagnant reservoir water is today the only source of drinking water. This has led to increase in gastroenteritis, reaching epidemic proportions and resulting in more than 30 deaths so far. Malaria and scabies is also on the rise. Deaths due to drowning, snake bites and crocodile attacks have also increased.[61]

FINANCIAL COSTS AND IRREGULARITIES

The total financial cost of the SSP, its Benefit Cost ratio, Internal Rate of Return and Economic Rate of Return are all much debated figures. In 1981, the Narmada Planning Group (NPG), GoG assigned to Tata Economic Consultancy Services (TECS) the task of conducting an economic appraisal of the SSP, even as the decision to go ahead with the project was already arrived at. What NPG aspired to get from TECS was merely a sort of *rapid* economic appraisal that would make the project qualify the World Bank criteria for bankable projects. Terms of Reference given to TECS thus required it to finish the entire exercise within 6 months and TECS admitted on page 8 of its report, "It appears that quick estimates of costs and benefits of the project are possible by May 1982, only through *heroic assumptions* and compromises". In its report that was eventually published in May 1983, TECS put the costs of the SSP at Rs. 4887 crores at 1981-82 prices.

The second economic appraisal of the SSP was undertaken by the World Bank during 1983-85 and was published under two volumes entitled *Sardar Sarovar Dam and Power Project 5107-In* what do the last word and the figure before the last work mean? dated 12 February 1985 and *Water Delivery and Drainage Project 5108-In* dated 12 February 1985. The World Bank estimated the project cost at Rs. 13,640 crore, including base cost at Rs. 6,264 crore, price contingencies at Rs. 6574 crore and physical contingencies at Rs. 803 crore. The third economic appraisal of the SSP was assigned to C.C. Patel & Associates Ltd by the GoG in July 1988.

While the third economic appraisal put the figure of total costs including physical and cost-inflation contingencies at Rs. 11,154 crore and the Planning Commission was undoubtedly aware of this, it went ahead and granted a *conditional* clearance to the SSP on the basis of cost estimate of Rs. 6406.04 crore as submitted in 1984-85 by the GoG, vide its letter dated 5 October 1988.

It is important to point out that cost escalations of large projects have come to be regarded as a common phenomenon in India. However, that itself does not pardon poor economic appraisal of projects that underestimates costs and impacts while overestimates benefits acceptable. The sharp differences between actual and original estimates of large projects are now fairly well documented both by official and non-official investigations. Official estimates quoted in India Country Study, an exercise under the World Commission on Dams (WCD), provide the following illustrative evidence:

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[61] Status of Health in the Villages on the Bank of the Narmada in Jhabua District, MP (mimeo.)

1973 – Report of the Expert Committee on Rise in Costs of Irrigation and Multipurpose Projects	Revised estimates of 64 major projects were, on average, 108% higher than approved estimates. 32 projects showed escalation exceeding 100%
1978 – Estimates Committee (12th Report, Sixth Lok Sabha) Ministry of Agriculture (Dept. of Irrigation)	Expenditure exceeded outlay, up to Fourth Plan, by 19.4% while physical targets in area irrigated showed a shortfall of 51.4%.
1979 – Indian National Committee on Large Dams in India (as adapted in Singh, 1997)	Average cost escalation of 41 dams was 254% with only 6 dams showing escalation of less than 100%.
1983 – Public Accounts Committee (141st Report, Seventh Lok Sabha)	Cost overruns of 159 projects average 232%. 32 projects show overruns of 500% or more.
1983 – Desai Committee Report Annexure 3.1	During Fifth Plan, revised estimates of (all schemes) irrigation projects were 3.2 times the original cost. In the Sixth Plan this figure was 2.7. For new schemes costs increased by about 13% annually.

During early nineties, the financial appraisal of the SSP witnessed several critiques, including those arising out of World Bank's appraisal missions. The one by agricultural economist Prof. Vijay Paranjpye, whose book *High Dams on the Narmada was* published by Indian National Trust for Art and Cultural Heritage in June 1990, analysed the issue rigorously and proposed alternatives, as well as the one by Baba Amte titled, *Cry, The Beloved Narmada* in 1990. Prof. Vijay Paranjpye's analysis of economic appraisals demonstrates how the costs on rehabilitation and compensatory afforestation were grossly underestimated, while costs of Catchment Area Treatment and Drainage were not shown at all.

However, rather than engaging with these critiques in an open and academic fashion, project proponents seems to have responded in an irrational and high-handed manner, bordering on propaganda and vilification. The due process under the planning process guided by Planning Commission would have required the revised cost estimates to be approved at regular intervals. However, the cost estimates were revised in the year 1991-92, but were not approved by the Planning Commission, as citizens were told much later by the Comptroller and Auditor General of India in its performance audit of Accelerated Irrigation Benefit Programme in the year 2004. 1991-92 was the most controversial year when the project underwent an Independent Review headed by Bradford Morse, and even as the clearance granted to the SSP by the Planning Commission in 1988 was a *conditional* one, the revised cost estimates at 1991-92 price levels remaining *unapproved* – as none other than the CAG pointed out, much later in the year 2004 – had almost no consequences.

While the revised cost estimates dated 1991-92 remained *unapproved* and the financial assistance to the SSP by the World Bank came under intense criticism during 1992-93, SSNNL seem to have resorted to market borrowing—without much of discretion—in February 1993 and November 1993, to further erode the financial viability of the project. It needs to be noted that none of the cost estimates and financial appraisals had identified this route of project financing. The Planning Commission and Public Investment Board could have examined what implications and financial liabilities would such market borrowings have on the project. However, again citizens were informed about the design flows of debt instruments of such market borrowings on a much later date, in the year 2002, when the CAG examined the SSP's and the SSNNL's debt liabilities.

The Planning Commission has the responsibility to provide answer to the question that why did it allow the project authorities to proceed in such a fashion that the project whose

financial and economic viability had already been under severe criticism, was made a *fait accompli* and its potential to become favorable to a few financial investors at the huge cost on public exchequer intensified further. However, despite criticisms in the audit reports by the CAG on the SSP which pointed out the huge expenditure on the claimed benefits of the project right from the year 2002, the Planning Commission repeatedly failed to review Gujarat's Annual Plans in the light of these audit findings by CAG and even the Public Accounts Committee failed to follow up on those findings.

(i) Indiscriminate Market Borrowing

In June 1992, the independent review committee headed by Bradford Morse asked the World Bank to "step back" from the SSP, noting that "the underlying difficulties – the failures that reach back to the origin of the project – cannot be overcome by patchwork of studies". However, the majority voted to continue financing the project, and authorised management to proceed with a six-month action plan to address the environmental and resettlement problems. Six months later, when the conditions in the action plan had not been fulfilled and it became clear that the Bank would have to withdraw from the project, the GoI announced that it wished to cancel the remaining balance on the loan.

Soon after, in February and November 1993, Sardar Sarovar Narmada Nigam Limited (SSNNL) resorted to market borrowing. On 1 November 1993, it announced a public issue of 20-year Deep Discount Bonds, with a view to raise Rs.300 crores. The bonds were issued at a discounted price of Rs.3,600, promising the investor a yield of Rs.1,11,000 at the end of 20 years. While bondholders were given the right to pre-redeem their bonds at the end of 7th, 11th or 15th year, SSNNL does not hold the right to call back the bonds unilaterally. In the event of over subscription, SSNNL was allowed to retain 25% extra than the issue size. So, SSNNL mobilised Rs. 375 crores by allocating 7,13,619 Deep Discount Bonds worth Rs. 256.90 crore and 2,36,194 Non Convertible Bonds worth Rs. 118.10 crore. Non Convertible Bonds had a face value of Rs. 5000 each and were redeemable after the expiry of 9 years (i.e. in March 2003) at 17.5% rate of interest payable half yearly with a premium of 5 % payable at the time of redemption. The option of pre-redeeming the Non-convertible Bonds after 5 years was available only to investors, not to the SSNNL. With a mere 6 per cent of bondholders coming forward to pre-redeem their Deep Discount Bonds at the end of the 7th year[62] (in September 2001) and attempts to call back the bonds unilaterally at the end of 11th year[63] (in May 2004) meeting with failure, these bonds have

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[62] In September 2001, when the first redemption option — available to investors only — came, the SSNNL wrote letters to bondholders asking them to opt for pre-redemption. But it met with little success and only 5.96% bond holders carrying bonds worth Rs 15.33 crore came forward for early redemption and they were paid an interest amounting to Rs 37.89 crore. Thus, the SSNNL was left with a liability of paying 94.04% bondholders holding bonds worth Rs 241.57 crore.

[63] In the first week of May 2004, the SSNNL announced its willingness to pre-pay high cost 20 year Deep Discount Bonds through notice calling an extraordinary meeting of bondholders at Gandhinagar on 28 May, 2004 to seek consent from bondholders on the same. On 19 May, 2004 investors from Delhi and Mumbai filed a petition against the SSNNL's move. On 20 May, 2004, the SSNNL issued a press release saying hat in the wake of communication it had received from Securities Exchange Board of India and the Bombay Stock Exchange, it had cancelled the said meeting. However, having failed to organise the meeting of bondholders to seek consent for premature re-payment on bonds, the SSNNL wished to bring in a legislation in the Gujarat Assembly in the November session in 2004, as stated in a news release by IANS dated 6 July 2004. However, no such legislation was introduced in the Assembly. Even during March 2008, there was a news report that alluded that SSNNL and the GoG were thinking of such a legislation.

turned out to be Deeply Distressing Bonds today[64]. According to the CAG report on Gujarat (Commercial) for the year ending 31 March 2001, in the year 2014, when the bonds will mature; SSNNL will have to make provision for Rs. 7,448.41 crores towards redemption payment to its investors.

(ii) Higher than Necessary Interest Rate

At the time of issuing bonds, whether through public issue or through private placement, SSNNL attached interest rates that were higher by 2 to 4 % than the prevalent interest rates. The CAG in its report shows that compared to a similar long term issue floated by Small Industrial Development Bank of India (SIDBI) in February 1993, SSNNL offered 1.90 to 3.25% higher interest on Deep Discount Bonds. In February 1996, SSNNL issued Non Convertible Bonds bearing the interest rate of 18%, while the CAG's audit scrutiny found that co-arrangers of the said issue, Kotak Mahindra Finance Limited had specified 16.25% interest rate for a similar issue of Nuclear Power Corporation (October 1995). In April 1997, the SSNNL floated bonds bearing an interest rate of 17% while CAG's audit scrutiny found that Industrial Finance Corporation of India, one of the merchant bankers of the issue had recommended (February 1997) fixing the rate of interest between 15.5 and 16%.

As early as in December 1995, it was evident to the GoG that resorting to market borrowing would turn out to be an unwise option and would have negative fallouts on the financial viability of the projects. A confidential study conducted for the GoG in 1995 had found that the project would be delayed beyond 2010, primarily because of non availability of requisite funds on time.[65] It also stated, "the trend clearly indicates SSNNL's ability to raise funds through this source (i.e. bond issue guaranteed by tripartite agreement) on a sustained basis is doubtful. It is unlikely that the irrigation water would be priced in a manner that would reflect its true cost. The power component is relatively small and would be used mainly for peak load requirements." The study further predicted, "once the principal repayment commences, a large portion would be eaten up by the *debt servicing*." (emphasis added)

(iii) Tread Cautiously, said Gujarat Infrastructure Agenda Vision 2010

Following an interim verdict of the Supreme Court allowing the raise in dam height from 83 to 88 m, a policy document called Gujarat Infrastructure Agenda vision 2010, released in 1999, predicted a sharp deterioration in the state's financial position due to a steep rise in the Government's capital expenditure on the SSP as well as steep rise in debt servicing and interest payments.[66] The document stated, "the required borrowing for SSP in the ninth plan are Rs. 9876 crore (taking into account debt obligations), as against the projected Rs. 5596 crore. SSP's interest expenditure is projected to rise from Rs. 229 crore in 1997-98 to Rs. 1294 crore in 2001-02, where as its outstanding debt is projected to rise from Rs. 2000 crore as on 31 March 1998 to Rs. 10496 crore as on 31 March 2002.[67] The

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[64] Bhatt, N. (2004). Pricey Narmada Bonds could Burn Holes in SSNNL Pockets, *The Times of India*, 7 June.

[65] Thakkar, H. (1995). Ominous Figures of SSP, *The Economic Times*, Ahmedabad, 29 December.

[66] Shah, R. (1999). SSP Cost Escalation to have Fallout on State Finances, *The Times of India*, 7 July.

[67] However, this later proved to be an understatement when the CAG report for Gujarat (Commercial) for the year ending March 31, 2001, put the figure of outstanding debt of SSP as on March 31, 2001 at Rs 12,282 crore.

SSNNL's ability to borrow Rs. 2700 annually to meet expenditure appears optimistic, part of this requirement might be needed to be funded by state government outlays". In 2002, Bidisha Ganguly, a consultant with CII, hinted at the likelihood of debt service default and cautioned that PSUs such as SSNNL and Andhra Pradesh Power Finance Corporation that offered coupon rates above 11%, a premium of over 4% points above Government security of a similar maturity, needed to worry not merely about their stated liabilities but also off-balance sheet at least once.[68]

> By resorting to indiscriminate market borrowing SSNNL had spent 22 % of the total expenditure as on 31 March 2001 on debt servicing and interest charges, said the CAG audit.

(iv) Huge Expense on Debt Servicing Can't be Put as "Project Cost", says CAG

The CAG report sharply criticises SSNNL for resorting to "indiscriminate market borrowings". Pronouncing a sharp indictment of SSNNL for having spent Rs.2,413.98 crores out of Rs.10,978.63 crores (22 per cent) on debt servicing and interest charges, spent totally on the project as on 31 March 2001, the audit report states:

"It was seen in audit that the components of cost towards interest charges and debt servicing were not identified while submitting the original investment proposal to the Planning Commission. Further, the revised cost estimates prepared in 1991-92 also did not indicate expenditure likely to be incurred on account of debt servicing and interest charges. SSNNL borrowed in an *ad hoc* manner and cash flow was not worked out accurately. The State Government had directed it (in January 1996) to create a sinking fund out of its own resources with *ad hoc* contribution of around Rs.50 crores annually. It, however, neither created such a fund nor proposed any alternative arrangement for liquidating the debt liability arising out of issue of bonds. Thus without any systematic plan for redemption of the debts it went on borrowing for redemption of earlier debts, which resulted in abnormal increase in the expenditure on servicing of the debt."

To these comments by the CAG, the SSNNL replied (in July 2001) arguing that the expenditure on interest charges pertained to 'Interest During Construction' which is taken as *a part of the project cost*. It also argued that the loss pointed out in the audit, due to non-insertion of call option in Deep Discount Bonds and Non Convertible Bonds, was notional since introduction of a call option would mean that the long tenure is not assured to the investors which itself would become disincentive to invest in the bonds. CAG promptly refutes such an explanation stating, "since the original cost estimates had not identified borrowing as a source of funding, the question of expenditure on Interest During Construction does not arise".

> The audit worked out SSNNL's outstanding debt payment obligations, as on 31 March 2001 at Rs. 12282 crore and concluded that its average annual debt liability stood at Rs.945 crores.

The CAG audit report for Gujarat (Commercial) for the year ending 31 March 2001 had projected SSNNL's outstanding debt servicing liability, as reproduced in Table 8.

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[68] Ganguly, B. (2002) The State of State Finances, *The Economic Times*, 14 December.

TABLE 8

SSNNL's Outstanding Debt Liability as on 31 March 2001

Rs. in crores

Year	Principal amount to be repaid	Interest payment	Debt liability in year	Total expenditure on debt servicing
Debt serviced by 31 March 2001				Rs. 2413.98
2001-02	Rs. 157.00	Rs. 406.00	Rs. 563.00	Rs. 2976.98
2002-03	Rs. 339.00	Rs. 345.00	Rs. 685.00	Rs. 3661.98
2003-04	Rs. 614.00	Rs. 340.00	Rs. 955.00	Rs. 4616.98
2004-05	Rs. 062.00	Rs. 325.00	Rs. 388.00	Rs. 5004.98
2005-06	Rs. 332.00	Rs. 228.00	Rs. 561.00	Rs. 5565.98
2006-07	Rs. 656.00	Rs. 147.00	Rs. 803.00	Rs. 6368.98
2007-08	Rs. 268.00	Rs. 067.00	Rs. 336.00	Rs. 6704.98
2008-09	Rs. 000.00	Rs. 061.00	Rs. 061.00	Rs. 6765.98
2009-10	Rs. 443.00	Rs. 035.00	Rs. 479.00	Rs. 7244.98
2013-14	Rs. 241.00	Rs. 7206.00	Rs. 7448.00	Rs. 14692.98
Total	Rs. 3112	Rs. 9160	Rs. 14692.98	

Source: CAG report on Gujarat (Commercial) for the year ending 31 March 2001.

However, the Government continued with market borrowing by private placement of bonds in June 2002,[69] August 2002,[70] and in 2003.

An article in Down To Earth of 31 May 2006 quoted P K Laheri, Chief Managing Director of SSNNL saying, "Rs. 21,000 crore[71] has been spent on the project by April 2006. While Rs. 13,000 crore has gone on the dam and its distribution network, the remaining (i.e. Rs. 8,000 crore) is for debt servicing." So, while during 5 years (2001-06) the GoG claims to have spent Rs. 10433.18 crore, as much as Rs. 5586.02 crore (i.e. 53.54% of it) was not utlised to build one km of canal, or one foot of dam, or to generate one unit of power, but to assure that bondholders are paid interest on their investment into bonds. The expenditure on debt servicing by 31 March 2006 was Rs. 8000 crores, i.e. 37.36% of the total expenditure incurred on the project.

While presenting the budget for the year 2008-09 for Gujarat, Finance Minister Mr. Vajubhai Vala stated: "The Central Government has declared 14 river projects as national assets. Though the Central Government has announced to bear 90% of the cost of such projects, various projects developed on Narmada River have been excluded from the list. We are, however, determined to complete the Sardar Sarovar Project. An amount of Rs. 10,978.63 crore has been spent from inauguration to 2001 on this project. Given the importance of the project, we have spent Rs. 14,313.20 crore from 2001 to December, 2007." The Minister was silent on the figure that had gone to finance debt servicing.

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[69] *The Times of India* (2002). Rs 518 crore in bonds raised for Narmada project, 13 June.

[70] On 17 August 2002, the Gujarat CM, Mr. Narendra Singh Modi called for a meeting of heads of co-operative banks and urged them to subscribe to private placement of SSNNL bonds. The target was Rs. 300 crore. The banks pledged Rs. 259 crore the same day.

[71] The exact figure of total expenditure on the project as on March 31, 2006, is Rs. 21,411.81 crore as per the Socio-Economic Review for Gujarat.

(v) Undue Favours to Contractors

SSNNL pays 'idle charges' of Rs. 10.38 crore even if the same machinery was used by the contractors for work on Irrigation By Pass Tunnel, at the same site.

It was in the year 1987 that the SSNNL had awarded the construction work of concrete dam to Jaiprakash Associates (henceforth Jaiprakash) at a cost of Rs. 320 crore. The terms and conditions for the work were stipulated in the main agreement the SSNNL entered into with Jaiprakash in April 1987.

However, within two months of Supreme Court judgement of October 2000, giving a go ahead to the project, the SSNNL entered into a supplementary agreement with Jaiprakash that not only pre empted the date of the completion of the dam work (January 2006), but it also provided for 'payment of idle charges' clause. This clause meant that if the concreting work done for the dam in a working season (i.e. July to June) was less than the target of 3 lakh cubic metre for reasons not attributable to Jaiprakash, then idle charges at the rate of Rs. 823.90 per cubic metre were payable by SSNNL to Jaiprakash for the shortfall in concreting work.

Such a payment of idle charges committed by the way of supplementary agreement never became a matter of debate in public domain, even as it had a potential to make the stipulated amount of construction work on the dam a *fait accompli*, throwing the linkage with the rehabilitation work of oustees – as per much talked about *pari passu* clause – out of gear.[72]

Again, in October 2000, GoG decided to divert the reservoir water for drinking and irrigation purposes through construction of **Irrigation Bye Pass Tunnel** (IBPT). The construction work on the IBPT was also awarded to Jaiprakash in December 2000 at a cost of Rs. 91.93 crores; with the condition that all the provisions including the rates of various items of sub-works as per the original and supplementary agreements were applicable *mutates mutandis* to the IBPT works also. As on 31 March 2007, the SSNNL paid the contractor Rs. 103.74 crore.

During the working seasons of 2000-04, there were shortfalls in concrete work done for the dam aggregating 6,84,603 cubic metre, which were not attributable to the contractor. The SSNNL made a payment of Rs. 68.48 crore (including the price escalation of Rs. 12.07 crore) towards idle charges for the period of August 2001 to August 2004.

However, during the audit scrutiny it was found that the contractor – Jaiprakash Associates – had utilised the same machinery and manpower meant for dam work in IBPT work and executed 1,05,998 cubic metre concrete work therein. During the audit scrutiny, it was also found that while the SSNNL was fully aware of this, it had not taken any interest to adjust the quantity of 1,05,998 cubic metre concrete work done by the

[72] As pointed out in the majority verdict on the Writ Petition 328 of 1994 (NBA Vs. Union of India and others), the dam construction was to proceed to 138.68 m as the FRL in stages only after ensuring that rehabilitation of the oustees affected at respective height was completed as per NWDTA in compliance with rehabilitation clauses (i.e. one year before the submergence, and hence construction/ raise in the height, *pari passu. Pari passu* principle, thus, reiterated that the pace of construction cannot overlook the pace of rehabilitation, but was rather to be determined by the pace of R&R measures as per NWDTA, which—said the majority verdict —is binding on all the 3 states.

contractor in IBPT work executed at the same location utilising the same machinery and humanpower.

