

International Dimensions of Ethics Education in Science and Engineering Case Study Series

Narmada Dams Controversy – Case Summary

MJ Peterson with research assistance from Osman Kiratli and Ilke Ercan

Version 1; September 2010

The construction and maintenance of public facilities involves several sets of stakeholders: the political leaders who ultimately decide when, whether, and what to build; the engineers and other government staff who provide or oversee design, construction, and maintenance; the private firms supplying design, construction, or maintenance services; the taxpayers whose money will fund the project; the lenders who supply loan funds permitting the project to go ahead in advance of tax or toll collections; the users of the facility; and nearby residents. The question of which stakeholders should have what role and influence in the design, construction, and maintenance of public facilities has become more contentious as they have become larger and affected more people.

Proposals to construct large dams have inspired considerable contention in the last few decades as political mobilization of nearby residents who will be displaced by the reservoirs they create and of environmentalists concerned with the consequences of large dams for the river basin and nearby forests, wildlife habitat, or farmland have led to demands for greater public information and participation in project definition and design and greater transparency and accountability in construction, operation, and maintenance. Most dam projects proceed within a single country, meaning that stakeholders have to secure their influence within the national political system using whatever processes for citizen mobilization and input that system allows. Yet, some dam projects have transnational dimensions, either because the project itself involves more than one country or because the government hoping to build the dams needs loans from outside. These transnational aspects sometimes allow stakeholders unable to gain much influence in the national political processes to find outside supporters who pressure the government into listening to the previously ignored stakeholders.

This case study looks at one of the more famous instances of transnational involvement in stakeholder struggles over large dams, the long-running contention over dam construction on the Narmada River in India. Most of the controversy has addressed the size and construction of the Sardar Sarovar Dam at Navagam in Gujarat, but the Narmada Project also includes several large dams at various points in Madhya Pradesh as well as medium and small-size dams on the Narmada's tributaries in Madhya Pradesh and

This case was created by the International Dimensions of Ethics Education in Science and Engineering (IDEESE) Project at the University of Massachusetts Amherst with support from the National Science Foundation under grant number 0734887. Any opinions, findings, conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation. More information about the IDEESE and copies of its modules can be found at <http://www.umass.edu/sts/ethics>.

This case should be cited as: M.J. Peterson. 2010. "Narmada Dams Controversy." International Dimensions of Ethics Education in Science and Engineering. Available www.umass.edu/sts/ethics.



© 2010 IDEESE Project

Maharashtra. Though proposals to build large dams on the Narmada inspired political controversy from the day the first proposals were made in 1947-48, only in the mid-1980s did the controversy take on the transnational aspects for which it is now famous as critics took up the cause of those who would be displaced as the reservoirs created by the dams filled up and raised environmental concerns about the project.

Contentions over the planning or construction of large dams in developing countries provide some of the best documented examples of local stakeholders using transnational connections to secure greater influence in the domestic decision-making and implementing processes. Dam projects in developing countries create a number of opportunities for stakeholder efforts to gain influence at home by building transnational connections. No government finances a large dam project from current tax collections; these are large physical capital investments with costs beyond the ability of governments to finance from current taxes given all the other demands on the budget. The governments of industrial countries can easily borrow the money they need for construction from private investors, but the governments of developing countries often find that difficult. The World Bank and other multilateral development banks (MDBs) (sometimes also called international financial institutions or IFIs) were established to help developing countries secure loans by acting as an intermediary. The MDBs are owned by the governments of member states, which pay in a certain amount of money (their "quota") based on their current level of economic prosperity, meaning that the industrial state members pay in more money and hence own more shares – and have more votes on the board – than the developing country members. The MDB uses the paid-in capital as the reserve against which it borrows money on private investment markets that it then re-lends to the developing country members. Because of the industrial state backing and borrower promises to give the MDB priority in loan repayment, private investors are more willing to buy bonds issued by the MDB than bonds issued by an individual developing country. This allows the MDB to charge borrowing countries lower interest rates than they would be able to secure on their own.

The World Bank, the largest and most prominent of the MDBs, initially operated only in this fashion. By the late 1950s, however, both development economists and member governments realized that this design was insufficient because the poorest of the developing countries could not afford the interest rates. In response to proposals that the United Nations General Assembly establish a large Capital Development Fund financed through UN budget assessments on member states, the World Bank expanded its lending through establishment of the International Development Association (IDA) in 1960. IDA would not sell bonds to private investors; rather, its industrial country members would provide money for re-lending to the developing members on terms significantly less costly than prevailed in private bond markets by charging approximately 0.5% interest on 30- to 45-year loans rather than a more standard private market rate of 6-7% and 25-year loans.

Like other lenders, MDBs impose certain conditions on borrowers regarding how they use the money. Each MDB has policy guidelines their staffs follow in identifying and selecting projects, recommending that the MDB make a loan, and monitoring use and repayment of the loan. As long as the MDB can operate with its existing capital and the income it derives from loan payments, it is somewhat removed from the domestic politics of member states. When, however, an MDB needs a new infusion of money, either to increase the reserve or to sustain a loan program financed by grants of money from the industrial country members, the question of financing can get caught up in the domestic politics of the member states providing the money. This happened to the World Bank, which until 1993 was a major source of the loans supporting construction of the large dams on the Narmada River, because of the need for periodic replenishment of IDA funds.

In the mid-1980s a broad coalition of activists in the Western industrial countries supporting poor and marginalized groups in developing countries (such as urban slum dwellers, landless and other poor rural groups, indigenous peoples, disadvantaged ethnic or religious minorities) began a transnational Multilateral Development Banks Campaign intended to pressure the MDBs, particularly the World Bank, into adopting policies that would require paying greater attention to mitigating the negative socioeconomic and environmental impacts of projects being funded with MDB loans. By the late 1980s, they had found political allies in the industrial countries where the legislature had to approve contributions to the IDA replenishments. These connections were particularly strong in the USA, where the separation of power between the President and Congress allows congressional majorities to adopt policies even over presidential opposition, and the political culture was particularly open to private lobbying on behalf of causes as well as for direct material benefits. This influence was institutionalized in the International Development and Finance Act of 1989, which included provisions requiring that: a) the US Treasury use US votes and influence in the MDBs to promote adoption of public access to the pre-lending environmental impact assessments developed by each in the process of considering loans, and b) the US Director to abstain from voting on a proposed loan if the environmental impact assessment relating to the project for which the loan is sought has not been released to the public at least 120 days before the date of the vote.¹

The US government also became the source of much current information the activists could not get from the World Bank itself because activists learned how to use the US Freedom of Information Act to secure it from the US Treasury Department, which houses the office of the US-appointed member of the World Bank executive board. Campaigners developed a two-part approach: using their connections first to pressure the World Bank and other MDBs into adopting stronger social and environmental policies, and then to ensure that the MDBs required borrowing governments to conform to them. Simultaneously, MDB Campaign activists worked to develop a more balanced transnational network by making connections with and providing support to citizen groups in developing countries active in social and environmental causes, an evolution also encouraged as members of the World Bank reacted against pressure from Western-based NGOs and coalitions by requiring that complaints addressed to the Inspection Panel established in 1994 be made by affected people within the territory of the borrowing country.²

The Narmada River

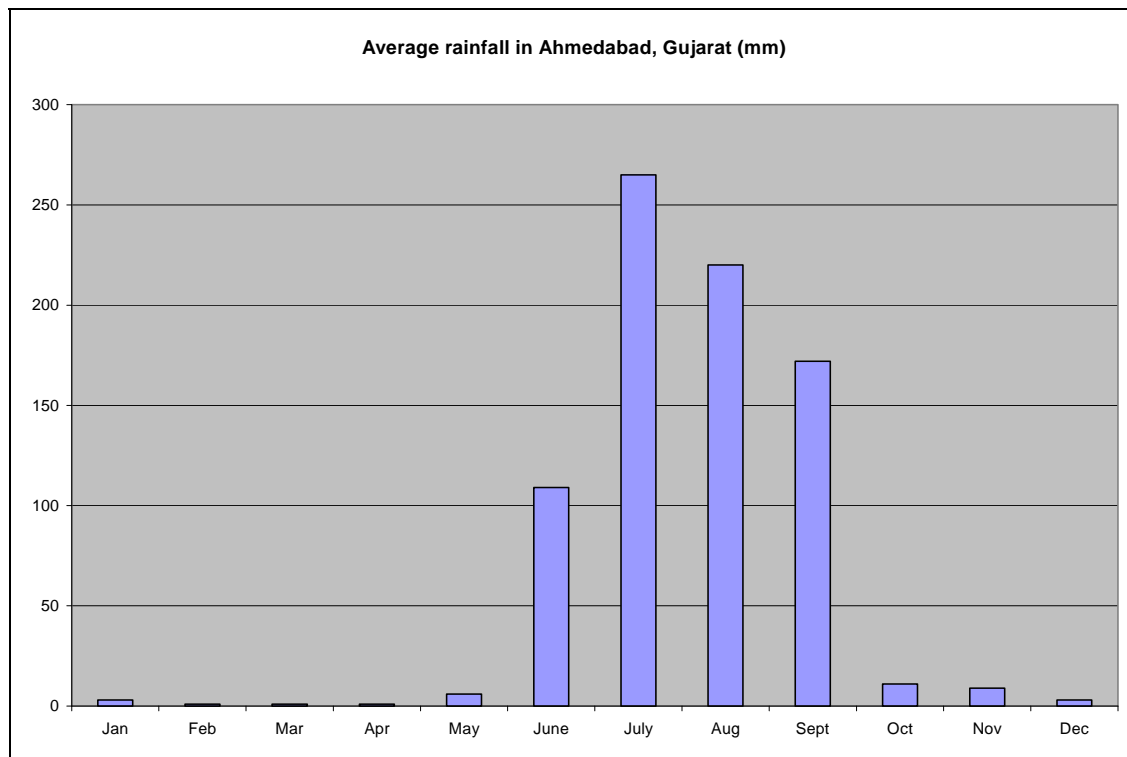
The Narmada River, the fifth longest in India, begins its 1312 km (813 mile) flow to the sea near the village of Amarkantak in Madhya Pradesh state. It flows through a relatively narrow basin defined on the north side by the Vindhya Hills and on the south side by the Satpura Hills westward through Madhya Pradesh to a point where it becomes part of the boundary between Madhya Pradesh and Maharashtra. 35 km later it becomes part of the boundary between Maharashtra and Gujarat, and 39 km after that enters Gujarat for the last segment of its run to the Gulf of Khambhat, which connects to the Arabian Sea. Its origin point is