Having found this *irregular and undue* favour that was extended to the contractor, CAG observes; "(SSNNL) should have deducted Rs. 10.68 crore (including price escalation of Rs. 1.95 crore) for the quantity of 105998 cubic metre concrete work for IBPT for the idle charges paid to the contractor. SSNNL's failure to do so resulted in *avoidable* overpayment of idle charges of Rs. 10.68 crore". (emphasis supplied)

It is interesting to read the response of SSNNL and State Government, even to such a toned down audit finding. CAG report states, reviewing the responses of SSNNL and the GoG; "(SSNNL) management stated in a reply (July 2004) that the IBPT work was independent and also different from dam work. Further these two works had separate set of conditions and hence, the quantity of concrete work done for the IBPT should not be considered for computation of the idle charges under the dam work. The state government, while endorsing the (SSNNL) management's reply, stated (October 2004) that the usage of some of the common facilities of dam work in AIBP work, was inevitable".

In the light of the applicability of terms and conditions of main and supplementary agreements for the dam work for IBPT also, CAG came to the conclusion that "the reply is not tenable". However, given the fact that majority verdict clearly laid down *pari passu* principle, reiterating the linkage between submergence, rehabilitation and construction, as laid down in NWDTA, in such a way that if rehabilitation of oustees affected by a specific construction raising the height and thereby imposing submergence lagged behind, construction cannot resume, the supplementary agreement itself could be termed as a legally invalid and imprudent move.

Once again, the CAG report on Gujarat (commercial) for the year ending 31 March 2007 made remarks on the undue favours granted to M/S. Jaiprakash Associates by SSNNL. The CAG report pointed out that while, paying the contractor Rs. 103.74 crore as payment for the said work, SSNNL did not recover the security deposit Rs. 3.22 crore (i.e. 3.5 % of the value of supplementary work awarded) for the IBPT work and thus accorded undue benefit to the contractor.[73]

(vi) Large Scale Irregularities in 'Sujalam Sufalam'

A report prepared by a 15-member (10 MLAs from ruling BJP and 5 MLAs from opposition Congress) Public Accounts Committee of the Gujarat Assembly pointed out large-scale corruption in the Rs. 6088 crores Sujalam Sufalam Project. The said report was supposed to be tabled on the floor of assembly on 11 February 2006; but it remained under wraps with the speaker's office. When the issue rocked the assembly, the State Government merely responded by transferring Water Resources Secretary, M.S. Patel in April 2006 and by forming another committee comprising 3 IAS officers to look into allegations contained in the PAC report.[74] In June 2006, *Tehelka* obtained a copy of the internal audit of the report, which documented how irregularities in implementation led to losses and cost overruns of hundreds of crores to the state exchequer. On August 03, 2006 the speaker returned the PAC report for a review. The one paragraph ruling sent to new PAC

[73] Bhattacharya, D.P. (2008). CAG Report Highlights SSNNL Irregularities, *The Indian Express*, 1 April.

[74] *The Times of India* (2006). Govt Shunts Secretary after Contract Controversy, 27 April.

Chairperson Mr. Punjabhai Vansh the speaker cited technical reasons for not making the report public.[75] In Ferbuary 2007, PAC once again raised the issue and wished that the report to be tabled.[76] On 6 July 2007, the Gujarat High Court issued notices to PAC Chairperson, Speaker of the Assembly and Chief Secretary of the State for not tabling the PAC Report in Assembly.[77] Once again, the PAC Chairperson wrote to Speaker on 17 July 2007 to make the report public during the ongoing session, but it still remained under wraps.[78] Following are certain snippets of information from *Tehelka* news article[79] and *The Indian Express* news article on this issue.[80]

The contracts for building the spreading channels were awarded at unimaginably high price putting aside the laid-down departmental norms, resulting in loss of Rs. 85 crore to the Government. While all the digging work for spreading channels and pipelines was supposed to be carried out under Rural Employment Guarantee Scheme, the work was all given away to contractors at exorbitant rates. The audit report stated, "Despite queries, no explanation has come forward from concerned officials in this regard".

The State Government lost Rs. 130 crores by giving away contracts for building 330 checkdams to private contractors, who built them without carrying out any field survey and technical study about areas where they were built. Most of these check dams were washed away and collapsed during monsoon, effecting a loss of further Rs. 45 crores, which the department was quick to hide by making an adjustment from Calamity Relief Fund.

At the time of project announcement it was said that around 72 contract agencies would be involved in carrying out 337 km long spreading channel works in a time-bound manner. However, unfortunately only 10 contract firms were awarded the work to the tune of Rs. 458 crore and even their bid capacities were ignored.

The department lost around Rs. 60 crore as the work on the Piyaj-Dharoi pipeline was awarded at a much higher rate than the prevailing market rates. Only 3 agencies were given the contract for digging and installing the pipeline. In the case of Khorsam-Saraswati pipeline project, the Government exempted the concerned company (its name has been withheld in the report) from paying excise duty on the pipelines it imported for the project. When the company could not finish the work in the scheduled time, the Government extended the deadline. Thus, decision of excise exemption and delay cost State Government treasure a loss of more than Rs. 10 crore.

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[75] *The Times of India* (2006). Sujalam Sufalam: Speaker Send Back PAC Report, 4 August.

[76] *The Indian Express* (2007). Report on Sujalam Sufalam 'Scam' May put State Govt in Spot, 16 February.

[77] *The Indian Express* (2007). PAC Chairman gets Court Notice for not Tabling Sujalam Sufalam Report, 7 July.

[78] *The Indian Express* (2007). Make PAC Report on Sujalam Sufalam Public, says Congress, 18 July.

[79] Langa, M. (2006). Water-borne losses, *Tehelka*, 3 June.

[80] *The Indian Express* (2007). Sujalam, Sufalam Report Opens a Can of Worms, 21 July.

The report said,

> The idea of involving local people in construction of spreading canals and earthwork under the Sujalam Sufalam scheme was floated with good intention, but scrutiny of documents and information available from the Water Resources Department show that instead, contracts were given to contractors without even finalising the unit rates and without any involvement of local people. The CM had given instructions that earthwork projects should involve the local people through gram panchayats just as it was done in the case of check dams. Following that Rs. 210 crores was released and an order issued on October 16, 2004 which fixed unit rates for public tenders and distribution of work in the respective areas. Although the directives and instructions were very clear, the department contravened them.

The committee is of the opinion that involving local people also means that they contribute some funds for the project, which was earlier done in the case of checkdams. However, by not involving the local people, the total expenditure had been raised by 25 to 40%. It is also serious that all the contracts were issued to just 8 to 9 contractors. The committee assumes that the secretary has done this intentionally and with some purpose, and suggests investigation and action against him."

(vii) Imprudent Deferment of Work on Tail Race Channel

Jaiprakash Associates were paid extra amount of Rs. 14.68 crore on a small contract, which was almost equal to the total cost of contract (Rs. 14.55 crore)

In April 1991, the SSNNL awarded the work of construction of Tail Race Channel (TRC) for the River Bed Power House (RBPH) at a cost of Rs. 14.55 crore to Jaiprakash Associates (henceforth Jaiprakash). Construction work of TRC mainly involved excavation of earth, concrete lining, and shortcrete lining to rock faces. The work was to be completed by June 1994. In the meantime, the construction of RBPH and its exit tunnels was also under execution. Hence, a protective bund was kept between RBPH and the site meant for TRC construction for preventing the flood water flow from TRC under execution to RBPH.

CAG's audit finding on the transactions on TRC construction work noted: "As the construction of RBPH and exit tunnel was not completed, SSNNL did not handover the full site including the bund area to Jaiprakash till June 1994. So, they could execute only (up to June 1994) 64.64 *per cent* of earthwork and 13.98 *per cent* of concrete lining work while they did not execute the work of shortcreting. The work was stopped on the expiry of the agreement in June 1994 after incurring a cost of Rs. 8.91 crore."

Just as in the case of construction contract on the dam, SSNNL entered into a supplementary agreement with the firm in December 2000 for completion of remaining work of TRC.

This also meant that rates fixed under the agreement rose up by 58, 59 and 56 *per cent* compared to the rates fixed for earth work, concrete lining and shortcreting respectively under suspended work. As the construction work of RBPH and exit tunnels was not completed due to *unavoidable reasons*, the bund was not allowed to be removed during December 2000 to March 2002 either. During this period the firm executed 20.68 *per cent* earth work, 76.46 *per cent* concrete lining and 80.67 *per cent* shortcreting at a cost of Rs.20.77 crore. The works of RBPH and exit tunnels were completed in June 2004 only. The bund was, therefore removed and the firm executed (June 2004) the remaining 14.68

per cent earth work, 9.56 *per cent* concrete lining and 19.33 *per cent* shortcreting against the total quantity of work of TRC at a cost of Rs.6.69 crore.

While auditing the SSNNL's transactions, the CAG minutely probed into the TRC construction work. They came to the conclusion that "protective bund occupied only 40 out of 1122 m of the site of TRC." The CAG auditors probed that whether construction work could have carried out on TRC site on area other than the one occupied by the protective bund. When the CAG auditors didn't find any justification on record for non execution of all the works except bund area of TRC during the currency of original contract they stated, "Had SSNNL done so (i.e. to get the work on TRC except the area occupied by protective bund executed), the work executed at a cost of Rs.20.77 crore during December 2000 to March 2002 could have been done at a cost of Rs.6.09 crore under the original contract due to lower rates. Thus, the Company incurred an avoidable extra expenditure of Rs.14.68 crore in construction of TRC."

To this audit comment, the SSNNL and the Government replied in October and November 2005 respectively stating, "as the flow in the river down stream of the dam could not be regulated due to non closure of its sluice gates for various technical reasons, the site for TRC work near to stream area was not having reasonable dry condition during November 1991 to March 1994. Hence, the contractors did not execute the TRC work fully during the original agreement period."

However, the reply failed to answer the question that if the TRC site was not having reasonable dry condition during November 1991 to March 1994, why didn't SSNNL/ Government invoke clause 49.4 of the agreement that enabled SSNNL/ Government to suspend the TRC work till April 1994 and then get it executed by granting due extension as per agreement. So, the CAG further noted that the SSNNL's failure to invoke this clause lacked justification and resulted in avoidable expenditure of Rs. 14.68 crores – which equalled the cost of the entire work, i.e. Rs. 14.55 crore as per original agreement, by the way of undue favour to the contractor.

(viii) Irregular Payment to NGOs to assist in Expediting R&R Works in Gujarat

The CAG report for Gujarat (Commercial) for the year ending 31 March 2002 pointed out under Para 4/6/2 that in contravention of stipulations, an irregular payment of advance of Rs. 1.52 crores was made to NGOs whose assistance was sought to expedite R&R works in Gujarat. Having pointed this out, CAG recommended that an amount of Rs. 24 lakh that was outstanding (April 2002) shall be recovered from NGOs by SSNNL. In subsequent audit report for Gujarat (commercial) for the year ending 31 March 2004; the CAG reviewed whether any actions were taken on the matter and stated "SSNNL did not agree to fix responsibility on the plea that the premature advance was released to NGOs for expediting R&R works. As on April 2004, an amount of Rs. 18 lakh was yet to be recovered from these NGOs".

(ix) Cartel by Cement Companies

Five competing major cement companies quote exactly same rate of Rs. 2500 in November 2000. None of them reduce it during negotiations. Four of the same five companies again quote exactly same rate of Rs. 3060 in June 2001.

In August 2000, SSNNL decided to invite a tender for bulk purchase of 46800 metric tonne (MT) of cement for dam work during July 2000 to June 2001. In October 2000, the SSNNL, in a very short period, issued tender notices to 5 cement manufacturers, identified (in May 1996) by the expert committee. On opening the tenders (in November 2000), the SSNNL was shocked to find a uniform rate, viz., Rs. 2500/MT, quoted by all the 5 cement companies. This quoted rate was higher than what the SSNNL had estimated and during subsequent negotiations (in December 2000), none of the cement companies agreed to reduce the rate.

Meanwhile, construction work at the Kevadia dam site started on 31 October, and price of cement kept rising gradually. During audit scrutiny of records, it was found that "in view of the increasing trend in the cement prices, SSNNL's Superintending Engineer of Procurement Circle, Vadodara suggested (December 2000) SSNNL to avoid re-invitation of the tender".

However, this advice was not heeded and SSNNL went ahead with plans to re-invite the tender (April 2001). Four of the 5 cement companies responded (June 2001) by forming cartel once again and quoted a uniformly higher rate of Rs. 3060/ MT. SSNNL tried negotiating and at last issued supply orders of 46800 MT cement at the rate of Rs. 2910/ MT.

In the light of the audit findings that "the price of cement increased by 16.25 % during October 2000 to April 2001, and it remained overall high till the finalisation (June 2002) of the re-invited tender", CAG believed that had SSNNL paid heed to the advice of its own Superintending Engineer, it would have avoided paying Rs. 1.34 crore extra.

(x) Premature Investment on Cement Lining of Branch Canal in the Absence of Corresponding Progress on the CAD

The CAG report for Gujarat (Commercial) for the year ending 31 March 2007 indicted SSNNL for having spent Rs. 16.78 crore prematurely on cement lining of Vallabhipur branch canal in absence of corresponding progress on the CAD. The report stated that SSNNL had initiated field survey for the CAD in November 2003 and stipulated that the first phase of command would be fully developed by 2009. SSNNL then awarded the work of concrete lining of 118.751 km long Vallabhipur Branch Canal to various contractors at an aggregate cost of Rs. 41.48 crore in July 2004, which was to be completed by November 2005. After auditing the expenditure on the cement lining works, CAG observed "since SSNNL had undertaken little work on the CAD besides field surveys and there was no master plan covering all the activities to develop the command area, there was little justification to take up lining work on Vallabhipur Branch canal in July 2004 with stipulated gestation of

17 months. This not only led to premature expenditure of Rs. 16.78 crores remaining infructuous, but it also meant the loss of interest of Rs. 1.92 crores".[81]

(xi) Irregularities in the Tendering Process

The CAG report for Gujarat (Commercial) for the year ending 31 March 2007 also observed that SSNNL had failed to adhere to the validity period of 120 days for the bids invited for the Limbdi sub-branch canal through e-tendering process, which was initiated in April 2004. SSNNL also refused to award the work order to the lowest bidder M/S Uma Sharma and awarded the work to Visnagar Taluka Majoor Sahkari Mandali at a higher price, which led to a loss of Rs. 3.42 crore.[82]

Although cost escalations in the SSP has often been linked to time overruns—including the "undue" delay because of the 6 years' long stay by court over construction, as commonly believed—the review of of financing of the SSP shows that the authorities mopped up irregular central loan assistance, extended undue favours to contractors and resorted to indiscriminate market borrowing. Now there have been numerous CAG audit findings pointing to financial insolvency that plagues the project, but they have met with little public debate, no response from government departments and ministries, and scarce attention from Members of Parliament or the Public Accounts Committee.

(xii) Disputed Costs: Share of Participating States

As on March 2005, a huge portion of outstanding dues from participant states was marked with the phrase *disputed*. Disputed costs are mainly on two kinds of expenditure, from resettlement and rehabilitation expenses as well as interest expenditure on market borrowing by the SSNNL. A small portion of disputed costs is also on the expenses incurred on Dykes and Link channels. The NVDA's tariff application before the MP Electricity Regulatory Commission provides the break-up.

Rs. 659.82 crores	Resettlement and Rehabilitation Expenses
Rs. 21.6125 crores	Being 25% of Dykes and Link Channels cost at Rs. 86.45 crores
Rs. 1,154.18 crores	Interest payments on market borrowing.
Rs. 1,835.61 crores	Total Disputed Costs

Assuming that MP might be asked to eventually pay its share in *disputed* costs, the NVDA's tariff application[83] states, "GoMP's 57% share of disputed expenditure would be Rs. 1046.3 crore. Hence revised 57% share of MP with disputed costs works out to be Rs. 4182.3 crore." However, the disputed costs could be under estimate. That is to say Rs. 3136 crore, being 57% of the GoG's tentative projection on power component, cost Rs. 5502 crore plus Rs. 1046.3 crore, being 57% of disputed expenditure as on March 2005.

The NVDA application adds, "Additional liability of Rs. 1108 crores towards R&R works to be carried out by GoMP for which payment would be made by GoG and confirmation about sharing by beneficiary states is pending."

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[81] Bhattacharya, D.P (2008). CAG Report Highlights SSNNL Irregularities, *The Indian Express*, 1 April.

[82] Bhattacharya, D.P. (2008). Ibid.

[83] Cited from: NVDA's Tariff Application before MPERC.

In its report on Gujarat (Commercial), for the year ended 31 March 2001, the CAG reported the SSNNL for raising finance through market borrowings and spending a Rs. 2413.98 crores – i.e. 22% of the "total" expenditure incurred on the project as on 31 March 2001 – towards interest payment and servicing debt liabilities. The CAG reached the conclusion that "SSNNL without any systematic plan for redemption of debts went on borrowing for redemption of earlier debts, which resulted in abnormal increase in the expenditure on servicing the debt". SSNNL replied to this audit finding arguing that the expenditure on account of interest pertained to "Interest During Construction" (IDC), which is taken as part of the project cost.

This may not be the case. The very purpose of a cost estimate would be lost if the money needed would have to be borrowed and the interest costs of such borrowing were not included in the estimate. The CAG rightly pointed out that the original estimates had not identified borrowings as a source of funding, and that interest of these could not be treated as part of the project costs.

But even as the CAG indicted SSNNL for indulging in indiscriminate market borrowing, SSNNL was pressurising the participant states to pay up their respective outstanding dues. SSNNL and NCA had put Maharashtra's share in disputed costs (September 2002) at Rs. 241.79 crores, as much as Rs. 143.97 of which was towards offsetting interest payments on market borrowing. Since this would be 27% of total interest payments expenses incurred, the total expenditure towards interest payments works out to be Rs. 533.22 crore.

SARDAR SAROVAR PROJECT: BENEFITS REALISED?

2

OVERVIEW

The SSP is a multipurpose project with emphasis on drinking and irrigation water to Gujarat, irrigation water to Rajasthan and power generation benefits to MP, Maharashtra and Gujarat. However, during the early years of its long history, the rationale being used was to prioritise the requirement of irrigation water for arid zones in Gujarat and Rajasthan over power.[84] Simultaneously, the CMs of MP and Maharashtra were contemplating on the construction of a large dam at Jalsindhi for developing hydro-electric power at a location between Harinfal and Navagam sites and entered into Jalsindhi Agreement on 4 May 1965.[85] The Narmada Water Resources Development Committee (NWRDC) rejected the proposal for Jalsindhi project in favour of the more massive Navagam dam. Distribution of benefits from the SSP has been the issue of intense conflicts between these States in the past.

When the inter-state conflicts arose emanating from conflicting claims and plans to exploit the Narmada water resources and the issue was referred to Tribunal under Inter state Water Disputes Act of 1956, Gujarat and Rajasthan continued to rely on the Khosla committee report arguing the Full Reservoir Level of Sardar Sarovar Dam to be 530 ft for providing irrigation to arid zones (Kutch and Rajasthan). But in a sort of volt face, when Narmada Water Disputes Tribunal allocated Gujarat 9 MAF of Narmada water, it gave the lowest share to Kutch. When the detailed map of command area of Sardar Sarovar entered in public domain, it was found that more than 98% of cultivable land in Kutch was left out. The meager water allocated to Kutch would at best promise irrigation to 0.94 lakh acres of land (i.e. just 10% of the demand that was posed in Khosla committee report) in Kutch.[86]

It was precisely this feeling of having been denied their *due share* in intra-state water allocation that led Kutchis to form Kutch Jal Sankat Nivaran Samiti (Committee to solve water woes of Kutch) that organised agitations in early 1990s. The Samiti also filed a petition before Gujarat High Court. On 29 September 1999, a farmer leader of Kutch said if their *due share* is not given, they will be forced to resort to agitation again.[87] On 21 April 2006 the Supreme Court issued a notice to GoG on a petition by Kutch Jal Sankat Nivaran Samiti, demanding the drought affected district's due share of water from the SSP. The petitioners had appealed to the Supreme Court after the Gujarat High Court delivered its judgement dismissing their petition on 4 October 2005. Kutch Jalsankat Nivaran Samiti

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[84] Khosla, A.N. (1965). Report of the Narmada Water Resources Development Committee, New Delhi: Ministry of Irrigation and Power, Government of India.

[85] Khagram, S. (2004). *Dam and Development: Transnational Struggles for Water and Power*, New Delhi: Oxford University Press, p. 75.

[86] Jain, L.C. (2001) *Dam Vs Drinking Water: Exploring the Narmada Judgement*, Pune: Parisar.

[87] Maheshwari, D.V. (1999). Kutch Kisan Sangh threatens to go Medha way, *The Indian Express*, 29 September. Also see The Indian Express' report on 'Narmada Water: Farmer Bodies Allege Raw Deal Threaten Stir', published on 1 April 1999.

is expecting that its case would be heard by the apex court in July 2008, with a plea that Kutch should receive water through gravity jall system and allocation of atleast assured to the region.