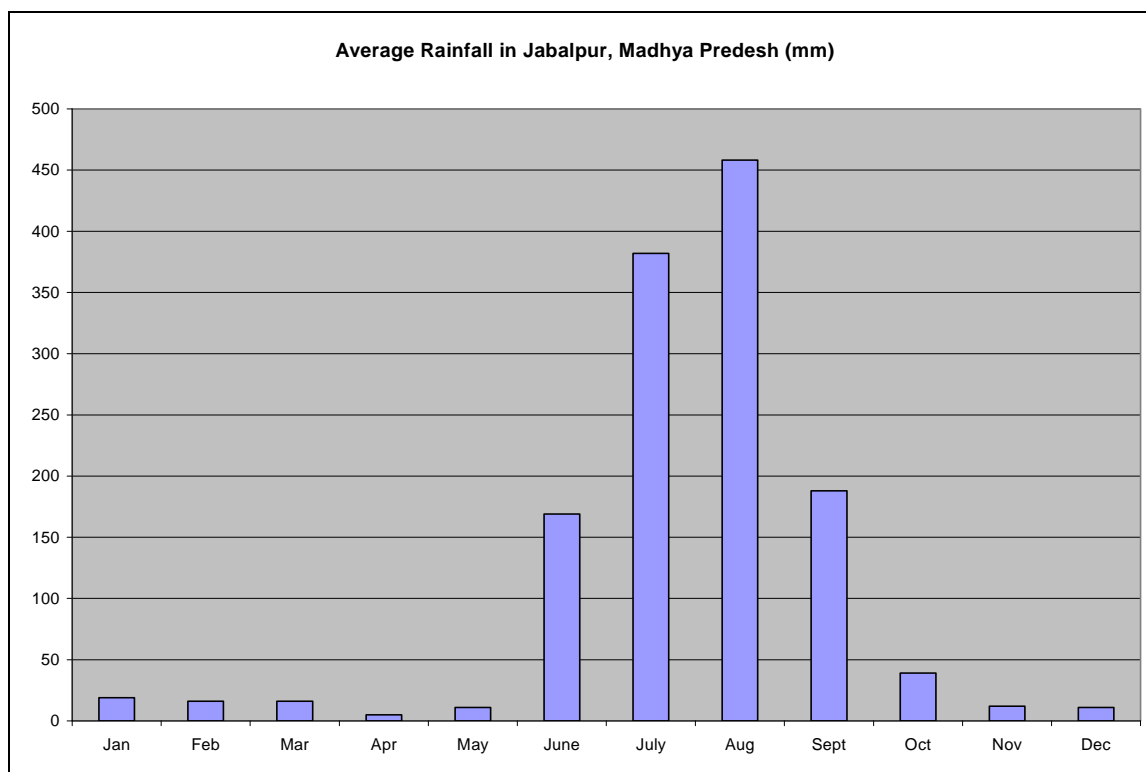
¹Title V, International Development and Finance Act of 1989 (Public Law 101-240). Text available at <http://thomas.loc.gov/cgi-bin/query/D?c101:6:./temp/~c101PKqVuC>: (accessed 12 Aug. 2010). The act followed a fine line: the provision for abstaining rather than voting against was meant as a signal to improve policy; it also avoided debates over whether member governments may tell MDB Directors how to vote on individual loans, an issue discussed in Bertram S. Brown 1992. *The United States and the Politicization of the World Bank: Issues of International Law and Policy* (London and New York: K. Paul International), p. 236.

²David A. Wirth. 1998. "Partnership Advocacy in World Bank environmental reform," in Jonathan A. Fox and L. David Brown, eds., *The World Bank, NGOs, and Grassroots Movements* (Cambridge MA: MIT Press) p. 68.

1051 meters (3447 feet) above sea level. Just west of Jabalpur it enters a deep channel faced by natural marble rocks 30 meters high on both sides, and then drops over the Dhaundhar Falls. The river then descends slowly until it reaches the narrow gorge bound by high rocks lying along the state borders and extending into eastern Gujarat. After leaving this gorge, the waters flow across flat plains to the sea. Along the way the Narmada is augmented by waters from 41 tributaries – 22 on its southern side and 19 on its northern side. Together the Narmada and its tributaries drain 98,796 sq km (37, 542 sq miles) of land.

Like all of the other rivers in India the Narmada is an attractive resource for a country facing serious challenges in maintaining year-round water supply. Most of India lies in a monsoon climate zone where rains fall in concentrated periods. In some areas, half the annual rainfall occurs in less than 20 hours; rain is a bit more spread out in Madhya Pradesh and Gujarat, but is still concentrated in four months of the year:





During the monsoon rains, India's inhabitants must cope with deluges and heavy runoffs; during the rest of the year they draw their water from surface waters like lakes and rivers, from storage tanks, or from groundwater sources augmented by water traps that feed monsoon rains underground. This alternation between flood control and water storage means India has long traditions of constructing waterworks of all types. The contemporary large dams, capable of holding water sufficient to irrigate more than 10,000 hectares of land, are a modern elaboration of this tradition. Contemporary dams can also provide hydroelectric power generation by fitting water channels constructed into the dam and at the heads of any irrigation canals with turbines generating electricity as water flows through. This increases the potential benefits and adds electricity providers and electricity users to the set of stakeholders.

1947-1979: Determining the Features of the Project

Between the first suggestions for dams on the Narmada made in 1947-48 and the Award of the Narmada Water Disputes Tribunal in 1979, disputes about what to construct where, were arguments among three, and later four, state governments within India. The governments of Gujarat, Madhya Pradesh, and Maharashtra, later joined by the government of Rajasthan, argued about which state could build what size dam where, how the waters made available for irrigation would be divided among them, and what share of electricity generated by hydroelectric power plants built in conjunction with the dams would flow to each.

Though the populations and economic situations of the states along the Narmada have changed over the decades, their primary concerns about the locations and sizes of dams and waterworks on the Narmada have remained constant:

State	Concerns
Gujarat	primary: secure irrigation and drinking water to compensate for low rainfall secondary: hydroelectric supply
Madhya Pradesh	primary: limit amount of water others are allowed to take secondary: limit displacement of villages by downstream dam construction
Maharashtra	primary: secure hydroelectricity for its energy-short industrial districts secondary: limit displacement of villages by downstream dam construction
Rajasthan	secure irrigation waters for its dry southwestern districts

Disputes between the states have been so protracted because of competing ideas about the height of the dam to be built at Navagam. Gujarat favored a higher dam to maximize water supply, but it would flood out a much larger area, extending further into Madhya Pradesh and Maharashtra, than the lower dam preferred by the latter two states. When it became involved later, Rajasthan also preferred building a higher dam because that was the only way it would get any Narmada water.

The Constitution of India defines construction and maintenance of water development projects as a matter within the authority of the state governments. It also provides that the central government can step in to help resolve disputes regarding projects that would affect the flow of a river crossing state boundaries.³ That was the basis for the central government's involvement in the lengthy dispute among Gujarat, Madhya Pradesh, and Maharashtra. Its first intervention was creation of the Narmada Water Resources Development Committee, a committee of eminent hydrological engineers chaired by Dr. A. N. Khosla. Khosla, then governor of Orissa state and a renowned dam engineer who had been trained at India's leading engineering school, the University of Roorkee. He and the other engineers on the committee were instructed to help the three states resolve their disputes by developing a master plan for optimum development.⁴ They were particularly asked to examine the siting and height of the proposed dam at Navagam in relation to alternative projects, mainly hydroelectric dams, that Madhya Pradesh wanted to build because their feasibility depended on the extent of the reservoir created behind any dam at Navagam. The committee ultimately recommended in favor of the relatively high dam preferred by Gujarat, in part because it would allow extending irrigation systems into the dryer districts of Rajasthan and Gujarat, areas then prominent in politicians' and officials' minds because Pakistani troops had intruded into India during April 1965 through one of the dryer parts of Gujarat. Though the Khosla Committee's report was ultimately rejected, it shaped later discussion by considering the Narmada and its tributaries as one system and arguing for a "national approach" to water resources that would justify extending irrigation canals to areas outside the Narmada basin.