During the early 90s, following the 3 consequent drought years and when the project faced vocal and fierce opposition, the proponents were quick to exploit emotive power of thirst, by making "drinking water" benefits the unique selling proposition (USP) of the project, also in an attempt to brush aside the questions from disgruntled Kutchi people, by promising "drinking water" even before heeding their demands for "irrigation water".

IRRIGATION

> With improved irrigation system the people will prosper. The construction of Bhakhra Dam is a shining example for all to see how the backward area of erstwhile undivided Punjab has now become the granary of India with improved environment and what was there before the completion of the Bhakra Nangal project.[88]

A reading of the majority judgment of the Supreme Court mirrors the fabled accounts of the SSP constantly repeated since the conceptualisation of the project. In fact the Supreme Court went as far as to enumerate that the benefits expected to flow from the implementation of the SSP in terms of irrigation is 17.92 lakh ha of land spread over 12 districts, 62 talukas and 3393 villages in Gujarat and 73000 ha in the arid areas of Barmer and Jalore districts in Rajasthan.

Before we take up an examination of irrigation benefits from SSP and what has been the performance on this front so far, a word or two about Bhankra Dam would be in order. A recent study on the Bhankra project *Unravelling Bhakra – Assessing the Temple of Resurgent India* by Manthan Adhyayan Kendra,[89] has, in more ways than one, exposed the truth behind the claims of this project, and, of course, the reality of large projects in general. It states on the contribution of Bhakra in terms of irrigation:

> What is the contribution of Bhakra? The calculations show that the production that can be attributable to canal irrigation is about 43% in Punjab– this includes the recharge of groundwater through canals (17%). For Haryana, the figure is 48%.

During the early 1990s, the irrigation benefits of the SSP came under serious criticism. On the basis of findings of ORG study of agro-climatic regionalisation of the SSP command area and irrigability of land, critiques pointed out, "the worst environmental impacts of the SSP is likely to be in Gujarat, where over half the area to be irrigated is moderately to severely prone to waterlogging and salinisation". Concerns were also raised on the basis of longer timeline data available of annual water flow at Garudeshwar and hydrology of the river. India Irrigation Sector Review by the World Bank as well as CAG audit of 15 major and medium irrigation projects in late seventies had also brought much lower than the assumed irrigation efficiency and grave ecological impacts in command area under criticism.

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[88] Majority judgment of the Supreme Court in Narmada Bachao Andolan Vs Union of India and Others, 18 October 2000.

[89] Dharmadhikari, S. and others (2005). *Unravelling Bhakra: —Assessing the Temple of Resurgent India*, Badwani: Manthan Adhyayan Kendra.

The project proponents reacted to these critiques of the SSP benefits by intensifying propaganda and building a mass euphoria. Minute scrutiny of several brochures and booklets published as publicity material by SSNNL as well as by NCA exposes that there were several inconsistencies and mutually contradictory claims being made.[90] It was not as if critiques put merely costs, impacts and benefits under scanner and scrutiny. During early nineties, there were also many writings making a plea to explore alternatives and even to re-design the SSP in a compromise style.

The irrigation benefits from the SSP are meant for the states of Gujarat and Rajasthan. The current status of irrigation in Gujarat and Rajasthan, along with other related issues, is enumerated in the following section.

1. Where does the Canal Network Stand Today in Gujarat?

Speaking to a news agency IANS, Digant Oza – who has been working on the water scarcity problems in the state – pointed out in October 2007 that while the Narmada water is there with a dam having reached the height of 122.92 m, canal network required for its distribution is missing. He stated that only 22% of the canal network had been laid so far.[91]

Dr Ghanshyam Shah wrote in an article[92] in December 2007 that the canal and distribution network is lagging behind saying "as against the target of providing irrigation to 18.44 lakh ha, so far Gujarat could irrigate only 1.14 lakh ha of land. While the target was to complete the work on 485 km Narmada Main Canal by the year 2005, even as the year 2007 is coming to an end, it still remains a dream. The works on branch canals and distribution network have proceeded at a snail's pace. As per the information received in January 2006, in 15 districts merely 12.18% work had been completed."

In a written reply to a question by Porbandar MLA Arjun Modhwadia, Gujarat CM Narendra Modi admitted in the assembly that out of the planned 90,389 km canal network[93] that would take Narmada waters to all its intended agricultural land and other beneficiaries, the state has completed only 17,636 km[94] (i.e. 19.51%) by 31 December 2007. Further the answer by CM indicated that out of the 8,761 km planned in Kutch, only 1 km (0.01%) of the canal has been laid. Similarly of the over 22,000 km planned in Surendranagar, only 249 km (1.1%) has been completed. Among other districts, of the over 4,000 km network in Bhavnagar, only 23 km (0.5%) has been completed, of the 8,992 km in Patan, 162 km

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[90] In his book titled *The Narmada Damned*, Dilip D'Souza scrutinised much of the publicity literature from the proponents of the SSP and exposed their flaws, making them obvious by simultaneous and comparative reading of these very claims.

[91] IANS News Release (2007). Development Key Gujarat Poll Issue, 16 October.

[92] Shah, G. (2007). NaMo, Gujarat and AapNe, *Nireekshak*, 1 December.

[93] However, a hand out issued by the SSNNL to the press on 25 April 2007 had put the length of the canal network at 74,627 km and claimed that the same would be over by 2010, as stated in 'Work in Full Swing to Lift Water to Drier Regions', *The Indian Express*, 26 April 2007.

[94] The figure of canal network completed was put at 14,000 km during the budget session in previous year. Thus, during the fiscal year 2007-08, 3,636 km (4%) of canal network was added. At this pace, the entire canal network will take at least 20 more years to reach completion.

(1.8%) is completed, of the 13,826 km in Ahmedabad, 1,979 km (14.3%)is completed, and of the 7,675 km in Banaskantha, only 103 km (1.3%) stands completed.[95]

On 13 March, 2007 in a written answer to a question by Congress MLA Anil Joshiara, CM Narendra Modi stated that work for 1620 km (58.71%) of branch canals has been completed, while another 1139 km (41.28%) of work remains to be done. On sub-branch (minor) canals work for 4711 km (23.52%) has been completed, while about 15316 km (76.47%) remains to be completed.

Another reply from the CM to a question by Jambusar (Bharuch district) MLA Kirankumar Makwana suggests that the CAD is severely lagging behind for the first phase regions. The reply indicates that instead of addressing command area environmental concerns, authorities have allowed farmers to draw waters where command area is not fully developed as it states, "an interim policy has been worked out for this. Under this policy, 57919 ha area is getting Narmada waters. Out of which 26525 ha area (almost 46%) is being cultivated by lifting canal waters with diesel pumps". This certainly seems to be a wasteful, costly and inappropriate means of harnessing irrigation benefits from large dams like the SSP.

What are those rues of not being able to raise the height in the year 2005 and boasts of highest expenditure during, if irrigation utilisation from the SSP stagnates and canal network lags behind? Listed below are some of striking facts on irrigation from the SSP in Gujarat.

(i) Huge Disparities between Irrigation Potential Created and Actual Utilisation

A number of assumptions were made, during the planning phase, about the way the SSP would function. One of the points made was that the construction of the distribution network was to happen independently of dam building in order "to minimise the time-lag between creation of water storage and readiness of the conveyance system – without which water cannot be put to use". As it turns out, by September 2003 only *5 per cent* of the canal network was ready to receive water and that too, only partially.[96] Four and a half years later, after raising the dam height by 22 m more (i.e. from 100 to 121.92 m) Gujarat has merely built 19% of the canal network[97] and covered less than *10 %* of command area under irrigation.

Building canal network for irrigation under the SSP seems to be characterised with adhocism rather than a planned strategy of being in tandem with increase in dam height. While the dam height was raised to 100 m before monsoons, it was only in September 2003 that SSNNL and the GoG hit at the idea of developing the command area. A draft bill was prepared for setting up a separate Narmada Command Area Development Authority, proposing to develop 18.6 million ha of command area in 3 phases at the cost of Rs. 3000 crores. In the first phase, it proposed to develop 4.45 lakh ha of command area of Vadodara, Narmada, Bharuch, Panch Mahal and Kheda districts at the cost of Rs. 955 crores in 5 years (i.e. to say by 2008 at the earliest).

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[95] Kapoor, A. (2008). Narmada Deadline extended to 2011-12, *The Indian Express*, 26 February.

[96] Bose, R. (2003). Infrastructure, *Down To Earth*, 15 September.

[97] Cited from: Kapoor, A. (2008). Narmada Deadline extended to 2011-12, *The Indian Express*, 26 February that quotes Narendra Modi's answer in the Gujarat Assembly to a question asked by Arjun Modhwadia.

According to the Agenda Notes of the Narmada Control Authority's Environment Sub-Group meeting that was scheduled on 26 December 2003 "the proposal for of command area development works in the first phase of command area is yet to be sanctioned by the Union Water Resources Ministry".[98] The CAG report for Gujarat (Commercial) for the year ending 31 March 2007 stated that SSNNL had initiated field survey for the CAD in November 2003 and stipulated that the first phase of command would be fully developed by 2009.

While reporting on the NCA clearance allowing Gujarat to raise the height of the dam from 100 m to 110.64 m, *The Times of India* reported in March 2004, "At 110.64 m about 12% of the command area (i.e. 2.18 lakh ha) could be irrigated, provided the distribution network is complete and command area ecological concerns are addressed". The report went on to quote an NCA document which stated, "at 110.64 m, the canal network has the potential of irrigating 2.18 lakh ha land in central and north Gujarat".[99] Meanwhile, the dam chief engineer P M Patel claimed that "the dam height will provide irrigation water to 5.00 lakh ha of land in 9 districts of the state".[100]

However, soon after in August 2004, there appeared a news report which quoted senior SSNNL officials blaming "unnecessary over emphasis" on dam height and on constructing main canal, while caring two hoots for distributaries, minor, sub-minor canals and field drains, all necessary components to take waters right into farmland.[101] Thus, it appears that at the time of raising the height, projections on irrigation differed from one official to another official, which itself questions the sanctity of the claims made. Most importantly, the entire euphoria was on the irrigation 'potential' created by the increased dam height rather than 'completion' of canal network on the ground which would take the Narmada waters to the fields.

As per the claims of the Eleventh Plan Working Group, the irrigation potential created by the SSP by the end of Ninth Plan (31 March 2002) was 1.3075 lakh ha. The CAG's performance appraisal of Accelerated Irrigation Benefit Programme (AIBP) put the figure of irrigation potential *created* by the SSP by 31 March 2003 at 1.4195 lakh ha, which means a marginal increase of 10,000 ha in irrigation potential *created* in a year, in which the dam height increased from 90 to 95 m.[102]

If one accesses the actual 'utilization' of the irrigation as compared to its 'potential' created, the reality bites. The CAG audit report that carried out performance audit of AIBP put the figure of irrigation potential *utlised* as on 31 March 2003 at 26,831 thousand ha only, *suggesting that as much as 1.15 lakh ha irrigation potential remained non-utilised*! Again the GoG's Socio-Economic Review of the years 2003-04 and 2004-05, the maximum utilisation of irrigation from the SSP stood at 25,000 ha only. This means that *no additional irrigation was achieved* from June 2003 to June 2004 even as substantial

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[98] Upadhyaya, H. (2004). Narmada Project: Concerns over Command Area Environment, *Economic and Political Weekly*, 8 May, pp. 1879-1882.

[99] *The Times of India* (2004). Dam's Up but the Benefits in Pipeline, 19 March.

[100] *The New Indian Express* (2004). At Ground Zero, Work's Begun Faster than You can Say Narmada, 19 March.

[101] Shah, R. (2004). CM Performs Narmada Puja, but Waters go Waste, *The Times of India*, 8 August.

[102] On 17 May 2002, NCA granted permission to raise the dam height from 90 to 95 m.

storage of water was available in reservoir and the dam height had risen further from 95 to 100 m.[103]

(ii) Is the Irrigated Area Proportional to Dam Height

While presenting the budget for the year 2005-06, Gujarat's Finance Minister said on 18 February 2005; "The volume of works carried out for Sardar Sarovar Yojna during the year 2004-05 has been the highest compared to the works carried out in all the previous years. Formerly, the height of the dam was increased maximum 5 m at a stretch in a year, but for the first time it was increased up to 10.64 m in a year and reached the remarkable height of 110.64 m. *Irrigation facilities will be made available in 3 lakh ha area by taking up the works of irrigation area developed during the year.*" It is evident how much it is an issue of pride & flaunt to the politicians in citing increase of dam height, that takes dangerously perverse precedence over the benefits these inching metres are suppose to deliver on irrigation & water use to the people.

As seen in Figure 1 (Appendix 4), the maximum utilisation of irrigation from the SSP was 1.08 lakh ha by June 2005, which was much higher compared to previous two years as per Socio-Economic Review of the year 2005-06. This figure reported *shortfall in achievement by 2 lakh ha* from what was claimed by Finance Minister in budget speech. Again, maximum utlisation of irrigation from the SSP increasing *four fold* within the period of a year – that too, immediately following a couple of years when it had remained *constant* – proved to be a bit hard to explain. Contrast this with the figure of the CAD work completed 6 months later as on 31 December 2005, as reported in SSNNL's quarterly report: 97,000 ha only. Again as we witnessed in CAG's performance appraisal of the AIBP, the figure for the CAD work completed and irrigation potential created are usually higher than the actual utilisation of irrigation. For instance the maximum utilisation of irrigation potential from the SSP was 1.53 lakh ha by June 2006, a mere 45,000 ha increase in maximum utilisation since (3 years) June 2005 (As per Socio-Economic Review for the year 2006-07).

Thus it emerges from the official figures that although Gujarat claimed that raising the height of the dam from 100 to 110.64 m in April 2004 will lead to "additional irrigation to 2.18 to 5.00 lakh ha", even after two years since the dam height reached that level, maximum utilisation of irrigation from the SSP has remained way behind. The maximum utilisation of irrigation potential from the SSP remained stagnant at 1.53 lakh ha[104] even by June 2007, when dam height reached 121.92 m (Socio-Economic Review for the year 2007-08). No introspection has been done as to how to reach water to irrigate more land.

Table 9 gives the current status of irrigation in the SSP command area as per Command Area Development of the SSNNL. It has been claimed recently that the CAD work has been completed in 2.76 lakh ha till August 2007, putting a huge question mark on the CAD's claims of having covered 4.95 lakh ha of command area (3.51 lakh ha in the first phase and 1.44 lakh ha in the second phase).[105] One also needs to recollect that while drafting the

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[103] On 14 May 2003, the NCA granted permission to raise the dam height from 95 to 100 m.

[104] Cited from: Socio Economic Review for 2007-08, Budget Publication No 32, Directorate of Economics and Statistics, p. 40

[105] Press Information Bureau release dated 19 November 2007.

proposal as late as September 2003, SSNNL officials had proposed to develop the first phase of command area in 5 years (i.e. at the earliest by September 2008) after incurring an expenditure of Rs. 955 crores towards addressing command area ecological concern. However, one needs to take this figure with a bit of skepticism as it comes in the backdrop when the figure of irrigation potential utilised and created as per Socio Economic Review has stagnated at 1.53 lakh ha from June 2006 to June 2007. This clearly means that the CAD work is lagging behind and it has not reached completion even for the first phase.

TABLE 9

Current Status of irrigation in the SSP Command

Targets	Command From dam till Mahi River	Command From Mahi River till Sabarmadi	Rest of Command
Planned Command area (lakh ha)	4.46	2.07	11.4
Irrigated area during 2005-2006 (lakh ha)	1.20 (mostly the Mahi river)	--	To be completed by 2009-2010
Work to be completed by 2006 (lakh ha)	3.51	1.44	To be completed by 2009-2010
Area to be irrigated by 2006-07 (lakh ha)	3.51	1.44	To be completed by 2009-2010
WUAs registered	1186	269	Formative stages
Active WUAs	120 in 5 districts (Narmada, Bharuch, Vadodara, Ahmedabad and Panchmahal)		

Source: A.S. Bharati, Director, CAD, SSNNL, April 2006

(iii) Irregular Financial Assistance to the SSP under the AIBP

Dam construction had stopped at 83 m since January 1995 and the canals upto Mahi were unlikely to receive the supply of designed flow anytime soon. Despite that, during the year 1996-97, the SSP was included in projects to receive Central Loan Assistance from Union Government under the AIBP.

According to Table 10, in subsequent years, Union Government went on granting funds to the project under AIBP. As per latest figures from Union Ministry of Water Resources Gujarat has received Rs. 4700.15 crores for the SSP and Rajasthan has received Rs. 625.33 crores under the AIBP.[106]

TABLE 10

Central Loan Assistance Released under the AIBP from 1996-97 to 2007-08 (Rs. in crores)

Name of the Project	1996-97 to 2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	Total
SSP (Gujarat)	1899.25	997.00	649.50	530.50	339.60	121.88	162.42	4700.15
Narmada (Rajasthan)	45.32	20.00	291.12	119.84	46.75	9.66	92.62	625.33

In total, the SSP received Rs. 4888 crores as on 11 March 2008 under AIBP[107] – the highest amount of funds under AIBP compared to any other projects covered. Within last 3 years,

[106] Ministry of Water Resources (2008). Figures on Project wide Central Loan Assistance under Accelerated Irrigation Benefit Programme.

[107] Replying to a question in Rajya Sabha Minister of State for Water Resources, Jai Prakash Narain Yadav stated this. IANS News Release (2008). No Shortage of Funds for Sardar Sarovar Dam, says Minister, 11 March.

Union govt also released Rs. 471.88 crores as Grant on the basis of demands received from State GoG, Further, an amount of Rs. 74.77 crore was released to the state for the project so far under the CAD and Water Management Programme. It is evident that there has been frequent flow of funds for building canal network in the SSP. But yet, the CAG report for the year ending 31 March 2003 marked disbursal of funds to SSP as *irregular*. The CAG report stated, without mincing words, that pre-requisite conditions for inclusion in AIBP were violated to extend favour to this controversial project:

> The Planning Commission accorded investment approval to the project in October 1988 for Rs. 6,406.04 crores at 1986-87 price levels. Due to disputes between the Governments of Gujarat and MP over certain issues, the cost estimates revised subsequently during 1991-92, 1996-97 and 1998-99 could not be approved by the Planning Commission. However, pending such approval, CLA of Rs. 2,896.25 crores, was *irregularly released during the period 1996-2003* after the selection of Unit II components of the project for execution under AIBP. The Government of Gujarat was required to release funds of Rs. 4,439 crores including its share of Rs. 1,707 crores but only Rs. 3,113.16 crores were released to SSNNL in the form of equity. SSNNL had thus resorted to borrowing money at higher rates of interest than the CLA rate to bridge the gap between actual expenditure and funds available.

Yet, many other questions that remain unanswered here are:

- The Planning Commission had not approved the revised cost estimates of the SSP, and yet the GoI released a huge funding to the GoG under the AIBP.
- With a funding of Rs.4888 crores from 1996 to 2007-08, the irrigation utilisation stagnated at mere 1.53 lakh ha – way below the 5 lakh ha irrigation potential as claimed by proponents of the SSP.
- Why were central funds released under the AIBP for building the SSP canal network in 1996, soon after the construction of the dam was stayed by Hon. Supreme Court in 1995 at 83 m? This was especially questionable decision as the AIBP guidelines said that only projects where the irrigation benefits were supposed to flow within 2 years shall be qualified for AIBP funds.
- Why did the GoG did not release the entire sum given by GoI as central assistance to the SSNNL, owing to which it resorted to high cost market borrowings to fill the fund crunch?
- As per Table 10, there seems to be no rationale or a formula of disbursing funds under the AIBP. From 1996-2006, the funds released were on a steady decline, with a sudden increase in year 2007.

(iv) Planning Assumptions Proved Falsified

Researchers from International Water Management Institute (IWMI) – Tata Water Policy Research Programme undertook an extensive field work in the first 40 villages in the first phase of command area of the SSP when operational strategy was about to be put to test in Rabi 2002. Reporting the findings of this research Tushar Shah[108] wrote in a comment:

> Rather than investing money, land, and labour in building field channels and sub-minors, farmers will very likely use lift irrigation and pipe conveyance on a large scale. Farmers are already preparing to invest in diesel pump sets and pipes. Once they see water in the minors, very likely 5,000 to 10,000 new diesel pumps and some 4,000 to 5,000 km of flexible pipes will come into the command area.

[108] Shah, T. (2002). Framing the rules of the Game — Preparing for the first irrigation season in the Sardar Sarovar Project. IWMI-Tata Comment No 17, a paper prepared for the second IWMI-Tata Annual Partners' Meet. Available online at http://www.iwmi.org/iwmi-tata

A news report quoted a top bureaucrat saying,

> Though 10,000 cusecs of water, nearly one-fourth of the canal capacity, is available, just 55,000 ha of farm land is being irrigated with Narmada waters. Most of the irrigation is being done by pumping out waters from main canal, using diesel engines and siphons. This is because no command area has yet been developed to take waters through field channels to the agricultural farms. If we had begun the work of distributaries early, today we could have been systematically cultivating 1.25 lakh ha.[109]

Writing a report on the third annual partners' meet of the IWMI-Tata Water Policy Research Programme, Tushar Shah[110] stated, "(T)he controversial Narmada project is already finding its key planning assumptions going awry. A key planning assumption of the SSP was that Water Users Associations (WUAs) would construct water distribution systems in the village service area.

The Government claimed at this time of having formed 1,192 Water Users' Association (WUAs). In the first part of the SSP command of 4.50 lakh ha, about 1,145 WUAs have been registered. **However, none of them constructed distribution system.** As a result, access to Narmada water is governed by the ownership of diesel pumps and pipes, and by local power relations".

In May 2006, *Down To Earth* stated that for the first phase of command area, 1186 WUAs were registered quoting data from A.S. Bharti, Director, CAD, SSNNL. Further he admitted that only 120 WUAs (10%) were active. Jayesh Talati, who has done a survey of WUAs on behalf of International Water Management Institute, Anand revealed; "A study in 12 villages of the SSP command reveals 62 per cent farmers did not know the purpose of forming WUAs; 82 per cent were unaware of the bylaws of the associations".[111]

What follows from the data quoted by Tushar Shah and A.S. Bharti is that *one WUA was supposed to manage 379 to 393 ha.* This certainly cannot be termed as a participatory irrigation management, as envisaged in the plan.

Thus, rather than addressing such core planning issues in the SSP command area, in February 2004 Gujarat CM Modi announced another multi-crore project to scale up irrigation. It was Rs. 6088 crores ambitious Sujalam Sufalam programme which envisaged to build 280 km long Kadana recharge canal to take 700 million cubic metres (MCM) flood water to Banas river basin to recharge 21 dry river bed and thousands of ponds.[112] Although the distribution network in the first phase of command area of the SSP for planned utilisation of irrigation water languished, the Government was hopeful to get funds for Sujalam Sufalam from the Central Government and complete the project by December 2005. The project got mired into allegations of large scale corruption and 15 members Public Accounts Committee (10 MLAs from ruling BJP and 5 MLAs from opposition Congress party) prepared a detailed report, which was supposed to be tabled on 11

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[109] *The Times of India* (2003). New Authority for Narmada Command Area Soon, 25 September.

[110] Shah, T. (2004). Water and Welfare: Critical Issues in India's Water Future, *Economic and Political Weekly*, 20 March, pp. 1211-13.

[111] *Down To Earth* (2006) Deep Flow, 15 May.

[112] Dasgupta, M. (2004). Modi's Multi Crore Sop for Drought Hit Areas, *The Hindu*, 14 February.

February 2006 in assembly. However, the said report remained under wraps with speaker's office as the Government decided not to table it, given the serious nature of charges.[113]

Although, an inauguration of the Sujalam Sufalam project was staged on 15 June 2007 at Balisana village in Patan district by deploying 2300 Gujarat State Road Transport Corporation buses, Pramod Panwar, a correspondent with The times of India had visited several villages in Banaskantha district and found these villages bearing brunt of water scarcity. He wrote in a news report, "The residents of Zazam, Kilana, Madhutra, Jakhorta, Dantrana, Vauva, Vavtaluka Mavsari, Rajapura, Meghpura, Ordasan, Navapura, Chhatarpura and Sedav villages are red faced over the much hyped Sujalam Sufalam scheme for ensuring regular water supply".[114] The much hyped Sujalam Sufalam scheme also comes under probe and social scrutiny in Rakesh Sharma's documentary film, *Khedu Mora Re*. Says a farmer in the film,

> Till a couple of years ago, there was never a flood in Gokharwada (district Surendranagar) but ever since this 'Sujalam Sufalam', our village and lands get submerged every year due to these new check dams, faulty planning and construction. Modi keeps announcing packages worth hundreds of crores, but the reality is that the people are yet to receive even 5 Rupees out of the post-flood package announced for 2005! And now this flood in 2007 – it has destroyed us totally.

In March 2004, Robin David of *The Times of India* reported that "at Kurai – barely 30 km from Dabhoi – the farmers are more than keen to show the large hole in the minor canal meant to carry the Narmada waters from the main canal to adjoining villages". The news story based on interviews of farmers from Handod, Miyagam, Khambhola, Manpur and Pinjarwala also narrated the tale of breaches in minor canal and how that led to farmlands getting waterlogged.[115]

(v) Feeder Minor Canals Woefully Inadequate to Take the Water to Intended Users

On 17 October 2002 the president of Vadodara district Sarpanchs' Association led a mob of over 150 youths from 3 villages in Dabhoi taluka, raided the Vaghodiya branch canal and forcibly opened its gates to release water into Kundhela distributory and hence to minor canals. As a result on the Vandara minor, 20 diesel pumps and 40 siphons worked non-stop to irrigate paddy and cotton crops and the regional language media[116] hailed the president as farmers' savior. There is an increasing trend towards such practice.

Eventually as a chain reaction, in August-September 2004, the farmers from Surendra Nagar also started lifting irrigation waters from canal to save Bt cotton crop, even as the CAD works had not taken place in the district and irrigation to these farmers was not yet scheduled. This led to depriving Kutch villages of Narmada waters for drinking purposes.[117]

In September 2003, it was reported that the construction of sub-minors and field channels had not yet begun.[118] On 16 April 2004, reporting in *The Times of India*, Paul John wrote after visiting farmers of Bariapura village in Sankheda Taluka of Baroda district who were

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[113] Langa, M. (2006). Water borne Losses, *Tehelka*, 3 June.

[114] Panwar, P. (2007) Water Flows in a Trickle here, *The Times of India*, 28 April.

[115] David, R. (2004). Broken Narmada Canals Halt Water Flow, *The Times of India*, 27 March.

[116] *Gujarat Samachar* (2002). Crop Saved in 13 Villages by Opening Gates of Narmada Canal, 18 October.

[117] *The Times of India* (2004). Narmada Water may Lead to Regional Feuds, 10 September.

[118] *The Times of India* (2003). New Authority for Narmada Command Area Soon, 25 September.

not getting any irrigation water despite living at a stone's throw fro a branch canal. He wrote quoting a SSNNL report,[119] "2417 km of Minor canals are yet to be built between Bharuch and Vadodara. For an efficient penetration, the region should have at least 4500 km long minor canals for the command area alone. This is only possible, if the 272 km long distributaries are in place to feed these minors." Three years later, the situation had not changed much.

On 17 February 2007 reporting in *The Indian Express*, Abhishek Kapoor wrote, "a demand for Rs. 700 crore central grant was made by the State Government for the remaining 101 km of the Narmada Main Canal, even as work on the branch canal network languishes. Of the 38 branch canals to be made, 23 are complete or nearing completion with another 7 under construction. Tenders are to be issued for the rest 8 this year."[120]

(vi) Supreme Court's Judgment Stalling Work, used by SSNNL to Advocate Further Increase

Gujarat failed to utilise the water storage in 110.64 m high dam for irrigation and drinking water benefits optimally. During the monsoon of 2005, SSNNL engineers and agriculture dept officials from Gujarat rue that Supreme Court judgment in 15 March 2005 had prevented the raise in dam height. State Director of Agriculture, R.A. Sarasiya spoke to *The Indian Express*,[121] "At present 35 per cent agriculture land in the state gets irrigation...we want to increase it to 50 per cent. This monsoon we were hoping that we could bring 10 lakh ha of new land under cultivation by providing irrigation from the Narmada canal. I think that will have to wait now.'' Similarly, Ashok Gajjar, an executive engineer working on the dam told *The Indian Express* that the water that overflowed the dam wall in July 2005 could have fed 4000 parched villages or irrigated 7.00 lakh ha.

The officials and political leaders rarely spoke about the shortfalls in benefits that could have been harnessed at the dam height of 110.64 m. They also did not talk about the canal network and the CAD lagging behind.

(vii) Water Conservation Programme Yields Higher Benefits than the SSP

The Socio-Economic Review for 3 years (2003-04, 2004-05 and 2005-06) also reported the figures of maximum irrigation potential that was created due to water conservation programme at 2.15 lakh ha, 3.50 lakh ha and 3.50 lakh ha respectively. Whereas the latest Socio-Economic Review for the year 2006-07 says the maximum irrigation potential created due to water conservation programme had further risen to 4.00 lakh ha. If one carefully examines the increase in irrigation potential created and utilised between June 2006 and June 2007 from respective Socio Economic Reviews for last two years, one would witness that even minor irrigation schemes have performed better, while even after raising the height of the SSP by 12 m in an adamant style, Gujarat has failed to increase irrigation potential under the SSP.

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[119] John, P. (2004). Despite Narmada Canal, these Farmers buy Water, *The Times of India*, 16 April, Baroda.

[120] Kapoor, A. (2007). Resources Crunch Hits Flow of Narmada Canal, *The Indian Express*, 17 February.

[121] Srinivas, J. (2005). Thirsty Villages watch as Gujarat Water goes Waste, *The Indian Express*, 2 July.

2. Irrigation in Rajsthan

While much of the attention around the SSP has focused on Gujarat, Maharashtra and MP, there is a lot to be learned by looking at the ways things have turned out in Rajasthan. That state was promised enough water to irrigate 0.135 (0.073? check) million ha land in the Narmada Water Dispute Tribunal Award. Recent report speaks of additional drinking water benefits to 124 villages, many in Jhalore and Barmer districts. For these benefits to be realised, Rajasthan needs to build 74 km of branch canals and 1403 km of distributory network canals, in 74 villages in Jhalore and 15 villages in Barmer districts.

As per the original cost estimates, Rajasthan was required to contribute Rs. 467.53 crores, about 40% of this for construction of canals and the remainder as payment to Gujarat as the state's share in the costs of the overall project. By 1996-97, this estimate had risen to Rs. 552.22 crores, nearly a fifth higher than originally planned, while as per revised estimates at 1999 prices it has gone up to Rs. 1,392.00 crores.

As on 31 March 1999 the GoR had spent Rs. 158.26 crores. Rs. 50.28 crores of which was spent on works undertaken in Rajasthan; while Rs. 107.98 crore was paid as shared cost in the project to Gujarat and other nodal agencies. Till October 2002, Rs. 212 crore had been spent on Narmada canal project by Rajasthan.

The performance appraisal of the AIBP by the CAG in its report on the Union Government for the year ending 31 March 2003 revealed,

> The Narmada Canal project involving Rajasthan and Gujarat was also separately included under AIBP during 1998-99 and Central Loan Assistance of Rs. 65.32 crores was released to Rajasthan upto March 2003. In terms of the agreement signed between the Governments of Gujarat and Rajasthan, an amount of Rs. 27.84 crore was transferred by Rajasthan to Gujarat for construction in the project.

The CAG's Performance Appraisal on the AIBP noted, "Against the targeted potential of 251,000 ha, achievement was nil despite an expenditure of Rs. 101.12 crores up to March 2003."

In December 2003, Jaswant Singh extended Rs. 387 crores assistance to Rajasthan under a special package. Almost the entire assistance was given to Gujarat when Rajasthan helped the cash-starved SSP with Rs. 312 crores, after it received this assistance from Central Government. Within 6 months of this grant, the Rajasthan CM met the Prime Minister Manmohan Singh and demanded a special package for development of 16 desert districts. The Rajasthan CM also underlined that one of the objective for demanding the special package was to arrange "additional funds for early completion of the Indira Gandhi Nahar and Narmada Canal Projects."

Soon thereafter at the 12th meeting of the Review Committee of the NCA, the Irrigation Minister of Rajasthan, Sanwarlal Jat urged the GoG to complete the remaining 100 km portion of a 458 km long Narmada Main Canal soon. Claiming that 74 km long portion of Narmada canal in Rajasthan was in the final stage, Mr Jat pointed out that unless Gujarat completes the construction of Main Canal till border in time, Rajasthan would not get Narmada waters by the targeted time of June 2006.[122] The target was clearly missed as even after the passage of two years the only assurance Gujarat CM could give to Rajasthan while speaking at a function organised by Rajasthan Patrika in April 2006 was that

[122] Rajasthan Urges Gujarat to Complete Canal Work, *The Hindu*, September 12, 2004.

"Narmada waters will reach Rajasthan *soon*", although till August 2006 the GoG had not added even a single km of Narmada Main Canal Phase II. Answering a question by Prof Alka Balram Kshatriya, Union Water Resources Minister Prof Saifuddin Soz admitted in Rajya Sabha on 22 August 2006 that "at present construction of Narmada Main Canal carrying water from Sardar Sarovar Dam to Rajasthan is completed upto 357 km out of 458 km in Gujarat. As reported by the GoG, it is planned to complete remaining 101 km upto Rajasthan border by October 2006."

While at the time of raising dam height from 110.64 m to 121.92 m in April-May 2006, Gujarat promised that the works on Main Canal Phase II (chainage 357 to 458 km) would finish 'soon' and Rajasthan will start receiving irrigation, Socio-Economic Review for the year 2006-07 stated that as on October, 2007 progress of works was such that "excavation work was completed on 90.62%, lining works got completed on 84.16% and concrete work got completed on 68.95% of the area to be covered." Thus, even as the dam wall was rising at a fast pace from March to October, works on Narmada Main Canal Phase II (chainage 357 to 458 km) was far from over, despite Union Government releasing financial assistance of Rs. 625.33 crore under the AIBP.

Recent reports have said that a total of 1107 villages as well as two towns with an area of 2.5 lakh ha will receive Narmada water for irrigation.[123] The number of villages to be supplied drinking water from Narmada canal in Rajasthan has witnessed a quantum jump and the same figure has been repeated in the statement by Union Water Resources Minister, Prof Saifuddin Soz released by Press Information Bureau on 28 March 2008. However, project authorities do not have any convincing arguments to show how such a quantum jump in benefits would actually accrue on the ground.

To a question by the local MLA, Govindbhai Prajapati, asking for the names of the villages in Tharad and Vav tehsils which were to receive Narmada water for drinking purposes, the GoG's Water Resources Minister response put a huge question mark over the celebratory and euphoric mood of dedicating Narmada water to Rajasthan. The Minister replied that villages from these two border tehsils may get Narmada water for drinking purposes only by March 2010.[124] Again, given the poor performance on Irrigation and Drinking Water benefits from the SSP in Gujarat so far indicate, it is likely that once again, one would witness *Narmada water flowing in Main Canal and reaching a region* but not being put to optimal and planned use.

DRINKING WATER

In its long history, the drinking water benefits of the SSP have always emerged strongest when the dam project has been gripped by controversy. While the proponents have repeatedly claimed domestic supply as the Projects' first priority during those controversial years of late '80s and early '90s, many of those claims remained in rhetoric and emotive realm. The reference to this issue in project documents—even from mid and

[123] Bajeli Dutt, K. (2008) Narmada Water Finally Flows to Rajasthan Villages & Narmada Water Qquench Thirst, Brings Hope in Rajasthan, *IANS News Release*, 27 March.

[124] *The Indian Express* (2008). Tharad, Vav celebrate Narmada Waters to Rajasthan, but will have to do without any Water till 2010, 26 March.

late 1980s—was cursory, lacked convincing substantial arguments and were insufficient for assessment, in the view of Independent Review headed by B. Morse and T. Berger.

In 1983, the issue was first raised briefly by the Narmada Planning Group in Volume I of their report *Water Use Plan and Sizing of the System*[125] by proposing that 1.06 MAF of Narmada water be set aside for "municipal and industrial use" from 9.00 MAF Narmada water allocated to Gujarat. In May 1983, the GWSSB had issued a report on use of 0.86 MAF of water to supply 131 urban centers and 4719 villages.

(i) Detailed Plans not Ready

A detailed plan was not in place as many as 5 year after this GWSSB report as borne out by this comment in the report by C C Patel Associates for the GoG:

> ... an important point on which action *has to be taken* by the GWSSB of government of Gujarat is with regard to the expeditious preparation of detailed water schemes to convey water from canal delivery points to the distribution areas. An integrated water supply pipeline grid *needs to be designed* to distribute the Narmada waters to the needy areas. In urban centres, the distribution system *will have*, in most cases, *to be remodeled*. This *will be* a stupendous task and *a start has to be made now*, so as to implement the works within 8 years to enable water supply benefits to accrue as soon as the canal construction is completed.[126]

In June 1989, a World Bank Mission report asked the SSNNL to furnish:

> ... by June 30, 1989, for the use of the design consultants and simultaneous review by the Bank, GoG's Urban, Municipal and Industrial Water Supply Plan for utilisation of SSP waters, including the location of towns and cities to be served and their respective take-out locations, as well as estimated quantitative demands and delivery services to be provided.

The SSNNL obviously had no answers to these queries as there weren't any plans, neither on paper nor on ground, on drinking water usage from the SSP. Three successive years of drought in Gujarat during 1987-89 made proponents of the SSP taste the emotive power of thirst and soon after they started to accord drinking water benefits from the SSP the highest priority in their rhetoric, making it the rallying cry.

In December 1990, in absence of detailed planning, the number of villages to receive drinking water from the SSP rose to 7235. Subsequently in 1991, drinking water from the SSP was promised to 8215 villages and 135 urban centres, and in 2005 it was promised to 9633 villages and 131 urban centres.[127] The zeal of showing that Narmada water will be taken to drought prone villages from Kutch and Saurashtra was so compelling that the Chairman of the SSNNL at one point had to confess, while replying to an inquiry by the Independent Review Mission, "the number of villages to be served in Kutch and Saurashtra *are statistical figures which include 236 uninhabited villages*".[128]

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[125] Government of Gujarat (1983), *Water Use Plan and Sizing of the System, Sardar Sarovar (Narmada) Development Plan* (Vol. I), Gandhinagar: Narmada Planning Group.

[126] C.C. Patel Associates (1988). *Review and Rescheduling of the Implementation Programme, Sardar Sarovar (Narmada) Project* (Vol. I), p. xxviii.

[127] Statement by R.B. Seth, Additional Secretary, Department of Water Supply in Deep Flow, *Down to Earth*, 15 May 2006.

[128] Report of The Independent Review of the Sardar Sarovar Project: 1992: Resources Futures International, Canada, p. 319.

Elaborating on why they found reference to Municipal and Industrial water supply from the SSP in projects documents as cursory, lacking convincing substantial arguments and insufficient for assessment, Independent Review Report stated:

> The documents made available to us are insufficient for assessment. General criteria and guidelines have been established. Drinking water quality issues have not been addressed, nor have waste water disposal issues, nor have the energy requirements... The Narmada water would be available for municipal and industrial uses in 11 months of the year from and irrigation system designed on 75 per cent dependability – considerably less than the standard required for urban water supply. Storage plans are not yet available. Water rates are undecided. We are told that a comprehensive domestic (village) and municipal plan is under preparation. The cost is estimated to be "several thousand crore of rupees."[129] Gujarat's Department of Industries is reviewing the requirements of the sector and how to use 0.20 MAF (of water) designated for industry.

Even by 1994, as indicated by the Five Member Group, there was little clarity on drinking water component and its implementation.

(ii) Costs and Expenses of Drinking Water not on the SSP

While drinking water benefits are fore grounded as the unique selling proposition (USP) of the SSP, the costs and expenses towards the Sardar Sarovar canal base bulk water pipeline is not shown as part of project cost for the cost-benefit assessment. The answer probably lies in the history. As early as 1992, when the World Bank appointed Independent Review committee inquired into the costs, a quite flippant answer went on record: "several thousand crores". Chief General Manager of Gujarat State Drinking Water Infrastructure Co. Ltd. (GSDWIL) put the **drinking water pipeline project cost at Rs. 7230 crores (at 1999 prices). The enormity of this figure is best seen when placed against the GoG's total annual plan outlay for the year 2002-2003: Rs. 7600 crores.** In the section on major project issues the GSDWIL paper stated, "Can any Govt., with its total annual development plan of Rs. 6500 to Rs. 7000 crores, ever provide Rs. 7000 crores for the project?" Pravah report put the capital cost of the project at Rs. 7470 crores (at 2001 prices).[130]

Missing altogether from the Govts' calculations is a realistic assessment on how to keep such a centralised pipeline network running. How would they generate Operation & Maintenance (O&M) costs, estimated in the range of Rs. 541 crores annually? Already the debt obligation of SSNNL works out to be around Rs. 945 crores annually. So, what will be the priority – to serve the debt obligations on the construction of the dam, or to pay the O&M costs? Again the tariff structure and realisation of the water tariff so far puts a huge question mark on the capital intensive centralises bulk water transmission pipeline.

(iii) Drinking Water Plans realised in 1999, 17 years since it was first mooted

It was only in 1996 that the Saurashtra Pipeline Project was first brought to the drawing board with a master plan that talked about augmenting the Mahi Canal-based Water Supply Schemes by supplying 211 MLD (Million Litres a Day) water from Narmada Canals to 1860 severely affected villages of Ahmedabad, Amreli and Bhavnagar districts.However,

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[129] Narmada Control Authority (1991). *Drinking Water from Sardar Sarovar Project.*

[130] Hirway, I. and S. Goswami (2006). Concurrent Monitoring of Drinking Water Pipeline Project: A Study of Narmada-Based Project in Gujarat (mimeo), Ahmedabad: Centre for Development Alternatives.

on 23 August 1998 the BJP Government had once again decided to scrap the ambitious Rs. 307 crore pipeline project to provide Narmada waters to Saurashtra.[131] Originally mooted by Chhabildas Mehta led Congress regime in 1993-94, the project kept getting prioritised and scrapped with the change of regime in Gujarat. Alleging gross irregularities, Suresh Mehta led BJP Government to scrap the project in 1996. The project had got revived again in 1997, when Shankarsingh Vaghela came to power, only to be scrapped soon after.