³ Constitution of India, Seventh Schedule, II:7 and I: 56, and Article 262.

⁴ Government of India, Ministry of Irrigation and Power. 1965. *Report of the Narmada Water Resources Development Committee* (A.N. Khosla, chair). Cuttack: Orissa Government Press.

A combination of failure to resolve the dispute by direct discussions among the state governments involved and serious drought in western India caused by failure of the monsoons in 1965-66 and 1968-1969 led Gujarat, where the drought was particularly severe, to ask for central government involvement. It formally invoked the Inter-State Water Disputes Act 1956 and asked the central government to form a water disputes tribunal to settle the contentions over Narmada projects. The Act specifies that water disputes tribunals are special three-member panels, consisting of a current member of the Supreme Court and two other Supreme Court or High Court judges, whose awards are final when the states involved accept them.⁵ The Narmada tribunal was announced in May 1969; its members – Supreme Court Justice V. Ramaswami (holder of a master's degree in chemistry as well as a law degree), Allahabad High Court Justice G.C. Mathur and retired chief justice of Kerala V.P. Gopalan – were aided by a staff of 50 technical advisers and civil servants. The need to address various procedural challenges, mostly from Madhya Pradesh, meant it did not start considering the substantive issues until February 1972. After another delay inspired by Prime Minister Indira Gandhi's efforts to mediate the dispute, the Tribunal resumed work in August 1974. Between 1974 and December 1979 when it issued its report, the Tribunal held no public hearings or other consultations with any stakeholders (including politicians from the disputing states); such procedures were not the norm in India at the time and no one raised the issue. Rather, it operated like court, with the states presenting their arguments through lawyers, examination and cross-examination of expert witnesses, and visits to various sites along the Narmada in the company of their technical experts.

The Narmada Water Disputes Tribunal Award (NWDTA Award) set out a plan for construction of 30 major dams, 125 medium dams, and 3000 small dams at various locations on the Narmada or its 41 tributary rivers plus a 532 km (329 mile) canal from the reservoir that would be created by the dam at Navagam through Gujarat and into Rajasthan. It accepted construction of a high large dam at Navagam, as Gujarat proposed, but determined that it should be 455 feet (138.7 meters) high rather than the 530 feet (162 meters) urged by Gujarat. Other terms of the Tribunal's Award reflected efforts to balance benefits and costs among the four participating states. Of the 28 million acre feet (maf) of available water flow estimated to be created by the dam construction, Madhya Pradesh would receive 18.25 maf (65.2%); Gujarat, 9 maf (32.2%); Rajasthan, 0.5 maf (1.7%); and Maharashtra, 0.25 maf (0.9%). The estimated hydroelectric production would be divided on the formula of 57% to Madhya Pradesh, 27% to Maharashtra, and 16% to Gujarat. Though on hydrological calculations four fifths of the Narmada's flow is within Madhya Pradesh, Gujarat was allocated a somewhat larger than proportional share of water on grounds that it needed water much more than Madhya Pradesh or Maharashtra because they can also draw on other rivers whereas Gujarat only had the Narmada. Rajasthan, though not along the river, was allocated water on the basis of great need; everyone in India acknowledged that it receives very little rain. Madhya Pradesh and Maharashtra were given larger shares of electricity than their current populations might suggest to make up for the fact that the height of the dam at Navagam would prevent them from building their proposed Jalsindhi hydroelectric dam because the area would be flooded by the reservoir created by the Navagam dam.⁶

⁵ Inter State Water Disputes Act 1956, Section 6 (Publication of Decision of Tribunal) subsection 1 (subsection 2 incorporates the 2002 amendment). Text available at <http://mowr.gov.in/index3.asp?sslid=385&subsublinkid=377&langid=1> (accessed 11 August 2010).

⁶Narmada Water Disputes Tribunal. 1979. Report of the Narmada Water Disputes Tribunal with its Decision. 5 vols. New Delhi: Controller of Publications. The shorter terms of the Award, dated 7 December 1979, and published in the *Official Gazette* on 12 December 1979 are available at http://nca.gov.in/forms_pdf/nwdt_finalorder.pdf (accessed 29 July 2010) and reproduced in Appendix 2.

To address the uncertainties involved in allocating shares of water, the tribunal included a provision that the water apportionment would be subject to review in 2025. This would be 45 years after 1980—a baseline picked because the tribunal expected that construction of the 3 largest dams of Madhya Pradesh’s portion of the Narmada Project (Indira Sagar, a combined irrigation and hydroelectric dam 319 km or 198 miles upstream from Navagam; Omkareshwar, with a smaller irrigation reservoir plus hydroelectric capacity; and Maheswar, a hydroelectric flow-through dam) to begin before the end of that year. The review would permit addressing any changes in river flow caused by the climate or the hydrology of the basin and in user needs stemming from demographic changes in the four states. The 45 years would also provide time to assess the performance of the whole interconnected system of dams and canals and take that into account as well.

Detailed design, construction, operation, and maintenance of the Narmada River system would be undertaken by the state governments, each on its own stretch of the river. Gujarat and Madhya Pradesh established public corporations for this purpose: Sardar Sarovar Narmada Nigam Limited (SSNNL) in Gujarat and the Narmada Valley Development Authority (NVDA) in Madhya Pradesh. The fact the river flows between states provided the legal basis for the tribunal's decision to set up the Narmada Control Authority, employing both government of India and state engineers and civil servants to coordinate and monitor finance, construction, and resettlement of people whose homes would be flooded by the reservoirs (“oustees”). The central government also had some control over the details of the projects through the Central Water and Power Commission, the Planning Commission, and the Ministry of Environment and Forests, each of which had authority to grant or withhold clearance for proceeding with various aspects of project construction.

The NWDT Award did not end all the argument – Gujarat and Madhya Pradesh continued to disagree about the height of the dam to be built at Navagam, now named the Sardar Sarovar Dam, and hence the size of the reservoir to be created. However, those arguments were soon overshadowed by controversies over treatment of the oustees and environmental impacts of the whole Narmada River project.

1980-2000 Resettlement and Rehabilitation

The environmental issues were fought out under the terms of the Forest Conservation Act 1980, which gave the central government’s Department of Environment (later the Ministry of Environment and Forests) authority to require environmental impact assessment of development projects and withhold clearance to begin construction until the terms of the Forest Conservation Act were satisfied. The Department used its authority to order both Gujarat and Madhya Pradesh to do four things before they could begin their respective dam projects on the Narmada: 1) prepare alternate forest sites to compensate for forests that would be submerged behind the dams, 2) improve the terms of resettlement aid offered to people who would be displaced from their homes, 3) create wildlife sanctuaries, and 4) prepare both the catchment and command areas of each dam for that dam’s environmental effects.⁷ In 1983, when Gujarat submitted the Sardar Sarovar Dam plans and Madhya Pradesh submitted the Narmada Sagar Dam plans the ministry decided that neither state had met the requirements and refused to give clearance. The ministry did not budge until 1987, after several years of drought in Gujarat had created extremely strong pressure to let construction of Sardar Sarovar begin. By then, however, private nongovernmental organizations (NGOs)

⁷ The catchment area is all the land where rainfall and other surface waters are drained by a river or stream; the command area is all the land irrigated by waters from reservoir, tank, or canal.

working with and advocating for the rural poor were well organized. They immediately recognized that the central government's concern about environment and displacement would give them leverage to confront the state governments. The state governments were perceived, with good reason, as more concerned to get the projects built than with what happened to the oustees, many of who were poor and illiterate *adivasi* (members of Scheduled Tribes still living by their traditional culture).

While the environmental issues were fought out within the terms of India's environmental legislation and permitting processes, issues relating to "rehabilitation and resettlement" of oustees were fought out on terms deriving from the NWDT Award. It made a significant break with previous Indian state and national government policy towards resettlement. Prior to the NWDT Award, the central and state governments followed rules first established in the Land Acquisition Act 1894 (adopted during British rule) that the people who lose their homes in the course of dam construction are to be given cash compensation. In fact, oustees were often simply expelled and many of those who received a payment ended up becoming landless rural laborers or urban slum dwellers because they were illiterate or unsophisticated; many were fleeced in phony land deals and other spent the money foolishly.