In 1999-2000, following a yet another severe drought and an order from Supreme Court to allow the height of the Sardar Sarovar to be raised from 80 to 85 m (February 1999), GoG was seen nurturing a very ambitious Sardar Sarovar Narmada Canal Based Bulk Water Transmission Project. In April 1999, Govt sanctioned Saurashtra Pipeline Project (SPP), estimated to cost Rs. 409 crore for execution by Gujarat Water Supply and Sewerage Board (GWSSB). The work of SPP started in July 1999 almost 17 years after it is first proposed in year 1982. The water supply commenced in December 2000, even as the work had not reached completion in a fire fighting mode. The total expenditure incurred on the project at the end of March 2003 was Rs. 464.17 crore.

In October 1999, the Gujarat Water Infrastructure Limited (GWIL), a separate state-owned company was incorporated to execute Sardar Sarovar Narmada Canal based Drinking Water Pipeline Project.

(iv) Time Overrun of 10 Months (83%) on SPP 1, despite undue financial aid to contractor

The package Saurashtra Pipeline Package 1 (SPP 1), started in July 1999, was stipulated to be completed in June 2000. However, despite GWSSB granting an upward revision[132] in the advance funds to be released on the request from the contractor to speed up the works, which resulted in "unintended financial aid ranging from Rs. 2.89 crore (February 2000) to Rs. 12.88 crore (June 2000)", the package got completed only in April 2001, after time overrun of 10 months (i.e. 83% extra time). Again, to pass off the works on this package as *completed in all regards* in April 2001 was wrong, as pointed out in CAG's audit remarks. When in December 2000, despite slow progress the water supply was started in a fire fighting mode, the contractor had not yet carried out *internal lining of Mild Steel (MS) pipeline.*

This resulted in shutting down of the project for 3 months (October to December 2001) for completing the lining works and thereby denied benefits to drought affected population in Saurashtra.

(v) Saurashtra got just 20% of water under SPP, rest went to cities and industries

When Saurashtra faced an acute shortage of water following the much talked about drought of the year 2000-01, the Government had decided to provide water from the Sardar Sarovar Dam and supply it to Pariej and Kaneval tanks through the main canal system (January 2001), at a cost of Rs. 48.15 crores. This included Rs. 18.33 crores spent

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[131] *The Indian Express* (1998). Narmada Pipeline Project Scrapped, 23 August.

[132] The turn key contract provided for payment on completed items as well as advance funds to be released at a prescribed percentage, to be precise 55% (45% for bare pipe and 10% for guniting) on the value of work reaching completion stage. On demand from contractor for upward revision, the GWSSB revised it to 65% (60% for bare pipe and 5% for guniting).

by Gujarat Electricity Board for providing infrastructural facilities and energy charges. However, while on 16 January 2001 *The Times of India* reported on inauguration of IInd phase of Saurashtra Pipeline Project by CM, within a week there was another newsreport that stated "People of Saurashtra, and especially those of Rajkot, Jamnagar and Gondal, are in a quandary as to which river water they are eventually going to get. Will it be the Narmada or the Mahi? During the last two years, the State Government had been sending conflicting signals to the people of Rajkot and the region. While sometimes people were told that they were going to get Mahi waters by March and April, at other times they were told that it would be the Narmada waters which would quench the thirst of Rajkotians."

The developments are very different. As reported by CAG Audit report for Gujarat (Civil) for the year ending March 31, 2003: "while the water that was drawn out of the reservoir was 258.59 MCM, a meager 52.20 MCM (20.18%) was supplied to the Saurashtra Pipeline Project through Mahi Canal. The remaining 206.39 MCM was supplied for the GEB's thermal power plant at Wanakbori, Ahmedabad Municipal Corporation,[133] Vadodara Municipal Corporation[134], and industries situated in the VMC and Ahmedabad district areas. Thus the Saurashtra Pipeline Project utilised only 20.18% of the water, but GWSSB was made to bear the entire expenditure of Rs. 48.15 crores." No recovery for the water charges from the corporations and industries concerned was carried out, the CAG report said.

The report also points out that the GWSSB provided 63.56 MCM of water from Narmada canal into Vallabhipur branch canal at a cost of Rs. 19.63 lakh, although the Board was aware that there was no link established between the Narmada canal and Navda/Vallabhipur sumps.

(vi) Time overrun of 12 months (100%) on NC 4 and NC 5 due to delay in arranging funds

The GoG had accorded Administrative Approval to 4 works (SPP 4, NC 3, NC 4 and NC 5) in February 2000 with a view to supply 150 Million Litres per Day (MLD) water to Bhavnagar district and the required funds were to be arranged by Government. Although, the Government could not arrange the required funds in 3 months from the date of approval, the Minister of Water Supply Department instructed the GWIL in May 2000, that sub-projects NC 3, NC 4 and NC 5 would be taken up for execution immediately, as until works on these projects got finished, the 150 MLD water that was likely to be available through SPP 4 at Vallabhipur would remain unutilised. However, the GWIL sat on this instruction for more than 6 months and awarded the work of NC 3 to a contractor (EPIL) in October 2000 only.

The Government again instructed the GWIL to take up works on NC 4 and NC 5 immediately with a condition that payments would be released only after 31 March 2001 while asking GWIL to explore finance either through bonds or loan from HUDCO. Consequently, GWIL obtained a loan from HUDCO in February 2001 and awarded the works on NC 4 and NC 5 to IVRCL.

The works on sub projects NC 3, NC 4 and NC 5 got completed in June 2001, January 2002 and February 2002 respectively. So, while 150 MLD Narmada water became available for

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[133] *The Indian Express* (2000). Narmada Water to Quench Ahmedabad's Thirst, 7 October.

[134] *The Asian Age* (2000). State Allocates Narmada Water for Vadodara, 14 December.

utilisation at Vallabhipur from April 2001 onwards, the delivery system for the utilisation of the same for drinking water supply benefits to villages between Vallabhipur and Rajula was not operational for more than 10 months since then.

By the year 2002, Rs. 1700 crores was spent on Narmada canal based drinking water pipelines by GWSSB and many HUDCO and NABARD loans were awaiting repayments. At a meeting on 2 June 2002 to discuss the Narmada pipeline issue, none of the officials had any clue on how to recover capital costs and how to repay these loans. Narottam Patel, Minister of Water Supplies admitted, "we haven't yet worked out worked out the O&M (Operation and Maintenance) costs."[135] Adding to crisis was the fact that as many as 225 local bodies – among them the Municipal Corporations of Rajkot (Rs. 19.06 crore), Bhavnagar (Rs. 16.41 crore) and Jamnagar (Rs. 16.27 crore) – owed GWSSB dues worth Rs. 225 to 245 crore in water charges.[136] **On the one hand, the GWSSB had huge bank loan to be repaid, while on the other hand users like municipal bodies and industrial users owed the Board crores of rupees for which no tangible plan for recovery existed.**

In addition to the crisis, the state was yet to recover Rs. 250 crore in long pending dues from industries drawing water from dams. However, when asked the state Irrigation Minister Babubhai Bokhiriya, GoG had refused to name the major defaulters.[137] The CRISIL had advised the GoG, in its report submitted in June 2002, to revise the tariff for Sardar Sarovar Canal based bulk water transfers, anywhere between 3 to eights times as well as asking GWIL to charge industrial user at the rate of Rs. 25 per KL on the base price of the year 2002 and escalate it at the rate of 6% per annum.[138]

(vii) Increase in Dam Height and Performance on Drinking Water Supply in Gujarat

The NCA had granted clearance to raise the height of the dam from 90 to 95 m on 17 May 2002. The waters that started flowing down the canals were diverted to Sabarmati and Chandola lakes. That such a move was mere adhoc showmanship devoid of careful planning became clear soon after when the local media reported drowning of kids and dispossession of those living in slums on the river bank and on the periphery of the Chandola lake.[139]

In November 2002, media reports again talked about a drinking water crisis in Saurashtra. A news story by Hiral Dave in *The Indian Express* stated "While Amreli received water after 13 days on Saturday, over 80 villages in Junagadh district depend on tankers for drinking water and the number of such villages will only multiply after Diwali. The situation in Jamnagar is no better. Presently, Jamnagar receives water every alternate day

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[135] Shah, R. (2002). Meeting to Discuss Narmada Pipeline Project on Tuesday, *The Times of India*, 3 June, Ahmedabad.

[136] Pathan, B. (2002). They Have to Wait for Long to Taste Narmada Water, *The Indian Express*, 19 June, Baroda.

[137] *The Indian Express* (2002). Govt. to Recover Water Dues from Industry, 25 June, Gandhinagar.

[138] *The Times of India* (2002). Hike Tariff for Narmada Waters, 19 June.

[139] Eight Kids belonging to Slum Dwelling Community had Died as per Meghdoot Sharon's News Reports in *The Indian Express*, August 2002.

but with very less quantum remaining in Sasoi dam, it is likely to be every third day by January."[140]

Narmada waters were supposed to start flowing from the main canal to Saurashtra branch canal, beginning from the 'Y' junction at Kadi from 21 March 2003. The waters were supposed to reach Dhanki in Surendranagar district on 24 March then pumped up into Maliya branch canal to reach Maliya on 31 March and from there into pipeline for Jamnagar, Rajkot, Morbi, Tankara and Dhrol-Jodiya by the first week of April.[141] However, Rajkot is receiving Narmada water in excess to its demand at around 90 lakh gallons and the Aji dam filter plant capacity around 85 lakh gallons. Thus, it had to pay for the excess water – in the range of 15 to 20 lakh gallons – it had not asked for. The financial loss it suffered during the month of April 2003 amounted to Rs. 8 lakh.[142]

In May 2003, Gujarat CM announcing the arrival of Narmada water in Kutch. "For the first phase, the money has come from Asian Development Bank's Post Earthquake Reconstruction assistance, and the source of the fund for the second phase of the project is get to be determined."

While the Government diverted the ADB's post-earthquake reconstruction assistance towards Narmada-based pipelines, these was a feeling that several quake-ravaged dams in Kutch continued in their dilapidated state without being strengthened. As a result, in October 2003 when Gandhidham town, located very close to the Tappar dam which was filled up to its brim, reported water scarcity, since water supply scheme based on this dam was left unfunded. Meanwhile, in Bhuj, the last town to get piped Narmada water in August 2003 – while the Narmada waters were supposed to reach the city by the deadline of 1 June,[143] – the dream supply lasted barely a month. The explanation GWSSB officials offered to various municipalities in Kutch was that the supply was halted because the Narmada canal up to Maliya was yet to be cement lined.[144] The supply of Narmada water to Rajkot from Maliya branch canal, which started from May 2003, also stopped from 11 August 2003 and the city was to receive waters from local irrigation dams, (Aji Nyari and others) as was the case before May.[145]

Speaking at the second annual partners' meet of Irrigation Water Management Institute – Tata Water Policy Programme, Tushar Shah revealed results of the first phase of citizens' concurrent monitoring of SSP-based drinking water pipeline in 500 villages, during April-June 2004. He stated "373 villages got water in varying quantities and 62 villages are yet to get a drop of Narmada water."

Kutch was getting around 40 MLD Narmada water in June 2004. The supply of water dwindled to 15 MLD in August-September as Saurashtra farmers (from Lakhtar, Dhrangdhra, Halvad and Maliya) sucked out its share by illegally pumping canal water with a view to "save their BT cotton crop". The problems reached to the level of regional feud

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[140] Dave, H. (2002). Modi's Poll Promises Don't Hold Water Here, *The Indian Express*, 4 November.

[141] *The Indian Express* (2003). Narmada: Saurashtra's Lifeline, 15 March.

[142] Bharmal, M. (2003). Here, Narmada Water goes Down the Drain, *The Indian Express*, 2 May.

[143] Maheshwari, D.V. (2003). Kutch Residents still Without Narmada Water, *The Indian Express*, 1 July.

[144] *The Indian Express*, 14 October 2003.

[145] *The Indian Express* (2003). No More Narmada Waters from Today, 11 August.

forcing the CM to appoint a cabinet sub-committee. The sub-committee tried to strike a compromise by allowing farmers to use motors to suck out canal waters at night and as a result bringing Kutch's drinking water supply to 20 MLD.[146]

By October 2004, Pravah had completed concurrent monitoring of SSP-based drinking water pipeline programme's performance in 1188 villages out of 1224 villages claimed to have received Narmada water, and **findings suggested that only 23.7% of the villages surveyed received water on daily basis, 43% villages received water for less than an hour and 47% of house holds felt that quantity was inadequate.**

On November 20, 2004 Narmada water for Kutch was stopped once again – depriving Gandhidham, Bhuj, Anjar and Bhachau – following the decision to undertake massive cement lining work.

Narmada water supply to Rajkot resumed from 19 March 2005 only, after a gap of almost a year. Still, from late March to late May, it didn't bring an end to the water woes. Writing in *The Indian Express* on 28 May 2005 Hiral Dave explained erratic, irregular and unreliable Narmada waters can quench just a part of city's thirst. As against the demand of 30 million gallons per day, it can at the best provide 12.5 Million gallons per day.

The situation in Surendranagar was similar. The local water source, the Dholi Dhwaja Dam had dried up and residents have had to suffer chronic water cuts, said a news report carried by *The Times of India* on 12 June 2005. The report said that there is no fixed timetable for water supply in Surendranagar, and that the town gets water as per availability from the Dhanki sump. Rajendrasinh Rana, chairman of a water works committee at Surendranagar Nagarplika said that although Narmada supply through Dhanki sump began a month ago, some time in May, the town started receiving only half of the required 18 MLD (million litres a day) everyday. This had made it impossible for the municipality to follow the water supply timetable regularly, the Tol report stated. The end result: no one can anticipate water supply timings with certainty, with sometimes citizens getting water after 7 days and other times after 10 days.

In September 2005, the Gujarat CM announced the revival of Sarasvati River by bringing Narmada water and filled Sahastraling Lake. However, as Dr. Ghanshyam Shah notes[147] "within 3 months the Lake was in the same dilapidated and dry condition."

The situation remains grim even two years later. In the summer months, Rajkot city continues to face water shortage and Jamnagar gets water supply once in 3 days. The worst hit has been Amreli where the taps ran dry for 10-12 days. The reason: in all these places, local water sources had been allowed to dry up, while the Narmada water supply through Saurashtra canal has been inadequate.[148] While "Bhuj and eastern Kutch have large water of Narmada, a number of people in western and northern Kutch are still deprived".[149]

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[146] *The Times of India* (2004). Narmada Water may Lead to Regional Feuds, 10 September.

[147] Shah, G. (2007). NaMo, Gujarat and AapNe, *Nireekshak*, 1 December.

[148] *The Indian Express* (2007). Saurashtra Reels under Water Shortage as Supply Runs Dry, 15 June.

[149] Chatterjee, S. (2007). In Kutch, Result may Flow the Narmada Way, *Business Standard*, 11 December.

(viii) Performance Audits by CAG of Narmada-based Drinking Water Pipeline Project

In Ahmedabad, Bhavnagar and Amreli districts

The CAG report for Gujarat (Civil) the year ending 31 March 2003 (tabled in assembly in the year 2005) that covered 3 districts (Ahmedabad, Bhavnagar and Amreli) under the Saurashtra pipeline[150] stated: "The gross average daily intake during the two years of its operation (December 2000 to November 2002) was 119.80 million litres a day against the envisaged capacity of 287 million litres a day (42 per cent) only. **Of the envisaged coverage of 1,860 villages/ towns, benefit reached only 543 (29 per cent) villages."**

As if, putting a scanner over the failure of Gujarat to provide clean water to the people, the CAG report goes on to state that "of the 1.51 million beneficiaries, 1.42 million (94 per cent) in 503 villages/towns were supplied with raw water as there was no filtration arrangements at the headworks, exposing them to the risk of contracting water-borne diseases." This comment from performance audit shall be read in backdrop of public health outcry raised in third week of March 2001 and hollow assurances being handed over by officials.[151]

The major contention of the audit findings was that shortfall in capacity utilisation was attributed to "a large number of unexecuted distribution networks, canal works and pitching work at Pariej." The CAG report seems to note with despair when it said, "there was no prospect of optimum utilisation of the capacity of 287 MLD created, in the foreseeable future." Answering this contention, the GoG took a position as late as on July 2003 that, "network systems are lengthy and it would take more time to implement," while on the lack of filtration facilities, it said, "funds had to be mobilised for creating filtration facilities and these works were in progress."

For these 3 districts (Ahmedabad, Bhavnagar and Amreli), a Citizens' Concurrent Monitoring survey, carried out by Pravah, a coalition of non-governmental organisations in 2004-05, reported the figure of 694 villages as on April 2004 – about a year and half later than the date till which, CAG audit had checked the performance.[152] In May-July 2004, the coverage in these 3 districts had gone down to 620 villages. A year later 55 villages were not reporting the Narmada drinking water benefits that they had reported a year before!

In Kutch, Jamnagar and Rajkot districts

The CAG once again reviewed the performance of Sardar Sarovar Canal based Drinking Water project in the audit report for Gujarat (Civil) for the year ending 31 March 2005. The audit report suggested that the drinking water pipeline project, commenced in 1999-2000 and scheduled to be completed in 2002 was lagging behind "due to defective planning and lack of coordination among different agencies".

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[150] First route with off take point at Dhanki.

[151] Don't Panic over Yellow Narmada Water says AMC, *The Indian Express*, 17 March 2001. Also see, Forget Colour, Narmada Water is Safe to Drink, *The Indian Express*, 21 March 2001.

[152] Hirway, I. and S. Goswami (2006). Concurrent Monitoring of the World's Largest Drinking Water Pipeline Project. A report submitted to PRAVAH and IWMI-Tata water policy programme.

The CAG report (tabled in assembly in April 2006) covering 3 districts (Kutch, Jamnagar and Rajkot) under the Saurashtra pipeline[153] states: "As a result of the delay in the execution of the distribution works, **the gross daily intake from May 2003 to June 2005 was 145.17 million litres a day (29 per cent) against the envisaged capacity utilisation of 500 million litres a day and only 415 out of 1,342 targeted villages/towns were covered.**" As shown in Table 11, the CAG Audit held GWSSB as well as consultants in the monitoring and execution of works, responsible for "ineffective internal control resulting in cost and time overruns and deprivation of benefits to the targeted population".

The audit scrutiny of bills raised by the SSNNL revealed that while the SSNNL had sought to charge the Gujarat Water Supply and Sewerage Board (GWSSB) for supply of 104622.23 million litres of water during April 2004 to July 2005, GWSSB claimed that it had drawn only 70701.74 million litres of water during this period – a difference of 33920.49 million litres of water, valued at Rs. 21.71 crores. The GWSSB attributed the differences to transmission loss (ranging between 27-38 %) due to evaporation, seepage from the unlined canal, and theft (by the farmers). The audit report also detailed work that remained incomplete in Kutch.

By April 2004, Pravah survey of these 3 districts (Kutch, Jamnagar and Rajkot) found 553 villages reporting to have received Narmada water. But, during the two quarters (Nov 04 to Jan 05 and Feb 05 April 05) Pravah survey found a huge fall (200 less that what was the figure of coverage just 6 months ago) with just 348 villages reporting to have received Narmada water. There came reports of sudden stoppage of Narmada water supply to Kutch for few days together without any prior notice owing to some technical reasons at Dhanki, Narmada's main canal outlet near Viramgam on 15 July 2005.[154]

The Pravah report found that Narmada canal based drinking water supply is not reliable. "In the last 3 months of the survey, 51.2 per cent of the villages received water on alternative days. About 13.5 per cent received it twice a week and 7.5 per cent once a week. Another 2.3 per cent villages received it once in 15 days while 5 per cent receive it highly irregularly."

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[153] Second route based on Maliya branch canal with off take point at Khirai.
[154] Maheshwari, D.V. (2005). Narmada Water isn't Flowing into Kutch, *The Indian Express*, 15 July.

TABLE 11

Details of incomplete Water Supply Schemes

Name of WSS	Name of Agency	Stipulated date of completion	Status as of August 2005	Audit findings
Kandla-Gandhidham	BRC Construction	January 2003	Contract terminated	The contractor engaged a sub contractor, who did not complete the work. The contract was terminated (March 2004). Re-tendering of work (after reducing the scope of work by Rs. 1.81 crore) resulted in cost over run of Rs. 1.41 crore.
Kandla-Gandhidham remaining work	IVRCL Infrastructure Limited	September 2004	In Progress	The work remained incomplete as of August 2005 resulting in time overrun
Mundra	BMS Projects (P) Ltd	December 2003	In Progress	Recovery of Rs. 15 lakh towards defect liability and adjustment of mobilised advance of Rs. 41 lakh was not made. Inordinate delay in execution led to time overrun. Pumping machinery valued at Rs. 1.05 crore brought by contractor remained idle for non completion of civil work.
Anjar	BMS Projects (P) Ltd	January 2004	In Progress	Inordinate delay in execution led to time overrun
Tankara	Pratibha Industries Ltd	March 2004	In Progress	GWSSB failed to provide design in time resulting in time overrun
Bhachau bulk remaining work	BRC Construction	July 2003	Contract terminated	Recovery of Rs. 27 lakh towards liquidated damages (Rs. 22 lakh) and mobilisation advance (Rs. 05 lakh) was not effected
	Pooja Builders	-	-	There was cost overrun of Rs. 21 lakh. Inordinate delay in execution led to time overrun
Bhuj Remaining work	BRC Construction K D Waghela	October 2002 NA	Contract terminated NA	Inordinate delay in execution led to time overrun.

Source: CAG report on Gujarat (Civil) for the year ending 31 March 2005, p.142.

(ix) Performance Audit of GWIL

The CAG audit report for Gujarat (Commercial) for the year ending 31 March 2006 had reviewed the performance of GWIL. Amongst other things, it pointed out time overruns in sub projects for Narmada Canal based bulk water pipeline being executed by the GWIL as detailed in Table 12.

TABLE 12

Details of Delay and Time Overruns in Drinking Water Projects

Name of sub project	Date of Award of work	Stipulated date for completion of work	Actual date of completion of work	Date of commissioning	Time Overrun (in months)
Completed Projects					
NC 1 Botad to Chavand	24/9/99	23/11/2000	15/4/2001	15/4/2001	3 months and 21 days
NC 2 Chanvand to Lathi, Amreli, Babra	24/9/99	23/11/2000	15/4/2001	15/4/2001	3 months and 21 days
NC 3 Vallabhipur to Budhel	5/10/2000*	04/07/2001	30/06/2001	30/06/2001	Delay in awarding of works resulted in delivery system for utilisation of 150 MLD Narmada water remaining non-functional for 3 to 10 months
NC 4 Budhel to Borda	28/2/2001^	30/11/2001	05/01/2002	05/01/2002	
NC 5 Borda to Rajula	19/2/2001^	18/11/2001	28/02/2002	28/02/2002	
NC 8 Tankara to Jamnagar	13/11/2001	25/09/2002	08/12/2002	08/12/2002	2 months and 15 days.
NC 10 Bhachau to Anjar	23/09/2002	22/06/2003	21/10/2003	14/04/2004	4 months
NC 11 Anjar to Kukma Mundra Mandavi	16/10/2002	15/07/2003	15/11/2003	14/04/2004	4 months
NC 14 NMC to Gandhinagar city and GEB	31/07/ 2003	30/04/2004	25/09/2004	25/09/2004	5 months

Notes:

* 5 months delay by GWIL in awarding works, as revealed by CAG's performance audit on Saurashtra pipeline project in its report for Gujarat (Civil) for the year ending 31 March 2003.

^ 10 months delay by GWIL in awarding works, as revealed by CAG's performance audit on Saurashtra pipeline project in its report for Gujarat (Civil) for the year ending 31 March 2003.

Source: Data from CAG audit report on Gujarat (Commercial) for the year ending 31 March 2006.

At the same time the audit findings revealed that 4 sub projects (NC 17, NC 18, NC 22 and NC 23) remained *in progress* status as on September 2006, even after recording substantial time overruns, as detailed in Table 13.

It is needless to add that time overruns on these delivery system from Narmada canal based drinking water is not linked to the issue of dam height. The amount of water needed for making operational Municipal and Industrial water supply (1.06 Million Acre Feet) became available at Sardar Sarovar right from August 2002 onwards.

TABLE 13

Details of Projects under Progress

Projects on which work is under progress (September 2006)			Time Overrun (in Months)
NC 17 NMC to Modhera to Mehsana	20/09/ 2003	20/03/2004	Beyond 30 months
NC 18 Jamnagar to Moti Khavdi	20/11/2003	20/09/2004	Beyond 24 months
NC 22 Kukma-Khirasara Kakadpitha Mandvi	06/11/2004	06/11/2005	Beyond 11 months
NC 23 Halol Goghamba	23/11/2005	02/08/2006	Beyond 1 month

Source: CAG audit report on Gujarat (Commercial) for the year ending 31 March 2006.

Narmada Water to Gandhinagar and Thermal Power Plant in Deviation of Master Plan

The audit findings reported that in deviation from Master Plan, GWIL had commissioned and executed a sub project NC 14 (Narmada Main Canal-Gandhinagar) at a cost of Rs. 39.39 crore for supplying 255 MLD water to Gandhinagar city, Thermal Power Station at Gandhinagar etc at the cost of depriving drought prone regions. Further, it was found that while going by Indian Standard (IS) Code of basic requirement for water supply, drainage and sanitation, the domestic water requirement for Gandhinagar should have been 49 MLD, the city had actually received 90.10 MLD Narmada water, i.e. almost double of standard requirement.

Industrial Allocation

The audit report also pointed out that in deviation from Master Plan that envisaged supply of 232 Million Liters per Day (MLD) water for Kutch, of which 45 MLD was meant for industrial use, industries in Kutch were actually allotted 61.91 MLD water (more than one third excess allocation than what was envisaged in Master Plan) as per figures available *as on 31 March 2006*. On this being pointed out by CAG in *July 2006*, management of the GWIL, and GoG replied that the SSNNL had increased *in May 2006* the allocation for industrial water from 0.2 MAF (674 MLD) to 1.0 MAF (3369 MLD) from which the excess allocation would be adjusted.

One is unable to comprehend the rationale for such an upward revision, that too surreptitiously, in water allocation for industrial use. Again if the decision was taken in the month of May 2006 and was being used to justify deviations from Master Plan, why was there no debate in public domain over this?

Water Tariff

The CAG Audit report for Gujarat (Civil) for the year ending 31 March 2003 found out that recovery of the water charges from local bodies remained a cause of worry with GWSSB being unable to raise even minimal amount out of realisable revenue. The audit report stated, "As against water charges of Rs. 34.99 crore (February 2001 to June 2002) realisable from various local bodies (December 2002), GWSSB raised demands for Rs. 5.38 crore and realised a negligible amount of Rs. 6.52 lakh only, i.e. 1.21% (March 2003). Out of 694 local bodies benefited (*including 151 local bodies outside the project area*) demands were raised on 305 local bodies only. Further, out of 305 local bodies on which demands were raised *only one local body* made the payment."

As per Figure 1, the realization of charges by GWSSB was, on an average, way below half of actual amount charged from Panchayats in 5 districts of Gujarat. But, village panchayats were not the only ones who defaulted on payment of water charges. During the years 2000-02, Vadodara Municipal Corporation had procured water from SSNNL and was slapped a bill of Rs. 71 crores for the water they had drawn and with interest over the years the outstanding turned out to be Rs. 111 crore. On 16 May 2007, the SSNNL communicated to VMC that it has agreed to waive of Rs. 107.42 crores, and VMC needs to pay up just Rs. 3.58 crores only.[155]

[155] *The Indian Express* (2007). SSNNL waived Rs. 111 crores Water Dues on VMC, 17 May.

Likewise, GWIL has been unable to recover even operating costs (including material cost and employee cost) and has been persistently showing losses as reported in the CAG audit report on Gujarat (Commercial) for the ending 31 March 2006. The report says that during 2001-06 the sale price of water ranged between Rs. 0.50 to Rs. 15 per KL, and as against the sales ranging between Rs. 6.07 crore and 18.41 crore, the operating costs remained between Rs. 7.93 crore and 22.67 crore. As on 31 March 2006 outstanding dues recoverable from local bodies and industrial consumers amounted to Rs. 12.89 crore. To this audit comment, the GWIL replied in June 2006 stating, "the recovery of water charges was low due to weak financial position of local bodies." GWIL has also approached GoG in July 2006 to revise the sale price of water to augment its revenue. So on one hand GIWL was unable to recover the revenue from water charges owing to inability of local bodies to pay, while on the other it suggested for an upscale revision of water tariffs to combat its losses. Such paradoxical positions of GWIL although have been pointed out in public domain but seem quite challenging to remedy.

POWER

Power generation in a large dams like the SSP in form of hydroelectricity, is 'one of the benefits' other than irrigation, drinking water supply for domestic and industrial use, surface transportation and flood control. Of these, irrigation has been a clear priority & has historically taken precedence over power benefits. It is so because dams are primarily known for canal based irrigation for enhancing food security and with rich canal network development, the power generation is considerably reduced over a period of time. Indeed while there will be 1,450 MW of installed capacity, it has been estimated that actual power generation will only be 425 MW in the early stages of the project, diminishing to 50 MW by the time all water allocation for Gujarat is used for irrigation. Power generation has also been one of the main arguments for increasing the dam height in the SSP.

According to the NWDT Award, Gujarat will get only 16% of the power from the SSP, the rest being split between Maharashtra (27%) and MP (57%). This distribution was worked out on the basis of the fact that while MP & Maharashtra may not get a share of Narmada waters for Irrigation, they are meant to be partly compensated for submergence of part of their territories with higher allocation of power benefits.[156] In March 2006, at the time of raising the height from 110.64 m to 121.92 m, it was hoped that the increased height would add 3500 Million Units (MU) of power generation in addition to 1450 MW.

1. Dam Height & Parallel Power Infrastructure going Incongruent: Benefits Delayed

For 3 successive years (2002, 2003 and 2004) the GoG directed its attention to solely raising the height of dam wall. However, the commissioning of generation units witnessed considerable delays. There can be no power generation unless generation units are also commissioned on time. Thus, even on the power generation front, benefits were delayed due to neglect of other supporting infrastructure. This was similar to the absence of canal network for making Narmada water reach the fields, or delays in laying of pipelines to reach drinking water to villages and households.

On 30 June 2004, the dam height touched the 110.64 m mark – a level when both the RBPH and Canal Head Power House (CHPH) units could start generating power. However,

[156] Philippe Cullet. "The Sardar Sarovar Dam Project: An Overview".

both the units were not ready. On 9 September 2004, the Review Committee of Narmada Control Authority was to meet and "consider the delay in the commissioning of the river bed power house, which is said to have run into problems, as well as delay in supply of equipments by the BHEL".[157]

The CAG audit report for Gujarat (Commercial) for the year ending 31 March 2004 had found that there was *an imprudent deferment* of construction work of Tail Race Channel (TRC) for RBPH. While discussing the issue, audit report stated; "As the construction of RBPH and exit tunnels was not completed due to *unavoidable reasons*, protective bund – kept between RBPH and site meant for TRC construction for preventing the flood water from TRC under execution to RBPH – was not allowed to be removed during December 2000 to March 2002. The works of RBPH and exit tunnels were completed only in June 2004. The bund was therefore removed only in June 2004 and the contractor carried out remaining work on TRC thereafter."

There have been numerous audit comments detailing such *deferment* and *unavoidable reasons* as well as elaborating on how it resulted in undue favours to contractors and loss of potential benefits. But, the Government tried to pin blame for delays on the protest by displaced persons and stalling of the construction for 6 years. Citizens have a right to know specific details of those *unavoidable reasons* that were responsible for non-completion of RBPH construction work from December 2000 to March 2002.

As on 31 December 2001, the work on underground excavation for RBPH was claimed to be 89.42% complete. Then as on 31 March 2002 the figure went up to 89.83%. However, 6 months later, as on 31 December 2002, the figure came down to 89.59% and as on 31 March 2003 it rose again to 90.00%. Meanwhile the figure for open excavation had remained constant at 96.91% during this entire period. All these figures reporting not much progress even as months went by, suggested other problems at the RBPH.

When it comes to actual realization of power benefits, the realized potential – at 3601 MU in 2006-07 – has not been consistent with the dam height achieved. In June 2004, when the dam height touched 110 m, the SSP was ready to generate power but owing to delay in the commissioning of the RBPH, power generation did not start till early 2005. There was also a delay in installing the power turbine generators. Finally, the increase of dam height from 110.64 m to 121.92 m attributed to 1500-1700 MU of surplus of which only 550 MU was attributable to increased height.

2. Power at What Cost?

On 23 May 2003, the SSCAC had made an unpublicised presentation on the *Costs and Benefits of the SSP to the GoM*. The committee had estimated the power component costs at Rs. 6053.86 crores (at 2000-01 price levels), of which the expenditure already incurred was Rs. 2971.30 crores (as of March 2003). The Committee reported that Rs. 3082.56 crores would be needed for completion. This figure was Rs. 200 crores less than the estimate provided in March in response to a question in the Lok Sabha (Cited from: question no 233, dated 6 March 2003), but in the intervening period the CEA weighed in with its estimate of Rs. 4526.15 crores needed for completion. In response to an RTI application, the CEA responded in January 2007 that the cost of the power component is

[157] Parsai, G. (2004). NCA Reviews Rehabilitation of Narmada Oustees, *The Hindu*, 9 September.

Rs. 1551.86 crore (at 1988-89 price level) and it went up to Rs. 5502 crores as per tentative estimates by GoG in December 2002.

In an article titled, "Electricity at What Cost", Ravi Kuchimanchi[158] writes:

> When the dam was taken to 110.64 m two years ago in June 2004, it could have immediately begun generating electricity, but it didn't. The 5 turbine generator units in CHPH were commissioned in a phased manner only in August through Dec 2004. That's when power started trickling in. But the bulk of the SSP power is produced in the river bed, not at the canal head. The first unit in RBPH was commissioned only in February 2005. After that every 3 months or so a unit was added and by April 2006, 5 units commissioned with one still pending. This is the reason why the dam did not produce much electricity at 110.6 m. It's not that it didn't have the height, it didn't have the guts inside!

However, even as installation of generation units of RBPH was going on, power generation had to be stopped after a transformer burst at RBPH on 15 June 2005. As per news paper reports, this accident caused damages worth Rs. 20 lakh.[159]

When the dam height was being raised from 110.64 m to 121.92 m, on 17 April 2006 Gujarat's Urban Development Minister and spokesperson I. K .Jadeja, accusing Narmada Bachao Andolan activists for pointing that the electricity from the dam would cost very high maintained, "the fact is per unit cost of electricity generation will be Rs. 1.60 while in the Enron project the cost is Rs. 5.50 per unit." However, within a week the GoG filed an affidavit in the Supreme Court in which they sought to argue that power generation worth Rs. 1400 crores would be lost, if the height is not taken to 121.92 m, calculation based on Rs. 4 per unit and claiming that 350 crores additional units would be generated.

Referring to I.K. Jadeja's press statements and GoG's affidavit, Ravi Kuchimanchi wrote,

> There are two problems with this statement. Firstly, as mentioned by the Sardar Sarovar engineers on NDTV, only 55 crore units (550 MU) additional will be generated by a 121.92 high dam. Secondly, since electricity costs Rs. 1.91/unit, this is a value of Rs. 105 crores. Sardar Sarovar's electricity is costlier but it doesn't add to the value. Of the Rs. 1400 crores, Rs. 1295 crore is not real value. By exaggerating the additional units generated and costing them at Rs. 4/unit the loss appears 12 times more than it actually is, in the Gujarat affidavit.

One and half years later, when we cross checked the claim of higher dam height inevitable for higher power generation made by I.K. Jadeja and GoG's affidavit with the monthly power generation data from CEA; we found generation way below the claim with generation at only 150-170 crore units higher compared to the previous year. Once again a bulk of this higher generation had nothing to do with the raise in the height, but with the fact that all the units of RBPH – which generates bulk of the SSP power – were not installed and commissioned in the previous year, even as the dam height had touched 110.64 m, a height where the power generation potential of the SSP starts way back in June 2004.

Had all the units of CHPH and RBPH been installed in time, had undue deferment of work on of Tail Race Channel of RBPH been avoided, we would have seen addition power generation with the raising of the height from 110.64 to 121.92 m at around 55 crore units (550 Million Units) only.

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[158] *The Times of India* (2005). Saving the Sardar Saovar, December 17.

[159] *The Indian Express*, 16 June 2005.

3. Minimal Power Benefits

In the table below power generation figures from the SSP and Indira Sagar Project (ISP, MP), both on the Narmada river, are given since the month in which power generation started from these projects. We have included the figures of power generated at ISP as it gives an indication of how much water may have been released from ISP in respective months, as that would become available at downstream SSP. In fact, one of the design functions of the ISP is to provide regulated releases for the SSP.

All power generation figures are from Monthly Generation reports of the GoI's CEA. Discussing some trends visible from these figures, Himanshu Thakkar writes:[160]

a. Power generation at CHPH has been lower in September to December 2005 compared to corresponding months in 2004, because there was more water available to pass through CHPH in 2004 as the RBPH was not yet commissioned. In 2005, with some units of RBPH having been commissioned, only the required quantity of water was allowed to pass through CHPH.

b. Power generation at the CHPH has been lower in June, August and September 2006 and March 2007 compared to corresponding months in previous year. What this means is that less water was allowed to go through canals in 2006-07 compared to corresponding months previous year, which is strange, since with increased irrigated area in 2006-07, in fact more water should have been allowed to go through the canals. This shows that a lot of water that flowed into canals in 2005-06 (and also in 2004-05) was not used for irrigation or water supply but possibly for unplanned use (e.g. allowing water into rivers or filling lakes).

c. Power generation at CHPH has been lower in September 2007 compared to corresponding month in 2006. This is indeed strange as irrigation water demand should have been high in September and in 2007 more area should have been under irrigation. Similarly, power generation at RBPH has been lower in September, October and November 2007 compared to corresponding months in the previous year. This seems to be due to reduced power generation also at ISP in the upstream in these months.

d. Power generation at CHPH in 2006-07 was marginally (<10%) higher than in the previous year, which indicates that the irrigation in 2006-07 has not gone up significantly compared to that in the previous year. It turns out from comparing the figures on irrigation utilised from the SSP reported in Socio Economic Review for the year 2006-07 and 2007-08 that even as the height was raised by 13 m irrigation has stagnated.

e. It can be seen from above that since August 2004, the CHPH at the SSP has produced power in every single month, except January 2005. In January 2005, CHPH could not generate power due to breach in the SSP main canal and attendant repairs. The RBPH did produce 20.97 MU power in that month. This means that every month since August 2004, the level of water in the SSP reservoir has been above 110.2 m and there has been sufficient water in the upstream of the dam for power generation.

[160] Thakkar, H. (2007). SSP: Mounting Costs, Minimal Benefits, *Dams, Rivers and People*, 5 (10-11), p. 15-18.

TABLE 14

Power Generation by Sardar Sarovar and Indira Sagar Projects

Million Units (Mega Watt)

Month/ Year	Sardar Sarovar Project			Indira Sagar (Installed Capacity)
	RBPH (IC)	CHPH (IC)	Total (IC)	
0104	0	0	0	55 (250)
0204	0	0	0	71 (250)
0304	0	0	0	66 (250)
2003-04	**0**	**0**	**0**	**192**
0404	0	0 (050)	0 (050)	29 (500)
0504	0	0 (050)	0 (050)	23 (500)
0604	0	0 (050)	0 (050)	76 (500)
0704	0	0 (050)	0 (050)	95 (625)
0804	0	4 (150)	0 (150)	326 (625)
0904	0	33 (200)	0 (200)	280 (625)
1004	0	38 (200)	0 (200)	100 (750)
1104	0	26.62 (200)	0 (200)	114.46 (750)
1204	0	26.14 (200)	0 (200)	90.01 (875)
0105	20.97 (200)	0 (200)	20.97 (400)	89.35 (875)
0205	53.87 (200)	12.55 (200)	66.42 (400)	74.17 (875)
0305	35.88 (200)	10.01 (200)	45.89 (400)	46.93 (875)
2004-05	**110.72**	**149.98**	**260.70**	**1348.76**
0405	17.92 (400)	1.69 (250)	19.61 (650)	25.58 (1000)
0505	17.02 (400)	2.73	19.75 (650)	23.34
0605	103.82 (400)	10.05	113.87 (650)	112.92
0705	217.69 (400)	18.95	236.64 (650)	489.95
0805	200.20 (600)	22.30	222.50 (850)	483.90
0905	245.40 (600)	29.93	275.33 (850)	379.62
1005	304.57 (600)	16.35	320.92 (850)	267.72
1105	209.91 (800)	17.52	227.33 (1050)	190.19
1205	143.49 (800)	20.51	164.00 (1050)	190.84
0106	147.94 (800)	19.54	167.48 (1050)	167.66
0206	114.5 (1000)	16.92	131.42 (1250)	133.37
0306	30.40 (1000)	32.26	62.66 (1250)	98.88
2005-06	**1752.86**	**208.65**	**1961.51**	**2575.97**
0406	0	12.05	12.05	115.12
0506	75.3	6.94	82.24	103.29
0606	200.43 (1200)	8.85	209.28 (1450)	137.81
0706	278.22	22.31	300.53	127.54
0806	563.16	15.00	578.13	467.63
0906	602.03	22.12	624.15	227.59
1006	505.20	19.31	524.51	260.78
1106	459.64	22.16	481.80	393.66
1206	365.81	21.28	387.09	324.90
0107	193.39	28.86	222.25	261.37
0207	79.15	25.53	104.68	94.33
0307	49.74	24.68	74.42	91.67
2006-07	**3372.04**	**229.09**	**3601.13**	**2605.69**
0407	126.74	24.50	151.24	91.67
0507	72.65	12.93	85.58	101.87
0607	214.98	9.77	224.75	135.34
0707	796.60	34.95	831.55	529.42
0807	788.86	50.83	839.69	441.52
0907	587.00	15.85	602.85	178.12
1007	329.51	19.52	349.03	250.52
1107	338	21.87	359.87	283.12

f. This is further substantiated by the figures in the last column in the above table, where the power generation at the upstream Indira Sagar Project on Narmada in MP is tabulated. Here again, we can see that ISP has been producing power every single

month since January 2004, when power generation at ISP was commissioned. It should be noted here that ISP has a greater storage capacity and releases water into the river after power generation, most of which is available at the downstream SSP. Thus regulated, predictable water has been available at the SSP every month (actually every day), for release into the canals and to be used for irrigation or water supply in Gujarat since August 2004 at least, when the first unit of CHPH was commissioned.

g. Moreover, given the huge water storage of 3665 MCM at 110.64 m and 2600 MCM at 100 m. The SSP has been using that water since 2000-01, first by pumping water from existing reservoir into the canal, then since August 2002 through Irrigation By Pass Tunnel (IBPT) and since August 2004 through CHPH and this water has been used for water supply and irrigation, besides allowing the water to flow into rivers like Sabarmati and into lakes in Gujarat.

h. In 2005-06, CHPH produced 208.65 MU of power. This means that if on average the reservoir level remained around 111.64 m (it could have gone up slightly some times in monsoon and could have gone down slightly in summer) and if power generation efficiency is assumed as 90% (that is 90% of potential energy is converted into power) meaning at least 3.8 MAF water had flowed into the SSP canal during 2005-06 even if no water had passed through IBPT. In fact the efficiency is more likely to be about 80%, in which case, at least 4.28 MAF water had flown into canals during the year. This is even more than the 3.5 MAF water claimed by Gujarat when the clearance was given to increase the height of the dam to 110.64 m. And this water was available almost on daily basis. However, It means that around 10% of this water has been used, as is clear for the figure of area irrigated in 2005-06 (stagnated at 1.53 lakh ha) and "drinking water" supply provided during 2005-06 (2044 villages and 54 towns).[161]

4. Cost and Tariff: What do Participant States Get?

There have been gross irregularities in fixing the power tariffs for all the 3 States by SSNNL. While the SSNNL sells power to Gujarat Urja Vikas Nigam Limited at the rate of Rs. 2.05 per unit, and a recent tariff application by NVDA before MP Electricity Regulatory Commission is asking for a tariff stipulation at Rs. 2 per unit, as stated in an order by Maharashtra Electricity Regulatory Commission, Maharashtra has indicated a single-part tariff of Rs. 4.18 per unit for power purchased from the SSP. Juxtaposing this tariff with the average cost of power purchased by Maharashtra for the Fiscal Year 2005-06, Ravi Kuchimanchi writes, "In FY 2005-06, the *Maharshtra State Electricity Company* purchased 17062 MU of electricity at a total cost of Rs. 3263 Crore. This works to Rs. 1.91/unit. However the *Maharshtra Electricty Regulatory Commission* noted, "the power purchase cost of Rs. 3263 Crore excludes the cost of power purchase from the Sardar Sarovar Project and the GoM has indicated a single-part tariff of Rs. 4.18/unit for purchase from the Sardar Sarovar Project". While on an average electricity costs Rs. 1.91/unit, the SSP's power costs Rs. 4.18/unit."