Though Indian public opinion was not yet mobilized on the issue of how oustees were treated in 1974-79 when the Narmada Water Disputes Tribunal was pursuing its inquiries and preparing its findings, its three members were aware of earlier problems. They acknowledged that oustees would bear a heavy burden for the project and deserved decent recompense. The NWDT Award sought to avert earlier problems by stipulating explicitly that compensation should be "land for land" rather than money: each displaced family is to receive land of its choice within the command area of the dam displacing them equivalent in area to what they were losing, or at minimum 2 hectares (4.94 acres). Each male 18 years or older is to be treated as the head of a separate family and allocated land. The initial terms of the Award suggested that compensation would be provided only for those who held legal title to their land; activists later pressured the Gujarat state government into extending the program to landless people and to "encroachers" (people who had simply set up their houses on government-owned land). The tribunal award required each of the participating states to prepare its own package of resettlement and rehabilitation benefits, but Gujarat was also required to offer the same benefits to oustees of the Sardar Sarovar from Madhya Pradesh and Maharashtra if they opted to move to Gujarat as the Tribunal balanced the burden of providing for resettlement with the benefit of the greater water supply Gujarat would secure from the high Sardar Sarovar dam. The NWDT Award specified that each resettled family should get a housing plot as well as farmland, and monetary grants in aid to cover the cost of moving, buying farm implements and draft animals, and insurance. It also specified that resettlement villages should be provided with a primary school, a *panchayat* (village government council) meeting hall, a medical dispensary, a seed store, a children's playground, a drinking water well, a village pond, and a link road. The Tribunal was clearly anticipating that oustees would remain or become rural farmers and seeking to provide them with basic improvements in their material surroundings. The Award did not make any distinction between *adivasis* and others among the oustees, even though several Indian laws do treat *adivasis* as a distinct category and provide them with certain legal protections for maintenance of their traditional communal ways of life. Some two thirds of the oustees from the Sardar Sarovar Dam were *adivasis*, and they became the centerpiece of the controversy over oustee resettlement.

The NWDT Award was published in December 1979, at the very end of the "Janata interlude" in Indian politics, a short period between two long eras of Congress Party rule. The Congress Party, which had been in power continuously since independence in 1947, lost the spring 1977 parliamentary elections in a popular rebuke of Prime Minister Indira Gandhi's suspension of many civil liberties during Emergency Rule

in 1975-77. However, the coalition that supplanted it was wracked by internal disagreements and soon faced strikes and other civil strife. This enabled the Congress factions forming Indira Gandhi's new Congress (I) party to win the next election and return to power in January 1980. A significant number of younger Indians who had become alienated from conventional politics during and after Emergency Rule began to channel their idealism into volunteer activism and work with NGOs. This new generation did not have any direct experience of the pre-1947 nationalist movement, but draw on the same extensive Indian repertoire of civil disobedience actions though adopting ideological stances ranging across socialism, the Gandhian tradition of nonviolence, humanist ideals, and feminism. Yet, whatever their disagreements all of the activists were committed to fighting for social justice through grassroots organization, public education, and organized political protest. Much of their discussion was framed in terms of rights: rights to equality, rights to dignity, rights to be consulted, rights to be free from exploitation, and rights of both future and present generations to an undamaged environment. All of these claims are resonated with those of other groups in other countries who were also seeking alternatives to the existing political, economic, and social order. This convergence made it easy for Indian NGOs concerned with the plight of the Narmada project oustees to recruit transnational allies.

By the late 1980s, India was home to one of the most vibrant collection of local civil society organizations and grassroots activism in the world. As John R. Wood observed:

It is a matter of considerable debate as to whether the proliferation of NGOs in the 1980s, and into the 1990s and beyond, reflected a failure of India's political system, or rather its success. On the one hand, NGOs were taking up responsibilities that were originally thought to belong to the government and which the latter, for reasons of sloth, corruption or unwillingness to disturb the status quo, had clearly failed to fulfill. On the other hand, the vigorous voluntarism, outspokenness and self-sacrifice of many NGO activists could only have emerged in an open political system that encouraged democratic participation and valued rights and freedoms. Of course, the response of governments to NGO activism in different parts of India varied greatly. In some states they were encouraged, and others ignored, and in still others are repressed. Among and within the NGOs also there was considerable disagreement -- between those activists who wanted to cooperate with government officials, enlist their support and convert them to new thinking, *versus* those who saw government officials as the main enemy, whose policies and projects calls the injustices that NGOs must fight.⁸

All of these features of Indian politics and the NGO and voluntary association scene were prominent in the long campaigns waged against either the Narmada Project in general or the Sardar Sarovar Dam in particular.

The voluntary associations, NGOs, and community action groups took up the cause of the oustees first became active in Gujarat. Initial organizing was assisted by activists in *Lokayan*, an organization founded by social scientists at the Center for the Study of Developing Societies in New Delhi seeking to link researchers with activists policy makers and ordinary citizens affected by development projects. The *Lokayan* branch in Ahmedabad, Gujarat was particularly active and other Ahmedabad activists began criticizing the resettlement provisions of the NWDT Award soon after its publication. The Center for Social

⁸ John R. Wood. 2007. *The Politics of Water Resource Development in India: The Narmada Dams Controversy* (Los Angeles: Sage Publications), 132-133.

Knowledge and Action (SETU in its Gujarati acronym), intended to build leadership within marginalized communities so they could carry out their own struggles, was founded in 1982 and soon began working on oustee issues. The Center for Social Studies in Surat got involved in 1981 when the Gujarat government gave it a contract to monitor the condition of 19 Gujarati villages whose inhabitants would be displaced by the Sardar Sarovar reservoir. The contract was expanded in 1984 to cover all resettlement and rehabilitation for all Gujarati oustees. The surveys done by Center sociologists revealed that the social problems caused by relocation were much larger than anticipated. It was Center researchers who discovered that many of the oustees were encroachers lacking title to the land they occupied. They also realized that a majority of the Gujarati oustees were *adivasi* familiar only with sustaining themselves by fishing, hunting, and gathering plant foods in a forest environment. The Center researchers wondered how they would manage to convert from their largely non-monetized economy in the hills to the modern agriculture envisioned for resettlement. They were also concerned about finding enough land to permit the *adivasi* oustees to move as a village unit so that hamlets of kin groups could be kept intact. By then several organizations were involved in providing services to *adivasi* villages so were very familiar with conditions on the ground.

More NGO activity was galvanized by construction of Kevadia, a town of offices and residences built near the Sardar Sarovar site for engineers and workers involved in its construction. Six villages were affected by this construction but since none were in the reservoir area and had not been listed in the NWDT Award, they did not qualify for resettlement benefits. The contractors building the town sometimes paid compensation to villagers but more often pressured them into accepting token compensation through agreements they could not read. Their cause was taken up by *Lok Adhikar Sangh* (Association for People's Authority) a civic organization specializing in legal assistance to the poor. It was able to get the Indian Supreme Court to issue a stay order stopping construction while court-appointed investigators determined how the oustees were being treated. This inquiry revealed massive irregularities and prodded the Gujarat government into realizing that it needed to follow proper expropriation procedures in all project-related construction activity. Two other organizations, Action Research in Community Health and Development (ARCH) and *Vahini* (short for *Chhatra Yuva Sangharsh Vahini* or Student Your Struggle Force), already engaged in providing social services in *adivasi* communities, combined their efforts to campaign on the villagers' and dam oustees' behalf. A third, the Centre for Social Knowledge and Action (known by its Gujarati acronym as SETU), was formed in 1982 to provide marginalized groups with training and assistance for self-mobilization.

Though the NGOs and other activists were often in conflict with Gujarat government officials, the conflict did not get too intense for several reasons. First, many of the NGOs followed the Gandhian approach to social service and employed only nonviolent opposition methods. This gave them and their cause legitimacy in Gujarat politics and the government was careful to avoid actions that would make it look bad. The longer-established NGOs had political and bureaucratic contacts in the government, and several senior government officials were sympathetic to the demands they were putting forward. These officials realized fairly soon that they did not have the administrative capacity needed for relocating thousands of people and needed the NGOs' assistance to avert a social disaster. Finally, the NGOs realized that securing water supply was so important to everyone in Gujarat that all-out opposition to Sardar Sarovar would weaken support for the oustees.

These early interactions meant that Gujarat was far more prepared to resettle people of the 19 villages it was required to move under the NWDT Award than Madhya Pradesh was to move the people of its 33 listed villages or Maharashtra to move the people of its 193. NGOs were not active in either state and the

governments did not appear to be getting ready to deal with the problem. This inspired considerable concern within the Gujarati NGOs who understood the dimensions of the problem and SETU in particular began to expand its activity into Madhya Pradesh.

The politics of resettlement intensified in Gujarat in March 1984 when massive rallies of villagers from the 19 affected villages got enough publicity to come to the attention not only of the government but also of international aid groups including Oxfam and the World Bank. Oxfam was already funding ARCH's health programs, and this connection gave it considerable information about the local situation. The protests also attracted notice of World Bank officials who were then negotiating the terms of \$450 million a startup loan for the Sardar Sarovar Dam. During the project assessment phase of considering the loan, the World Bank sent Professor Thayer Scudder, an anthropologist at the California Technical Institute (Caltech) with considerable expertise on involuntary resettlement, to assess the resettlement provisions. Scudder's report confirmed most of the Gujarati NGOs' complaints about the inadequacies of the tribunal resettlement provisions and became an important weapon in *ARCH-Vahini's* battle with the Gujarat government. Officials at SNNL quickly realized that *ARCH-Vahini* and the oustees could cause a delay in securing the World Bank loan and thereby slow the project. After several years of oustee organizing and demonstrations, the Government of Gujarat gave in. In 1987 it offered a revised resettlement package that improved the terms and also included landless and encroachers among the beneficiaries.

Meanwhile the NGO coalition was splitting. *ARCH-Vahini* was following a pragmatic strategy of combining constant pressure, implied threats of mass unrest, and willingness to cooperate with the government if it made significant concessions. Its leaders regarded this as the only strategy that made sense in Gujarat where the urgent demand for water meant there was broad popular support for completing the dam as quickly as possible. The 1987 revised resettlement agreement looked very good on paper; now according to *ARCH-Vahini*, the task was to make sure that it was fully implemented. Others rejected the *ARCH-Vahini* approach as too timid. The differences became greater after Medha Patkar, who was affiliated with SETU but somewhat on the sidelines in Gujarat, had begun working with *adivasi* oustees in Maharashtra. Organizers from the Communist Party of India (Marxist) were already in the villages, and competing effectively with them required her to advance more radical views than prevailed among the Gujarati groups. She attributed her decision to oppose the entire project to a combination of greater awareness of the environmental problems it was causing, belief that the Forest Conservation Act 1980 would restrict the ability to resettle oustee *adivasi* on forest land, and belief that the project should not have gone forward until after full public consultation with those who would be affected. She became the central figure in the *Narmada Bachao Andolan* (Save the Narmada Movement), which was formed in Maharashtra in 1989 and later spread to include 150 affiliates in other parts of India and organizations of supporters abroad.

Narmada Bachao Andolan (NBA) organized village committees in the areas of Madhya Pradesh and Maharashtra that would be affected by Sardar Sarovar and other dams on the Narmada, and succeeded in maintaining a coalition between *adivasis* in Maharashtra and western Madhya Pradesh and members of the landowning Patidar caste in the plains. It registered its opposition to the Narmada Project on human rights and environmental grounds and staged a series of demonstrations, road blockades, and sit-ins against its continuation. The NBA's success at getting Prime Minister V.P. Singh to agree to reconsider the Narmada Project in March 1990 sparked a fierce counter-reaction in Gujarat, where state government officials and newly formed pro-Project civic organizations mobilized to support construction. January 1991 was marked by a 21-day confrontation between some 5000 NBA activists and supporters on one side and Gujarat police plus thousands of pro-dam demonstrators on the other at Ferkuva on the Gujarat-Madhya Pradesh border, where the NBA group had been stopped before they could reach the Sardar Sarovar site. Baba Amte, a

Gandhian social worker greatly respected everywhere in India for his longtime work with lepers, set the stage for an extended confrontation by announcing a “*dharna* (fasting sit-in) unto death” on the 5th. Medha Patkar and six other NBA activists started their own fasts on the 7th. Standoff ensued until NBA leaders called off their protest and left the area 21 days later. NBA then began a noncooperation campaign in the Narmada Valley involving refusal to pay taxes and blocking entry to all government officials except teachers and doctors. As Narmada waters backed up behind the partly constructed Sardar Sarovar Dam and threatened Manibeli village in Maharashtra, NBA also organized a confrontation between villagers who did not want to move and police sent to clear the village.

NBA initially refused to accept foreign funding, because doing so would open it to one of the most common charges in Indian politics: that it is the agent of outside powers.⁹ However, it did garner international media attention, an invitation to testify at a US Congressional hearing,¹⁰ and the Right Livelihood Award from the Swedish Right Livelihood Foundation. In the early 1990s, it also had tacit support from the Madhya Pradesh and Maharashtra governments because its opposition to dam construction dovetailed with their concerns about the ultimate height of the Sardar Sarovar Dam and succeeded in triggering debate all around India about the social and environmental impacts of the Narmada River Project and large dams more generally.

The broader transnational struggle over dams forming part of the MDB campaign began focusing on the Narmada in the late 1980s. By 1989, campaigners were demanding that the World Bank, which was considering additional loans for the Sardar Sarovar Project -- \$350 million for canal construction and \$90 million for environmental measures – either force modification of or refuse to support the project. Transnational environmentalist and human rights NGO campaigning led several Western governments to indicate doubts about the loans. In response, the World Bank commissioned an Independent Review of Indian and state government implementation of the resettlement and environmental mitigation aspects of the Sardar Sarovar Project. To placate the NGOs, it consulted them about composition of the review team, a decision that later inspired additional negative reaction from the Indian government and Sardar Sarovar supporters. The review team was led by Bradford Morse, a former US Congressman and UN Development Programme Administrator, and Thomas Berger, a Canadian lawyer who had chaired the Canadian inquiry into the Mackenzie Valley Pipeline Project and given strong support to indigenous peoples’ rights, and included a group of mainly Canadian engineers, environmental planners and indigenous rights experts. In June 1992 after 10 months of inquiry, it issued a 363-page report criticizing the project for failure to:

- a) include adequate assessment of the human impact of Sardar Sarovar Dam,
- b) involve any consultation with those who would be affected,
- c) consider the character of *adivasi* culture in working out resettlement plans,
- d) provide adequate additional resettlement when the height of the dam was increased,
- e) pay sufficient attention to environmental factors in the initial project design, and
- f) comply with the stipulations included in the conditional clearance issued by the Indian Ministry of Environment and Forests in 1987.¹¹

⁹ Such charges are frequently raised against others in a debate, regardless of their place on the left-right ideological spectrum, as exemplified below in discussion of the controversy over World Bank funding.

¹⁰ US House of Representatives Committee on Science, Space, and Technology. 1989. *Sardar Sarovar Dam Project: Hearing before the Subcommittee on Natural Resources, Agricultural Research, and the Environment*. 101st Congress, 1st Session.

¹¹ *Sardar Sarovar: Report of the Independent Review*. 1992. Ottawa: Resource Futures International.

The Independent Review Report recommended that the World Bank suspend the loans until the Governments of India and of the states involved complied with the standards for resettlement and environmental protection that they had themselves adopted or accepted. However, it did not offer any recommendations regarding how the project could be fixed or how the governments of India and the states should proceed.

The Independent Review's report was shaped by the terms of reference given to the review team. It was asked to assess resettlement and environmental issues, not to offer alternative project designs. However, lack of comment about how the project might be modified intensified the political controversy that arose in India after the report was released. The Gujarat and Indian governments both reacted angrily to what they regarded as a "partisan" and unfair report, and were additionally perturbed that NGO activists were able to get copies faxed to them by foreign supporters before the government received its copy from the World Bank.¹² Some project supporters even suggested that the Independent Review was part of a conspiracy to block India's development.¹³ Official government remarks were more restrained, but did criticize the Report for an incomplete survey of the situation, ignoring several Indian studies, and failing to take account of conditions in India rather than subconsciously applying North American standards. *ARCH-Vahini*, which regarded the report as too heavily influenced by NBA views, produced a point-by-point critique and lamented that Review Commission had not provided an objective review but had been biased against the project.¹⁴ The report simultaneously buoyed the anti-dam campaign in India and around the world. NBA increased its pressure against the whole Narmada Project by demanding that the World Bank withhold the loans and that India stop construction of Sardar Sarovar, calling on supporters to undertake "direct action" if the Bank did not announce a withholding by July 15th, and condemning the World Bank for promoting neo-colonialism through its financing of the Project.¹⁵

The World Bank initially reacted by indicating continued support for the loans and sending a staff team to India to reappraise the resettlement program and environmental concerns and report directly to the World Bank's Executive Board. Its report, released by the Bank in September, rejected several of the Independent Review's conclusions but did agree with the Independent Review on the need to improve resettlement provisions and said that Madhya Pradesh and Maharashtra should offer the same resettlement aid as Gujarat.¹⁶

The World Bank faced strong pressures on both sides. There were several reasons to approve the loans: the project was underway, it was clear that the governments of India and the states involved wanted it to happen, and some Gujarat officials were saying openly that the loans amounted to only 10% of the total

¹² See "Morse Commission Report Condemned," *Times of India* (Ahmedabad), 20 June 1992.

¹³ "Morse Commission report condemned," *Hindustan Times*, 24 June 1992.

¹⁴ Anil Patel and Ambrish Mehta. 1997. The Independent Review: Was it a search for truth?" in William Fisher, ed., *Toward Sustainable Development: Struggling over the Narmada River* (Jaipur and New Delhi: Rawat Publications), 381-417.

¹⁵ Call by NBA leader Mehda Patkar, as reported in "3 CMs to meet on Narmada," *Times of India* (Ahmedabad) 2 July 1992.