The Socio-Economic Review of Gujarat for 2006-07 stated, "Total power generation upto the end of September 2006 is approximately 402.00 crores units. Whereas upto the end of December 2006, total power generation is 540 crores units. The generated power is being sold to Gujarat Urja Vikas Nigam Limited at the rate of Rs. 2.05 per unit."

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[161] Statement by P.A. Gadani, Member Secretary, Gujarat Water Supply and Sewerage Board in Deep Flow, *Down To Earth*, 15 May 2006.

One is unable to understand why MERC is purchasing costlier power from the SSP? Or in other words what is the rationale used by the SSP to charge differential power tariffs from MP & Maharashtra who are claiming most of the power benefits and are paying high costs on their submerged areas by rehabilitating the oustees from their states.

CONCLUDING OBSERVATIONS | 3

The cost and benefits of the SSP still remain highly contentious. Given the progress made with respect to the height of the dam, it was possible for the project to deliver irrigation, power and drinking water services at a higher level, as compared to the benefits delivered. Thus the challenge is to rehabilitate the people already displaced, while investing efforts too deliver full benefits possible at the height of dam.

ALTERNATIVE TO INSTALLING RADIAL GATES

Thus, the central question is: what can be gained by limiting the height of dam at its current level. The question of what alternatives are available to arrive at the benefits that are supposed to accrue when the dam attains the FRL of 138.68 m? It is important to look at the potential benefits of raising the height, in the backdrop of what has been achieved by raising the height to 121.92 m. Even looking at the performance on irrigation and drinking water as outlined by Socio-Economic Reviews, Performance Audits carried out by the CAG, and citizens' monitoring of the Narmada-based drinking water pipeline project, the conclusion is that it is important to limit further damages.

We also need to engage with this issue in the backdrop of how several alternatives and options to the SSP have been proposed right from the early 1990s and how have these alternatives been responded to so far. An in-depth analyses in 1994 concluded that the height of the SSP could be lowered to 400 feet. In September 1994, soon after the petition was filed in the Supreme Court (May 1994) but before the construction was stayed, a meeting was organised by the All India People's Science Network and the Jawaharlal Nehru Memorial Museum and Library in New Delhi to discuss alternatives from a primarily technical point of view. Participants included members of the Planning Commission, the CWC and the CEA; and those who were in office when the project was under design and construction. The Hindu Survey of Environment, 1994 carried an article by Girish Sant and Amulya K.N. Reddy who argued how the power component of the SSP was an inefficient plan and doubted the justification for increasing the height of the SSP dam for power generation. On 11 October 1993, while presenting their proposal before the Planning Commission, they had also simultaneously put forth a systematic analysis of alternative sources of energy, which were much cheaper than the SSP for the power generation component of the project.[162] The article compared the SSP with 8 selected supply and demand side alternatives and suggested that if evaluated from the perspective of an integrated least cost plan, the power component of the SSP does not turn out to be an attractive option:

> the final 19 feet increase in FRL (436 to 455 feet) was made to avoid CHPH from lying idle for less than a month per year. This increase is not at all essential for irrigation purpose. This increased height will result in marginal increase in electricity generation, to the tune of 300 to 400 Million Units per year.

Another assessment in 1995, put forward a proposal for restructuring the SSP. Five years and later, and shortly before the dam height was raised to 121.92 m, it was argued that

[162] The article can be downloaded/ read online at http://prayaspune.org/peg/publications/power_from_sardar_sarover_001A01.pdf

there is no need to raise the height. Both the proposals suggested that by restructuring canal structures and institutional framework in irrigation distribution, Gujarat can utilise 9 MAF water even with a height of 110 m (307 feet). They had also proposed the "Run of the River" model for power generation.

However, after the majority verdict by the Supreme Court, the Government seems to look at the SSP dam with the FRL at 455 feet as a *fait accompli*. Though there have been articulations on the alternatives and critiques of the way the SSP dam wall kept rising, these issues have not generated much debates and dialogues.

Moreover, each of the Judgements of the Supreme Court (1991, 2000, 2002 and 2005) in Narmada Bachao Andolan versus Union of India, Gujarat, Maharashtra and Madhya Pradesh and various Interim Applications, the Court has directed implementation of the NWDTA (R&R Policy) and take all measures prior to submergence. It, therefore, follows that in the prior situation of non-compliance (even if partially) on almost every aspect, the Dam height cannot be raised and submergence cannot be increased. Rather, who will be held responsible for the violations in the past years, which pushed the Project, the Dam ahead and ignored the affected people and the nature is the question. The same is also before the Supreme Court in the form of contempt cases filed against the various authorities, including the NCA by the affected people.

A PLEA TO RECONSIDER

The expert analysis on the power component of the SSP suggests power generation loss if the dam height could be frozen at 121.92 m. Experts who have worked on least costs integrated energy planning have stated in their opinion,[163] "For the same amount of water that passes through RBPH, the power generation would be 13.06% less if the height is frozen at the current level, compared to say FRL at 138.68 m, assuming riverbed level is 18 m". Again the conventional power generation that is proposed in the SSP would keep decreasing as the irrigation command area expands. So, as the irrigation command area goes on expanding, the marginal loss of power generation that could have potentially been added would keep going down from 13.06% to zero. By keeping the height at 121.92 m, participant states will not face a huge loss in power generation.

While in the event of freezing the dam height at the current level, the power generation loss would be marginal to zero, this decision would reduce the social costs and ecological impacts drastically, by reducing the submergence land by more than 20,000 ha (more than 30%), the number of oustee families by at least 30,000 (approximately). This provides the GoG resources to address the ecological concerns in the command area and improve drinking water and irrigation coverage. This option also provides the participant State Governments the capacity to address the previous non-compliances on social and ecological liabilities and provide for land-based rehabilitation of those who face submergence at the current height as per the NWDTA's binding rehabilitation conditions, as well as explore other least cost energy options.

[163] Personal communication with Girish Sant (of Prayas Energy Group, Pune) and Himanshu Thakkar (of South Asia Network on Dams, Rivers and People).

APPENDICES

APPENDIX 1: CHRONOLOGY OF EVENTS

Phase I: Initial Studies to Harness Narmada Waters

1940s & 1950s: The first plans to harness the waters of the Narmada were initiated by the Indian bureaucracy in 1945-46 by Dr. A.N. Khosla, the then Chairperson of the Central Waterways, Irrigation and Navigation Commission (CWINC). Correspondingly, the first investigations for comprehensive planning on flood control, irrigation, power and extension of navigation were initiated in 1946-47. The following year, the Central Ministry of Works, Mines & Power (CMWMP) appointed an ad hoc committee, which carried out preliminary estimates and recommended that detailed studies be conducted for 4 of the 7 sites proposed: the Bargi, Tawa and Punasa (now named the Narmada/Indira Sagar dam) projects in MP and Broach Barrage and Canal project (now the SSP) in what was then Bombay state. In 1956, a report was prepared by Central Waterways and Power Commission (CWPC, formerly known as CWINC) for construction of a weir at Gora with pond level of 160 feet for irrigation purposes. In February 1957, the Gora site was further inspected by design and research members who proposed further analysis at a site 1.5 miles upstream at Navagam. In January 1959, the CWPC forwarded its report for the revised Broach Irrigation Project at Navagam to the Government of Bombay. Implementation was to proceed in 2 stages: in the first stage, the dam was to be built to a FRL of 160 feet with provision for wider foundation to enable raising the height to an FRL of 300 feet in the next stage. However, the Government of Bombay proposed raising the FRL to 320 feet, to allow for construction of a power house at the head of the low level canal and in the riverbed.

1960s: On the CWPC accepting this proposal, the Ministry of Irrigation and Power of the GoI appointed a consultant team, which submitted its report in April 1960, proposing the Navagam Dam to be constructed with an FRL of 320 feet in only one stage. The consultants also suggested that irrigation be extended to the drought-prone Saurashtra and Kutch regions, a suggestion that was soon to become a critical factor in the justification and controversies surrounding the Sardar Sarovar. On 5 April 1961, the then Prime Minister Jawaharlal Nehru inaugurated the Broach Irrigation and Power Project at Navagam. At that time, the first 6 villages were commandeered for Kevadiya colony. The impacts on those displaced were not examined and the people were not informed of the impact or any policy of rehabilitation. Neither was a policy for resettlement and rehabilitation formulated, nor was any compensation awarded for loss of lands and livelihoods.

Soon after, the GoG initiated studies for utilising the flow of the Narmada below the Punasa site, and arguing for a higher dam. Simultaneously, the GoMP was planning a higher dam at Punasa with a larger irrigation command. An intense conflict arose over the sharing of waters, because the sum of the competing plans could not be sustained by the hydrology of the Narmada. In an attempt to resolve the impasse, the Ministry of Irrigation and Power, of the GoI appointed a high level committee headed by Dr. A.N. Khosla in September 1964. This committee recommended a height of 500 feet for Navagam dam to

prioritise the requirement of irrigation water for arid zones in Gujarat and Rajasthan over power.[164]

Phase II: Inter State Conflicts and the Narmada Water Disputes Tribunal (1969-79)

The inter-state conflicts were far from resolved by the NWRDC. Several meetings held between the representatives of the State Governments to break the deadlock did not lead to a mutually agreed solution to the dispute. By July 1968, the GoG petitioned for the appointment of a Tribunal to adjudicate the conflicts over the Narmada under the Inter State Water Disputes Act (1956). The NWDT was constituted in 1969; it took the NWDT 10 years to pass the Narmada Water Disputes Tribunal Award (NWDTA) apportioning the Narmada waters between 4 states; allocating power and irrigation benefits; fixing the height of the SSP at 138.68 m (or 455 feet); and laying down binding rehabilitation clauses by promising oustees cultivable and irrigable land for their submerged land and alternative housing with civic amenities for loss of dwelling. These rehabilitation entitlements were progressive due to the emphasis on land-based rehabilitation, continued support through grants and financial assistance, relocation of communities as units to "rehabilitation villages" and stressing that under no circumstances could submergence precede rehabilitation. However, as Sanjeev Khagram discusses in his book, *Dams and Development: Transnational Struggles for Water and Power*, 3 problems quickly emerged:

> First, the tribunal had no oversight or authority over the implementation of the award, and the bureaucratic machinery that was stipulated to execute the projects depended ultimately on the cooperation among the state and federal governments. Second, the question of what to do with encroachers on State-owned forest and wastelands (of whom many were tribal peoples who did not have land titles) was not explicitly addressed. Finally, the award specified the R & R package for the displaced of Maharashtra and MP, and for the GoG's assistance to those states, but made no mention of the package to be offered to those to be displaced from submergence villages affected by SSP in Gujarat itself.

Phase III: World Bank Enters the Fray (1985)

In November 1979, even prior to the Tribunal's final award declaration, the GoG had played host to the first reconnaissance mission of the World Bank. However, the appraisal of the SSP by the World Bank had not evaluated the R&R component, as Michael Cernea wrote, "During 1982-83, four bank missions, two each for pre-appraisal and appraisal were mounted, but none of them appraised the resettlement component".[165] During July 1983, the World Bank sent 3 letters to the Federal and State Governments in India urging the need for comprehensive R&R plans. In September 1983, Thayer Scudder, an expert on resettlement issues from the California Institute of Technology was contracted by the World Bank to lead a resettlement appraisal mission. Scudder returned with a highly critical report. He specifically criticised the State Governments' ignorance regarding the real scale displacement and the absence of a rehabilitation plan. He believed that the State Governments were not committed to comply with rehabilitation stipulations of the NWDTA.

The next prominent series of events was negotiations for credit and loan agreements between the GoI's Ministry of Finance and the World Bank in November 1984 and January

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[164] Khosla, A.N. (1965). Report of the Narmada Water Resources Development Committee, New Delhi: Ministry of Irrigation and Power, Government of India.

[165] Cernea, M. (1986). Involuntary Resettlement in Bank Assisted Projects: A Review of the Application of Bank Policies and Procedures in FY 79-85 projects, Agriculture and Rural Development Department, The World Bank, ii.

1985 resulting in the World Bank decision in May 1985 to provide US$ 450 million to finance the construction of dam and canal network. The credit and loan agreements were signed even before the examination of economic and financial feasibility was carried out by the Planning Commission and cost estimates were accorded approval as well as environmental impact assessment was undertaken, legally required environmental clearance was granted and diversion of forest land for non-forest use was permitted.

The Planning Commission accorded investment approval to the project in October 1988 for Rs. 6,406.04 crores at 1986-87 price levels. Environmental clearance was denied to the project in 1983. In April 1987, construction work on the main dam began. But, after considerable correspondence between the Union Ministry of Water Resources and the Ministry of Environment and Forest, the *conditional* environmental clearance was accorded to the project on 24 June 1987.

Phase IV: World Bank Funding Comes to End (1993)

In 1985, the Narmada Bachao Andolan (NBA), an organisation of people getting affected by SSP began work in submergence villages by disseminating information regarding the project and people's legal rights for rehabilitation. Till 1988, the NBA in their constant dialogues with the Government assessed the possibility of rehabilitation. However, the NBA also maintained that all the people affected by the projects must be rehabilitated in compliance with the NWDTA and until that happens, the dam construction must not be taken ahead. In 1988, when its experience illustrated that State Governments were not committed to resettling all those affected by the projects, the NBA took the 'No Dam' stand. Since then the NBA demanded that projects be reviewed in every aspects: environmental, social, economic, archeological and seismic. Simultaneously, the NBA independently reviewed every component of the project with the help of experts and non-governmental agencies. As a result, it also opposed the World Bank and its contribution to the illegal advancement of the project.

In November 1990, Dr B.D. Sharma, the then chairperson of National Commission for Scheduled Castes and Scheduled Tribes wrote a letter to Supreme Court regarding lack of proper rehabilitation of oustees of the SSP. This letter was treated as a writ petition (1201 of 1990) under article 32 of the Constitution. On 20 September 1991, the Supreme Court gave directions to constitute a committee headed by the Secretary (of the Ministry of Social Justice and Welfare) to monitor the rehabilitation aspects of the SSP.

During the late eighties and early nineties, the SSP faced immense resistance and critique that led to the World Bank commissioning an Independent Review headed by Bradford Morse and Thomas Berger. In June 1992, after an extensive review, the Independent Review Committee asked the World Bank to "step back" from the SSP, noting that "the underlying difficulties – the failures that reach back to the origin of the project – cannot be overcome by patchwork of studies".

The October 1992 meeting of the Bank's executive directors witnessed several calls for the suspension of loans. However, the majority voted to *continue*[166] financing the project, and authorised management to proceed with a *six-month action plan* to address the environmental and resettlement problems. Six months later, when the conditions of the action plan had not been met and it became clear that the Bank would have to withdraw from the project, the GoI announced that it wished to cancel the remaining balance on the loan.

Phase V: Five Member Group Review by GoI (1993-1994)

On 5 August 1993, the Union Water Resources Ministry appointed the Five-Member Group to be headed by Dr Jayant Patil, member Planning Commission; Dr Vasant Gowarikar, Mr Ramaswamy Iyer, Mr L.C. Jain and Dr V.C. Kulandaiswamy to review the project. However, project authorities soon whittled down the committee's mandate and pro-dam groups in Gujarat approached the Gujarat High Court to set aside the Ministry's memorandum and restraining the Government from releasing the report to the public.[167] The High Court passed an order in October 1993, which substantially restrained the government from releasing the report to the public.

In the meanwhile, in November 1993, project proponents announced an issue of high interest bearing Deep Discount Bonds to raise Rs. 300 crores through market borrowing. These bonds had a long maturity period and at the expiry of 20 years (i.e. in January 2014) return to be paid to investors itself amounted to be higher than the project cost of Rs. 6406 crores, but that point was conveniently missed in euphoric propaganda that had made the SSP some sort of "an article of faith".

In April 1994, the NBA filed the writ petition in Supreme Court challenging the SSP on various issues including rehabilitation, environmental impacts, economic and financial viability, etc. It also challenged the Gujarat High Court Order restraining releasing the FMG report to the public. The Supreme Court eventually called for the FMG report on 15 November 1994 and allowed the report to be made public in December 1994.

Phase VI: Dam Construction Gets Stopped and Stayed (1995-1999)

The construction work on dam wall (spillway) was stopped at a height of 80.3 m by the NCA in January 1995, at the insistence of the GoMP. This was triggered following the State Assembly taking a unanimous decision to this effect, after 26 days of fast by representatives of the NBA on 16 December 1994. While the Supreme Court had first declined to stop the work on dam in May 1994, a year later, in its order dated 5 May 1995; endorsed the NCA decision to suspend the work on the spillway and maintained this stand for nearly 4 years. However, even as construction work on the spillway was stopped, the project authorities continued other dam-related works and following protests and agitations as well as legal arguments against such construction works, the Supreme Court in its order in April 1996 mandated a stay on all dam-related works. Once again, in a

[166] This was to be the first of many instances of allowing some 'reasonable' time frame to the proponents of the project 'to put the house in order' without taking the step of stopping the finance or ongoing construction. The latest instance being the appointment of the 3-member Over Sight Group headed by former Comptroller and Auditor-General of India, V K Shunglu.

[167] Special Civil Application No. 9366 of 1993, *Narmada Abhiyan and others Vs Union of India and others.*

strongly-worded statement given at the February 1997 hearing on the case, the Supreme Court judged that State and Federal Governments cannot move ahead with any construction on the projects as long as resettlement and rehabilitation of the project-affected persons was not carried out and as long as required studies, plans and mitigation efforts on environmental impacts were not completed.

The matter before the Supreme Court was heard with numerous affidavits, counter affidavits, submissions and studies being submitted. The Supreme Court, during the course of the hearing, denied pleas of the GoG and others to vacate the stay and allow further construction of the dam.

Phase VII: Supreme Court's Nod to Go Ahead and Dam Height Scales Up (1999-2007)

In an interim order in February 1999, the Supreme Court allowed the height to be raised to 88 m (85 m + 3 m humps). Subsequently, the matter was taken for final hearing, at the end of which it was reserved for judgment. On 18 October 2000, the Court gave a split verdict (2:1), with a majority – and thereby operative – judgment allowing the dam height to be raised to 138.64 m, but in stages after ensuring compliance with the NWDTA's provisions for rehabilitation and compliance with the environmental issues as required under the Ministry of Environment and Forest clearance conditions. While allowing the construction to proceed in the stages, the Court had reposed a considerable amount of faith on a condition, an innocent looking linguistic phrase called *pari passu*.[168] Minority judgment by Hon. Justice S.P. Bharucha, however, asked project authorities to seek environmental clearance afresh.