¹⁶ Terms summarized in World Bank. 1995. Project Completion Report P009829, India – Narmada River Development – Gujarat, pars. 6.11 (p. 27) and 7.39 (p. 45). Available at http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/1995/03/29/000009265_3980625173028/Rendered/PDF/multi_page.pdf (accessed 11 August 2010).

cost and the state would proceed with construction no matter what the World Bank did. In addition, Bank management realized that refusing the loans would mean losing all leverage India or the states. Yet, there were reasons to deny. Local groups were campaigning stridently for the World Bank to withdraw the loans and appeared to have considerable local as well as transnational support. Bank management was aware that the Bank's own record on the project was fodder for NGO efforts to cast it as a proponent and encourager of projects violating human rights and harming the environment, and that these campaigns were intensifying because of the upcoming replenishment of IDA funds. European campaigners persuaded the Swedish and European Parliaments to recommend that European Community (now European Union) member governments use their votes in the Bank Executive Board to stop the loans. Japanese groups organized an International Narmada Symposium in Tokyo, which inspired 20 members of the Japanese Diet (parliament) to demand the World Bank and the Japanese government (which was a co-financier) to cancel their loans.¹⁷ 27 transnational NGOs organized a "Stop Sardar Sarovar" campaign in the USA¹⁸ and threatened to campaign actively against the 10th IDA replenishment.

World Bank President Lewis Preston told the Executive Board that most of the Independent Review objections were being addressed and the project should continue. Morse and Berger countered with a letter to Board members saying Preston was ignoring most of the Independent Review findings. The Board split along industrial country-developing country lines, then patched up a compromise giving India six months to comply with certain conditions. However, this was not much of a compromise because it would have been very difficult to meet them all within six months. The political embarrassment of having to accept such publicly stated and detailed outside conditions was more than the Indian government was willing to accept. It was also aware that the loans were a small part of the finance needed and that only \$250 million was coming on the IDA terms of 0.5% a year with repayment over 45 years; the other \$170 million would carry more standard terms of 7 percent with repayment over 25 years.¹⁹ The governments of India and of the three states resolved to move ahead without World Bank loans.²⁰

This affected the political balance in a number of ways. *ARCH-Vahini* lost influence among *adivasi*, now fired up by NBA. It also lost leverage over the government of Gujarat because it would not be able to use the World Bank as a prod. NBA built on the prestige gained by having "chased away" the World Bank to expand its work and found a new organization, National Alliance of People's Movements, to amalgamate all opponents of the project into one group. It also upped its political demands by calling for complete removal of the existing 61-meter high Sardar Sarovar Dam and urging all supporters to engage in *jal samarpan* ("self-sacrifice by water") by refusing to move as flood waters covered their dwellings during the monsoon season already underway. Indian Prime Minister Narashima Rao, leading a factionalized Congress Party (I) after Rajiv Gandhi was assassinated during the 1991 election campaign, was facing greater opposition from the Bharatiya Janata Party (BJP), which was actively stoking Hindu nationalism. This helped Gujarat,

¹⁷ Wirth 1998, p. 63.

¹⁸ See full page ads in the *New York Times*, 21 September 1992, the *Financial Times* 21 September 1992, p. 6, and the *Washington Post*, 21 September 1992.

¹⁹ Loan terms noted in "World Bank and Narmada Project," *India Abroad*, 16 April 1993.

²⁰ Stefan Wagstyl 1993. "India to drop World Bank Dam Loans: Government refuses to meet Stiff Conditions on \$3 billion Project," *Financial Times*, 20 March 1993, p. 6.

where the BJP mobilization was threatening to cut into Congress Party support. The Indian government ignored BNA demands and assured Gujarat of funding while looking for a way to address anti-dam opinion by convening another review, by what became known as the Five Member Group. However, its terms of reference were limited to “reappraising the project, and the state government of Gujarat further limited its activities by refusing to allow it to visit sites within the state. Continued disagreements, including a call by the new first minister in Madhya Pradesh for lowering the final dam height from 455 to 463 feet to exclude 67 villages and 38,000 people from the reservoir area,²¹ created further uncertainty.

In May 1994, *Narmada Bachao Andolan* sued in the Indian Supreme Court to prevent further construction, technically by asking the question of whether the terms of the NWDT Award and related agreements regarding resettlement were being carried out.²² It responded in January 1995 with a stay order restricting construction of the Sardar Sarovar Dam to the already-attained 80.5 meter (263.3 feet) height for five years to provide additional time for resettling oustees. During this period work did continue on the hydroelectric powerhouse, located – meters downstream of the dam, and the irrigation canal that would supply water to dry parts of Gujarat and Rajasthan. At the same time, discussions about dam projects in India and around the world were redefining the contention.

Debates about Technology Choice

As political instability swept the center, and politics in the states was also affected by the strong Congress-BJP competition that led to 4 parliamentary elections between 1996 and 1999 when a BJP-led coalition was able to secure a comfortable majority. Indian courts, particularly the Supreme Court, became more active on social and economic justice by encouraging class action suits on social and economic questions. In the 1980s, the Supreme Court’s rulings on social issues were admired by social and economic justice advocates tired of seeing the politicians ignore them but criticized by others who thought the courts were being overambitious, litigation delays lengthening, and some courts losing the reputation for impartiality and integrity on which their authority rested.

Globally, the concerns about dams were reframed by adoption of the notion of “sustainable development.” Though vague and attracting detractors, the concept was used to organize discussions where proponents and opponents of large infrastructure projects found ways to talk despite their often diametrically opposed preferences.

The most notable change at the international level was expressed in the meetings and report of the World Commission on Dams. It originated at an April 1997 workshop on Large Dams in Switzerland organized by the World Bank and the International Union or the Conservation of Nature (IUCN) where participants drawn from 18 countries and having opinions across the spectrum attempted to develop consensus on “whether dams have a role to play in land, water, and energy development and how particular dams should be designed, constructed, and operated.”²³ The workshop led to appointment of a World Commission on

²¹ The Madhya Pradesh government acknowledged that this would lower the hydroelectric potential, and agreed to forego its share of the electric power, while arguing that Gujarat could still meet its water needs with the lower dam.

²² *Narmada Bachao Andolan v. Union of India and Others*, Writ Petition (C) No. 319 of 1994.

²³ IUCN-The World Conservation Union and the World Bank Group. 1997. *Large Dams: Learning from the Past, Looking to the Future: Workshop Proceedings*. Gland Switzerland: IUCN and Washington: The World Bank Group.

Dams, which produced a report circulated on the Internet and on CD-ROM.²⁴ Indian participants were prominently involved. NBA leader Medha Patkar and former India Planning Commission member L.C. Jain were 2 of the 12 members of the Commission, and the government of India was invited to contribute a country report about its experiences with large dam projects. The Commission concluded that many large dam projects undertaken in the past were not viable but that dam building could be improved to cause less suffering by people living in river valleys and minimize negative environmental impacts. Thus, the Commission came into line with emerging development thinking placing greater stress on sustainability, choice of technology attuned to local conditions, and the need for greater consultation and reliance on “bottom-up” processes of project definition.

Contentions over dams spread to Madhya Pradesh in 1997 when that state began work on the dams at Bargi, Mann, and Maheshwar. When the private Indian firm S. Kumars Ltd. began work on the dam at Maheshwar, local residents opposing the dam and NBA activists pressured the Madhya Pradesh government into suspending construction and undertaking an additional investigation of the dam’s likely impact. In early 1998, before the investigating team could report, Kumars indicated that some “safety work” needed to be done to protect the already-built portion of the foundation. The government accepted the argument and allowed Kumars to go ahead. The NBA saw the move as a way to re-start construction and mobilized members to demonstrate at the site. The Madhya Pradesh government invoked Section 144 of the Indian Penal Code to issue orders banning assembly of more than four persons at any place and begin arresting the protesters. NBA believed that 76% of the project costs would be covered by foreign investors in the project and was able to use its transnational supporters to deter a number of foreign corporations from becoming involved.

However, NBA’s continuing resistance to any dam construction was beginning to get out of phase with Indian opinion. This became more obvious in the summer of 1999 when novelist Arundhati Roy, well known after her *The God of Small Things* won the Booker Prize in the UK, wrote a series of essays on the Sardar Sarovar Project. These emphasized the suffering of the oustees in eloquent terms but paid no attention to the water management issues. Their publication coincided with the second year of failed monsoons and severe drought in Gujarat, and they became the target of criticism by others – and even of public burning during pro-dam demonstrations in Ahmedabad.²⁵ Opinion shifted even more as the state governments involved improved services for oustees. Gujarat offered to provide the same financial aid to Sardar Sarovar oustees in Madhya Pradesh and Maharashtra who wanted to settle near their original homes rather than move to Gujarat. Gujarat also established a special Grievance Redressal Authority (GRA) for Sardar Sarovar Affected Persons giving oustees who had moved to new homes in Gujarat a place to go to get complaints resolved as the resettlement process moved forward. Its head, former High Court Judge P.D. Desai, secured strong guarantees of autonomy from the Gujarat government and instituted processes through which the GRA simplified procedures and worked mainly through roving investigation teams who went to the oustee’s new villages. NBA praised its work, and Madhya Pradesh and Maharashtra created their own Grievance Redressal Authorities modeled on it in 2000.