Soon after the dam wall started rising, and one and a half year later, project authorities clinched a clearance to raise the dam height from 90 to 95 m on 14 May 2002 by inventing further linguistic tyranny due to an arbitrary distinction between temporarily- and permanently-affected that led to diminishing number of PAFs in MP. The NBA filed a Public Interest Litigation in the Supreme Court in May 2002, challenging this decision and seeking that rehabilitation of all the affected people be carried out in complete compliance with the NWDTA and directions of the Supreme Court. The Supreme Court dismissed this petition on 9 September 2002 directing that PAFs, especially those aggrieved by not having been allotted land, could approach the GRA failing which the court.

Similarly, the dam height was raised to 100 m and to 110.64 m following a clearance in May 2003 and April 2004 respectively. In 2003, 23 adivasi PAFs from Jalsindhi and Pichhodi filed an Interim Application (IA) seeking directions from the Supreme Court to the GoMP to rehabilitate them in compliance with the NWDTA and the Supreme Court issued notice to the GoMP on February 5, 2004.[169]

Following the order of the GRA in September 2004, the Supreme Court gave a judgment on 15 March 2005 that was critical of the resettlement and rehabilitation process and

[168] A phrase that means 'side by side', first occurs in the discourse when the environmental clearance was awaited. This phrase envisaged that construction work will *not outpace* environment mitigation measures and completion of rehabilitation of all oustees. In other words, it had envisaged that the pace of construction will be determined by the pace of environmental mitigation measures and rehabilitation of oustees and not the other way round. As we have discussed below, even the supplementary agreement with Jaiprakash Associates that SSNNL entered into within 2 months after the Supreme Court verdict was violating *pari passu* condition.

[169] 'Notice to MP on Dam Oustees' Plea', *The Times of India*, February 6, 2004.

reiterated the binding nature of the rehabilitation clauses of the NWDTA, by ruling that State Governments have to rehabilitate the "temporarily affected" PAFs, major sons and unmarried daughters. The judgment also reiterated the "land for land" rehabilitation and lamented the SRP mechanism. Subsequently, when even after this rehabilitation judgment with cultivable and irrigable land remained far from getting realised, 42 PAFs from various villages filed an Interim Application (IA) in Supreme Court.

However, even as this case was before the Supreme Court, on 8 March 2006 project authorities once again clinched the clearance to raise the dam height to 121.92 m. The Union Water Resources Minister immediately decided to review the decision.[170] While this led to intense debate over the state of resettlement and rehabilitation, political expediencies put a haze over the discourse. Although the construction stopped at 119 m at the onset of monsoon, by December 2006 the dam height was further raised to 121.92 m. In January 2007, oustees sought early hearing on the contempt petition filed by them in the Supreme Court. On 10 April 2007, during a hearing on the petition, the apex court asked 3 participant states and Central Government to file a status report on rehabilitation within 3 weeks.

Present Day Impasse: Scaling Height, Rising Costs and Diminishing Benefits

The year of 2007 has witnessed repeated efforts by project proponents – some of those even before they carried out inspection of status of radial gates that are lying in stockyard at the dam site for the last 15 years[171] – to get the clearance to install the radial gates. On 11 September 2007 an Inspection report on the *corrective measures and testing required for bringing in ready to fit condition Radial Gates, Hoist and Stoplog Gate parts for spillway of the Sardar Sarovar Dam* was prepared and posted on the SSNNL's website.[172] The report mentioned that certain parts have shown incipient rusting. At the end of the report the SSNNL invited Express of Interest for the remedial measures outlined in the report. As of now, there is no information in the public domain informing citizens about the latest status of the radial gates and other parts that are lying at the stock yard for the last 15 years. A decision to install radial gates, if taken, can increase the height further to 138.64 m, and will exponentially submerge more than 20,000 ha of land affecting more than 15,000 PAFs, even by conservative estimates. Hence, it is essential today for policy makers, citizens and academicians to pause and critically examine costs, impacts and benefits of the SSP and not go for raising the height further before looking into the implications. This Report brings together the data and happenings on each aspect of the project from various official documents, reports by committees, expert groups and people's movements as well as official monitoring agencies to conclude on the present status, reasoning as also future concerns and questions.

While this is an initial report, it takes an overall assessment of the costs incurred and benefits gained by comparing those with claims put forth by the project proponents.

- If the budget speech by the Finance Minister of Gujarat is any indication, the statements on expenditure incurred during 2001-06 are all to boast achievements,

[170] Parsai, G. (2006). Centre Puts on Hold the Decision on Narmada Dam, *The Hindu*, March 11, 2006.

[171] Work on SSP Radial Gates after Monsoon, says NVDA official, *The Indian Express*, May 4, 2007; and Gujarat Demands Approval for Raising Dam Height, *Deccan Herald*, May 28, 2007.

[172] The said pdf file was accessed from http://www.sardarsarovardam.org/Inspection_corrected.pdf

but the fact that almost 53% of that has gone to finance debt repayment is conveniently ignored.

- At the time of raising the height to 121.92 m, it was claimed that 3.5 lakh ha of additional land will be brought under irrigation. However, data from the Socio-Economic review of last 2 years indicate that the irrigation utilised from the SSP has stagnated at 1.53 lakh ha.
- On power generation, while the claim was made that the raised height will generate 350 crore additional units of power, data from the CEA reveals that actually only around 55 crore additional units can be attributed to "raising of the height".
- On drinking water, even as claims were being made to supply Narmada water to more villages and towns, the SSNNL's reply to a query by the CAG audit revealed that the allocation to industries was revised from 0.20 MAF to 1.00 MAF, i.e. a five-fold increase. In contrast, 3 performance appraisals revealed that both in terms of capacity utilisation and villages covered the performance has remained at 29-33% only for the districts surveyed.

Reading of the rehabilitation status reported by authorities revealed that the trend of reducing the affected families to mere numbers that can be manipulated is continuing unabated. More and more PAFs, who had been previously claimed as "allotted land from government land bank", are being taken off that list and added to the list of those who opted for the "Special Rehabilitation Package (SRP)," which is "cash for land" instead of land-based rehabilitation as mandated by the NWDTA. The fundamental requirements of land-based rehabilitation have not been complied with in MP, while mechanism such as the SRP is creating social turmoil. Recently, there have been news reports quoting the NVDA press releases claiming that the rehabilitation of all PAFs affected at the FRL has been completed. This is incredulous to say the least. Official government reports by the NCA themselves record that less than 3,000 families have shifted to R&R sites. The authorities are yet to ascertain the extent of the submergence area. A sub-committee has been constituted to carry out backwater calculations at the MWL. While surveys to identify lands that will be rendered marooned is yet to be carried out in MP and Gujarat. An urgency is felt to remind about the breach of undertaking given in the court, while raising the height of the Almatti Dam. It is unfortunate that the ongoing survey on backwater level at MWL of the SSP by CWC has still not been completed and shared publicly.

One is shocked to witness that even before dam authorities take note of these glaring shortfalls, affected people are already being served eviction notices. At NCA meetings, the authorities are asked to carry on rehabilitation as per 'available' backwater levels and submission of Action Taken Reports for those affected at FRL is allowed. There are lessons to be learnt from the Almatti Dam, where waters rose higher than the FRL (despite an undertaking in Supreme Court) that caused unprecedented submergence in Maharashtra in July and August 2005. In the backdrop of this, the decision to allow further raise in the height of the SSP cannot be taken, until estimation of affected people at backwater level of MWL is done and rehabilitation is ensured to all the affected persons *six months before the submergence*.

APPENDIX 2: EXTRACT FROM DIRECTIONS REGARDING SUBMERGENCE, LAND ACQUISITION AND REHABILITATION OF THE DISPLACED PERSONS

XI Directions regarding Submergence, Land Acquisition and Rehabilitation of the Displaced Persons

Sub Clause I Definition

Oustee: An 'oustee' shall mean any person who since at least one year prior to the date of publication of the notification under section 4 of the Act (Land Acquisition Act), has been ordinarily residing or cultivating land or carrying on ant trade, occupation, or calling or working for gain in the area likely to be submerged permanently or temporarily.

Family: (i) a family shall include husband, wife, minor children and other persons dependent on the head of the family. (ii) Every major son will be treated as a separate family.

Sub Clause IV Provision for Rehabilitation

IV (2) (iv) Gujarat shall acquire and make available a *year in advance of the submergence before each successive stage*, irrigable lands and house sites for rehabilitation of the oustee families from MP and Maharashtra who are willing to migrate to Gujarat.

IV (6) (i) In the event of Gujarat being unable to resettle oustees or the oustees being unwilling to occupy the area offered by Gujarat, MP and Maharashtra shall make such provisions for rehabilitation, civic amenities etc on the lines mentioned in Clauses IV (1) to (4). Gujarat shall in that event , be liable to pay all such expenses, costs etc. arising out of or connection with rehabilitation and provision of civic amenities for the oustees including the cost of all acquisition proceedings and payment of compensation etc. as per the Land Acquisition Act, for the land allotted to oustees, for cultivation and habitation.

IV (6) (ii) In no event shall any areas in MP or Maharashtra be submerged under the Sardar Sarovar unless all payment of compensation, expenses and costs as aforesaid is made for acquisition of land and properties and arrangements are made for the rehabilitation of the oustees there from in accordance with these directions and intimated to the oustees.

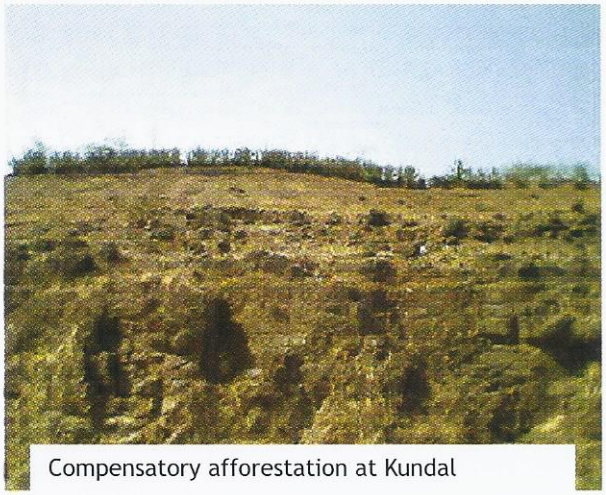
IV (7) Allotment of Agricultural lands: every displaced families from whom more than 25% of its land holding is acquired shall be entitled to and *be allotted* irrigable land to the extent of land acquired from it subject to the prescribed ceiling in the state concerned and a minimum o bf 2 ha (5 acres)

V (3) (iii) Gujarat shall at each successive stage of submergence intimate to MP and Maharashtra the area coming under submergence at least 18 months in advance. The inhabitants of the area coming under the respective stages of submergence will be entitled to occupy or use their properties without being required to pay anything for such occupation and use till a date to be notified by the State concerned which date shall *not be less than six months before submergence*. They must vacate the area by the notified date.[173] (emphasis supplied)

[173] Decision of the Narmada Water Dispute Tribunal as Modified by the Explanations and Guidelines Given in its Further Report. Final Order and Decision of the Tribunal. New Delhi. Ministry of Agriculture and Irrigation, Government of India.

APPENDIX 3: CASE STUDIES
1: The Performance of Compensatory Afforestation Activities

In the following paragraphs, the findings from field verification by the NBA on a few sites where compensatory afforestation activities were carried out are reported. The data on the said compensatory afforestation sites, as per NCA documents, is presented in Table 7.



Compensatory afforestation at Kundal

At Kundal, compartment no 41, a government signboard states that compensatory afforestation was carried out in 1993, with 1,87,500 plants planted over 75 ha of land out of 112.35 ha. The Government has failed to guard and care for the plants, with the result that at present there is not a single plant growing other than ones at the borders.

At Bahadurpura, on the stated survey number claimed to be under Compensatory Afforestation, there is a sugar mill run by the Jawaharlal Nehru Agricultural Produce Processing Co-operative Societies, for the last 4 years.

At Bardevla I, about 1200-1400 trees are standing which shows survival rate of 7-8%, while on the other two sites at Bardevla, no tree is visible and only 50-100 cut off trunks and stumps were found, indicating zero survival rate.

At Maharajkhedi, none of the plants by the NVDA (Kaveri CAF range, Khandwa) has survived, while the signboard stands mocking the claims on compensatory afforestation in Government records and ESG minutes.

At Khadaki, there are only about 2000 plants in single patch, while the rest of the land is lying barren indicating a survival rate of 2 %.

At Semalya Khodara, the survival rate is not more than 12%. Around 3000 plants that were put by community are standing, while the rest are the one survived from plantation.



At Silavad/Raychulee there are no plants

At Silawad/ Raychulee compensatory afforestation was carried out on 86 ha land with survey numbers 515/1, 438/1, 349/1 and 334/1. On survey numbers 515/1, 438/1 there is not a single plant. The entire stretch of land is lying barren. Survey number 334/1 is 3.875 ha of land where around 1000 plants are standing. While survey number 349/1 is a hilly land without any plants. A local farmer named Burla Rustam has staked a claim for having planted whatever trees are seen at the lower reaches of the hill to Badawani collector and asserts that none of the plants were planted by NVDA or forest department.

2: Poor Drainage Planning Impacts Command Area



A news release from UNI on 3 August 2004 reported that at least 7 villages in Pavi Jetpur and Sankheda talukas of Vadodara district were inundated as the flooded Narmada Main Canal had been breached at 2 locations near Bodeli, rendering hundreds of villagers homeless. This was all the more surprising, as there were no corresponding reports of heavy rainfall in the catchment areas of the Sardar Sarovar, nor any reports of the Narmada river being in spate upstream of the Sardar Sarovar Dam due to release from upstream dams. The likely explanation for all this was that the canal was breached because of heavy rainfall locally – this might have caused the Heran river to overflow – but could this have collapsed even the much-touted Narmada Main Canal? K.N. Rawal, a superintendent engineer, spoke to a journalist with *The Indian Express*, "Since the level of Narmada canal was at a lower level than Heran river and its Borda tributary, the excess water from the river flowed into the canal, thus *helping in receding the water level in the river and its tributary*." He, however, did not attempt to give a thought to a probable scenario if the Narmada Canal was also carrying thousands of cusecs of water.

A stream of the Heran river flows under the canal in the vicinity of Borda village through concrete siphons. Two kilometres upstream from this point is an abandoned irrigation infrastructure from Nehruvian socialist India – the Heran Dam. The highest flood levels in the river at this place were measured to be 197 feet in the year 1957 and 198 feet in 1967. The red marking of these levels – with the letters HFL – was still prominently visible, when we visited the site, as was the white marble embodiment declaring that the foundation stone for the project was laid down by the Public Works Minister of Bombay State in 1954. But there is no longer any capacity to hold 150 feet of water anywhere near this site. Decades of neglect has led to a build-up of silt that has gradually raised Heran's riverbed.

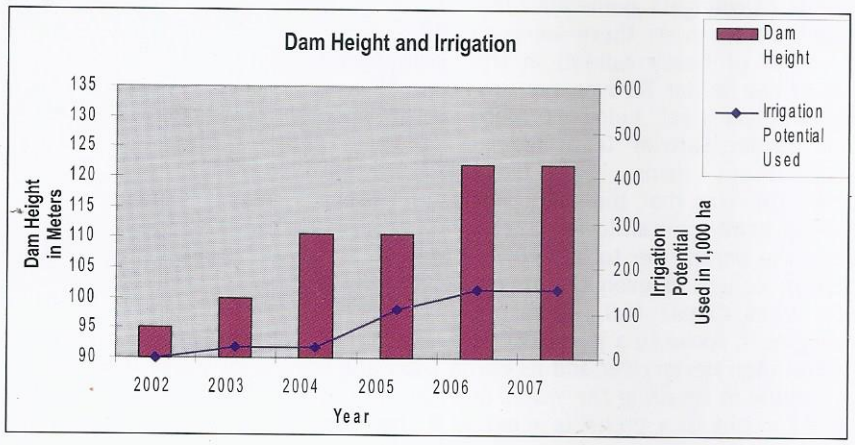
So that's how the canal was breached; the flood water from the Heran's tributary which should by design flow under the canal to its Western side had instead began pounding against the Eastern face of the canal due to silt blockage in the normal passage under the canal. When the siphons on the canal became choked this created an alarming artificial reservoir on its right bank, submerging the villages. Eventually, the tremendous pressure from the waters caved in the embankment of the main canal and tore apart its much-touted cement lining easily.

While this clearly showed that drainage planning in the vicinity of where Narmada Main Canal crosses the Heran river was inadequate, the correspondence from the SSNNL dated 27 December 2004 to the Director (Environment) NCA, claimed that it had *no adverse impact on the Command Area*. The letter stated, "It is to be mentioned here that occurrence of breach was found to be *beneficial as the canal drained off all flood water* and saved from any adverse impact on the Command Area. Further owing to rains, there was no irrigation going on and hence *no adverse impact on Command Area*".

The correspondence overlooked the critical detail that huge crop loss suffered by farmers was due to poor drainage planning, which made the main canal act as barrier for the flood waters. While planning a drainage siphon in the vicinity of a heavily silted up river basin and in the downstream of an outlived and abandoned irrigation dam required the SSNNL canal planners to be more cautious; the very first flood in the monsoon of 2004 caused a disastrous situation for farmers living in the vicinity. Still, without any introspection the SSNNL officials claimed "*no adverse impacts on command area*".

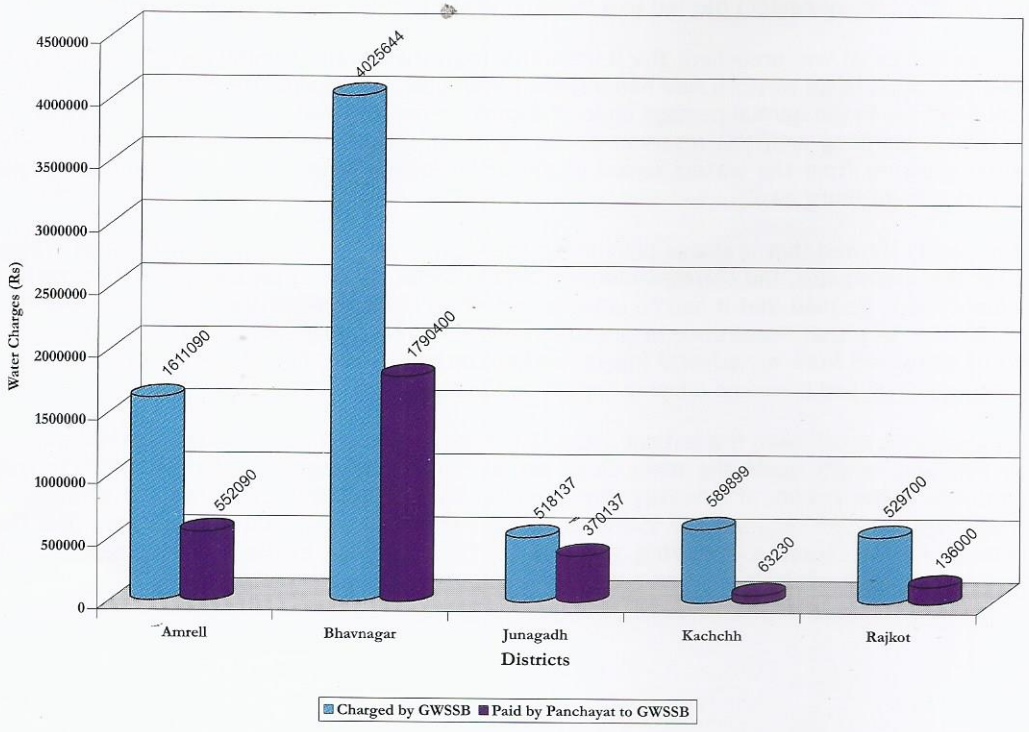
APPENDIX 4: GRAPHS

Figure 1
Dam Height and Irrigation Potential Utilised across Timeline



Source: Data from CAG audit reports and Socio Economic Reviews on Gujarat state

Figure 2
Drinking Water Charges



Source : Indira Hirway and Subhrangsu Goswami, 2006, Concurrent Monitoring of Drinking water pipeline project: A study of Narmada Based Project in Gujarat, Centre for development Alternatives, Ahmedabad, April, mimeo

The Tata institute of Social Sciences (TISS), Mumbai, was the official agency for Monitoring and Evaluation of Resettlement and Rehabilitation of people displaced in Maharashtra by the Sardar Sarovar Project from 1987 to 1994. While TISS moved out of its monitoring and evaluation role in 1994, it continued to track the progress made on various aspects of the SSP.

Currently at 121 m, at full reservoir level the dam will measure 142 m high when completed. It is this last stage, which is of immediate concern as it has serious social and environmental implications. However, State Governments that stand to benefit from the SSP as well as the Central Government are moving the Supreme Court and Narmada Control Authority for authorisation to raise the dam height. This situation spurred this study, which was undertaken with the objective to review and analyse the costs and benefits of the Sardar Sarovar Dam at the current stage, and its overall implications to the affected people and the nation.

This report is aimed at generating discussion and deeper analysis in the broader interest of the people and the nation — safeguarding the right to life of the people living and dependent on some of the most fertile lands in the country, and enabling the nation to enhance its food security. It is hoped that this report will bring about deliberations that will critically re-examine all these concerns and result in decisions and actions that best serve the country, its people and the natural environment.

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