²⁴ World Commission on Dams. 2000. *Dams and Development: A New Framework for Decision-Making* (London: Earthscan).

²⁵ Wood. 2007, p. 175. This inspired an additional commentary from her. See “My argument is not anti-Gujarat: Roy,” *The Indian Express* 31 July 1999.

The impact of all these changes was foreshadowed in the Indian Supreme Court's February 1999 decision to permit raising the Sardar Sarovar Dam from 80.3 to 85 meters (278.8 feet). NBA was unhappy to see the project given new life, pro-dam opinion was unhappy to see that the height was short of the 110 meters (360.8 feet) needed to create a reservoir high enough to fill the canal. It became clearer in October 2000 when a three-member bench²⁶ of the Indian Supreme Court ruled on the case *Narmada Bachao Andolan v. Union of India and Others*.²⁷ In a two-to-one decision, it invoked the common law doctrine of laches to rule that the NBA had failed to raise its objections in a timely manner, that the Court was not going to review issues related to design of the dam itself but only the fundamental rights of the oustees guaranteed by Article 21 of the Constitution, and reminded the parties that the decision of a Water Disputes Tribunal could not be challenged by private parties once it became binding on the states involved. The decision rejected NBA claims that the Ministry of Environment and Forests decision to grant conditional clearance of the project in 1987 was itself a violation of Article 21 because it was taken on political grounds rather than after taking full account of the environmental impacts. Rather, the establishment of a Narmada Management Authority with an environmental sub-group having authority to recommend stopping work to address negative environmental impacts and imposition of the *pari passu* condition that resettlement must precede successive raisings of the dam height, indicated to the majority that the decision was based on serious consideration of the environmental and social impacts. The majority made extensive reference to the need to balance benefits and burdens and to India's growing need for reliable water supplies in concluding that Sardar Sarovar and other dams in the Narmada Project should be built. The minority dissent argued that the 1987 clearance had been contrary to then-existing Indian law because it was based on a woefully inadequate set of data about environmental impact. It suggested that the Government of India should be required to do a full environmental impact assessment before further work on the Sardar Sarovar Dam.²⁸

The majority decision left the control institutions established by the NWDT – the Narmada Control Authority and the 6-member NCA Review Committee consisting of the chief ministers of Gujarat, Madhya Pradesh, Maharashtra and Rajasthan plus the India ministers of Water Resources and of Environment and Forests – in place. It concluded the ruling with these directions:

- 1) Construction of the dam will continue as per the Award of the Tribunal.
- 2) As the Relief and Rehabilitation Sub-group have cleared the construction up to 90 meters, the same can be undertaken immediately. Further raising of the height will be only *pari passu* with the implementation of the relief and rehabilitation and on the clearance by the Relief and Rehabilitation Sub-group. The Relief and Rehabilitation Sub-Group will give clearance of further construction after consulting the three Grievances Redressal Authorities.

²⁶ The Indian Supreme Court consists of a Chief Justice and 26 Justices; particular cases are heard by Benches of three, five, seven, nine, or eleven Justices depending on the subject matter. See Supreme Court of India. 2010. *Practice and Procedure: A Handbook of Information*. 3rd ed. New Delhi: Supreme Court of India. Available at <http://www.supremecourtindia.nic.in/handbook3rdedition.pdf> (accessed 28 July 2010).

²⁷ 2000 AIR 3751; 2000(4) Suppl.SCR 94. Also available through the Supreme Court website using the search utility at <http://judis.nic.in/supremecourt/chejudis.asp> (accessed 28 July 2010).

²⁸ The dissent does not appear on the Supreme Court website. Its terms are summarized from Wood 2007 187-188.

- 3) The Environment Sub-group under the Secretary, Ministry of Environment & Forests, Government of India will consider and give, at each stage of the construction of the dam, environment clearance before further construction beyond 90 meters can be undertaken.
- 4) The permission to raise the dam height beyond 90 meters will be given by the Narmada Control Authority, from time to time, after it obtains the above-mentioned clearances from the Relief and Rehabilitation Sub-group and the Environment Sub-group.
- 5) The reports of the Grievances Redressal Authorities, and of Madhya Pradesh in particular, shows that there is a considerable slackness in the work of identification of land, acquisition of suitable land and the consequent steps necessary to be taken to rehabilitate the project oustees. We direct the States of Madhya Pradesh, Maharashtra and Gujarat to implement the Award and give relief and rehabilitation to the oustees in terms of the packages offered by them and these States shall comply with any direction in this regard which is given either by the NCA or the Review Committee or the Grievances Redressal Authorities.
- 6) Even though there has been substantial compliance with the conditions imposed under the environment clearance the NCA and the Environment Sub-group will continue to monitor and ensure that all steps are taken not only to protect but to restore and improve the environment.
- 7) The NCA will within four weeks from today draw up an Action Plan in relation to further construction and the relief and rehabilitation work to be undertaken. Such an Action Plan will fix a time frame so as to ensure relief and rehabilitation pari passu with the increase in the height of the dam. Each State shall abide by the terms of the action plan so prepared by the NCA and in the event of any dispute or difficulty arising, representation may be made to the Review Committee. However, each State shall be bound to comply with the directions of the NCA with regard to the acquisition of land for the purpose of relief and rehabilitation to the extent and within the period specified by the NCA.
- 8) The Review Committee shall meet whenever required to do so in the event of there being any unresolved dispute on an issue which is before the NCA. In any event the Review Committee shall meet at least once in three months so as to oversee the progress of construction of the dam and implementation of the R&R programmes. If for any reason serious differences in implementation of the Award arise and the same cannot be resolved in the Review Committee, the Committee may refer the same to the Prime Minister whose decision, in respect thereof, shall be final and binding on all concerned.
- 9) The Grievances Redressal Authorities will be at liberty, in case the need arises, to issue appropriate directions to the respective States for due implementation of the R&R programmes and in case of nonimplementation of its directions, the GRAs will be at liberty to approach the Review Committee for appropriate orders.
- 10) Every endeavor shall be made to see that the project is completed as expeditiously as possible.²⁹

²⁹Judgment, pages 75-76.

As the dam builders resumed work, the value of such large projects had come under intense scrutiny in India and elsewhere. Reevaluation had begun before the World Commission on Dams first met, but was strongly reinforced by its report and by the growing global interest in finding more ecologically sensitive ways of building physical infrastructure. In India, reconsideration was greatly advanced by advocates of “human scale” development who looked to both traditional Indian practices and new ideas from around the world.³⁰ The Centre for Science and Environment, an “alternative development” think tank, issued a very comprehensive study of traditional technologies in different parts of India that highlighted their small-scale, relatively low cost, and reliance on local management.³¹ Growing awareness that the groundwater resources being tapped by drilled wells were declining revived interest in finding ways to conserve water, improve capturing of monsoon water, and increase recharging of groundwaters.

The Government of India issued a new National Water Policy in 2002, and combined two preexisting programs – the National Watershed Development Project for Rainfed Areas and the Watershed Development Project – plus other water-related projects into one set of water development activities under a common set of *Hariyali* (“Greening”) Guidelines in 2003. These replaced the previous practice of promoting water project work in villages through central government programs providing food in return for work, which quite important in the 1960s when frequent drought meant India often depended on food imports including large amount of food aid from the USA under its Public Law 480 program. The Guidelines specified that village water projects would be run by the *Panchayati Raj* (council rule) institutions of local government, which had been given new, more open, rules and expanded tasks in 1992.³² The village, block, or district *panchayat* (council) would serve as the coordinating body, and initiate projects after the people in the village, block, or district had been consulted about and agreed to the proposed project. This put project design, management, and maintenance at the local level. This ran across longstanding efforts by many Indian NGOs using a participatory development approach emphasizing the promotion of local leadership and activity that had been working on rural water projects.³³ Feared that the change would inhibit their ability to run truly bottom-up projects even though the Guidelines do allow a local council to select an NGO as the “Project Implementation Agency” coordinating construction and maintenance of the particular flood control and water retention facilities the villagers select.

In parallel with the new projects to construct water-control and storage facilities in villages, there was also a significant revision to management of irrigation systems in India. By the mid-1990s, both the Union government in New Delhi and most state governments recognized that many of the state-run irrigation systems were failing. Farmers were complaining that many of them were inefficient, poorly maintained, and often failed to deliver expected water to farms at any distance from the canal because farmers closer to the canal would tap the pipes to get extra. At the same time, water management officials complained that water rates were too low to cover the costs of managing and maintaining current irrigation systems, much

³⁰ Such as Vandana Shiva. 1990. *Ecology and the Politics of Survival: Conflicts over Natural Resources in India*. New Delhi: Sage Publications and Tokyo: United Nations University Press or Alka Srivastava and Janaki Chundi. 1999. *Watershed Management: Key to Sustainable Development*. New Delhi: Indian Social Institute.

³¹ Anil Agarwal and Sunita Narain. 1997. *Dying Wisdom: Rise, Fall, and Potential of India's Traditional Water Harvesting Systems*. New Delhi: Centre for Science and Environment.

³² Constitution of India, Amendment 73.

³³ A significant literature on participatory development indicating best practices existed by the mid 1990s. E.g., Robert Chambers. 1997. *Whose Reality? Putting the First Last* (London: Intermediate Technology Publications);

less add to them. In some parts of the country, including Gujarat, the farmers poorly served by irrigation systems were so desperate to get water in time to grow their crops that private suppliers emerged to fill the demand. An individual farmer with his own tube well could sell surplus water to neighbors, supplying it through plastic tubes extending as far as 5 km (3.1 miles) away from the well. Though the private water sellers tend to charge high rates, and some farmers had to pay for their irrigation water before they received any,³⁴ farmers, worried that their whole investment in a crop may be lost because they will not get the irrigation water in time, will pay extra for the certainty of supply from the well.

Gujarat was heavily affected by these problems. The extent of the situation is indicated by a study done in Gujarat that determined that water rates were covering about 8% of the cost of actually delivering water to farmers.³⁵ The government realized, however, that increasing water prices would be very difficult. Senior officials in the Gujarat Water Resources Department decided in 1995 to address the problem with a new program of Participatory Irrigation and Management. Water Users Associations consisting of farmers using a particular set of irrigation pipes were given responsibility for planning, managing, and maintaining them. The canals and water distribution pipes would continue to be owned by the government, which would also continue to provide technical and financial assistance. Participatory Irrigation Management was extended to all parts of India after 2002, though it had been suggested in the 1987 National Water Policy references to involving farmers in managing and maintaining irrigation systems. Because water is a state level responsibility, each state has discretion to develop its own version of Participatory Irrigation Management; the Ministry of Water Resources in New Delhi has been active in encouraging the sharing of best practices and comparing actual progress in the various systems. The World Bank and the Ford Foundation have also provided the Government of India with money to send state irrigation officials and staff from NGOs working on water works or other village programs to other countries where participatory irrigation is more established, including the Philippines, Mexico, Sri Lanka, and Turkey, to learn about projects there.³⁶ The resulting state Participatory Irrigation Management schemes vary considerably. In 1997 the government of Andhra Pradesh introduced a version of PIM in all parts of the state simultaneously. Other states have used more incremental approaches, starting pilot projects in a few villages and then extending the more successful schemes to others.

John R. Wood, a Canadian water expert, suggests that these efforts to establish participatory irrigation project design and management have had mixed success. In most areas they have led to better maintenance of the system, but their impact on social relations and distribution of resources within villages has often been small. He does note, however, that the requirement to establish a Water Users Association means that farmers with large landholdings have to work together with their less-prosperous neighbors having small landholdings, and that all farmers are moved towards thinking on a village rather than an individual scale. However, the overall social effects of participatory irrigation depend on the extent to which the poor and traditionally marginalized groups like *dalits* (untouchables; “scheduled castes” in the language

³⁴ Wood 2007, p. 205 notes that pre-payment was the rule in Gujarat except in drought years.

³⁵ Ecotech Services. 1996. *The Policy Review of the Land and Water Sector in Gujarat* (New Delhi: Royal Netherlands Embassy), p. 32.

³⁶ For instance, Nirmal Sengupta. 1991. *Managing Common Property: Irrigation in India and the Philippines*. Indo-Dutch Studies on Development Alternatives. New Delhi: Sage Publications.

of Indian law) are included in village activity. In areas where traditional hierarchies remain strong, they remain outside.³⁷

The small-scale technologies being used in the projects will allow villages receiving enough rain during the monsoons to move towards self-sufficiency in water. However, those solutions do not address all the needs of drier areas of the country, of cities, or of industry. Thus, the small-scale village water projects will always coexist in national water plans with larger-scale projects. This is foreseen in the Narmada River Project, with its connected network of small, medium, and large dams coordinated by computer to provide both hydroelectric generation and water supply. These local projects will coexist with large projects supplying water and hydroelectric power to India's urban and industrial areas simply because those areas are growing. As India's economy has developed, there is greater appreciation of the multiple purposes to which large dams can be put. The lesson came to Madhya Pradesh in a different way, when it lost a considerable portion of its potential electricity supply as 16 districts in the southeast, where much of Madhya Pradesh's coal and thermal power generation capacity was located, were split off to form the new state of Chhattisgarh. With power blackouts increasing in Bhopal, its largest city, the state government began to regard building Sardar Sarovar Dam to the full height of 138.68 meters (455 feet) as essential to meeting electricity demand. Madhya Pradesh also became more anxious to speed up construction of the dams and hydroelectric power houses along its stretch of the Narmada, so anxious that it agreed to have construction work taken over by the central government's National Hydro-electric Power Corporation when the private contractors hired initially ran into financial difficulties. Speeding up a dam construction also required speeding up the process of resettling people. This was complicated in some places by the seasonal pattern of river flow. Significant additional areas of "drawdown" land -- land that is underwater for part of the year but reemerges in the dry season as the reservoir empties and can be used to grow a vegetable or watermelon crop in that season -- made it harder to define who should be counted as an oustee because owners of that land often wanted to hold on to it.³⁸

The continuing severity of demand for water in Gujarat meant that as soon as the Supreme Court handed down its judgment in 2000 construction of the Sardar Sarovar Dam resumed. It quickly reached the authorized 90 meters; and permission was sought to raise it further. It stood 95m high by the end of 2002 and 100 meters high in 2003. The 100-meter height created a reservoir high and long enough to fill the irrigation canal. By the end of 2005 that canal was complete almost to the Gujarat border, with construction of the extension into Rajasthan under way.

As construction of Sardar Sarovar's additional height and of upriver dams in Madhya Pradesh proceeded, more disputes broke out about treatment of oustees from those projects arose. Allegations that Madhya Pradesh was failing to provide "land for land" were rife; the state government claimed that many oustees preferred money to land. Villagers from Jalsindhi petitioned the Supreme Court for a review, and its March

³⁷ Wood 2007, Chapter 9.

³⁸ The question of how many people are affected has been controversial from the start, with BNA and others citing higher numbers and the state governments lower ones. Even the World Bank acknowledged numbers varying from 67,340 to 127,446 for Sardar Sarovar alone between 1985 and 1994. Jonathan A. Fox. 1998. "When does reform policy influence practice?" in Jonathan A. Fox and L. David Brown, eds., *The World Bank, NGOs, and Grassroots Movements* (Cambridge MA: MIT Press), Table 9.1, p. 324.

2005 ruling reaffirmed the “land for land” requirement.³⁹ However, later reports suggested that the state was still offering monetary compensation.⁴⁰ In 2006, NBA complained that Madhya Pradesh was persisting in ignoring the land for land principle and failing to provide resettlement in advance of construction. Madhya Pradesh officials contended in return that most of the oustees wanted money rather than land. The same issue that had triggered the initial NBA activism -- fair treatment for those whose homes would be lost to rising waters -- was still very much alive despite all the changes in Indian politics and in Indian policy regarding water management over the more than 20 years of contention. Similar contentions swirl around construction of the other large Narmada dams.⁴¹

Lessons for scientists and engineers

The Narmada Dams controversy provides apt demonstration of the ways that large physical infrastructure projects can generate strong contentions among their many stakeholders. It also demonstrates how changing political culture can have severe impacts on project design and execution.

The idea of building a dam at Navagam on the Narmada River inspired controversy from the beginning, even when the only stakeholders included in the discussions were the governments of the three states through which the river flows: Gujarat, Madhya Pradesh, and Maharashtra. All three wanted to tap the river’s potential as a source of drinking and irrigation water and of hydroelectric power, but they disagreed about the most effective way to harness the river with dams. Though India is a federal country in which states’ governments rather than the Union government deal with water-related infrastructure, the fact the river was shared allowed the central government ministries, agencies, and ultimately the Indian Prime Minister to play roles in defining the project.

In 1947-65, when early versions of the Narmada Project were being considered, it was commonplace in its ambitions though Gujarat’s proposals would make the Sardar Sarovar Dam one of the largest concrete gravity dams in the world.⁴² The project was designed to rely on centralized, large-scale infrastructure to meet the challenges of supplying water and electricity to a large area of a country with facing stiff challenges in water management because it receives its annual rainfall in two highly concentrated periods and possessing few fossil fuel resources. The procedures for defining and designing the project followed the usual path of such projects in democratic countries: elected officials defined the broad parameters of the project; civil servants and government-employed experts in hydrology, dam design, canal design, and construction of such projects worked out the details. The broad needs of users were considered, as were

³⁹ Narmada Bachao Andolan v. Union of India and Ors, Writ Petition (Civil) 328 of 2002, decided March 2003. 2005 AIR 2994, 2005(2) SCR 840. Also available through the Supreme Court website using the search utility at <http://judis.nic.in/supremecourt/chejudis.asp> (accessed 28 July 2010).

⁴⁰ “Cash not land on offer for oustees,” *The Hindu* 1 December 2005.

⁴¹ E.g., Eric Yep, “The Maheshwar Dam – A short-lived victory?” India Real Time, *Wall Street Journal/Digital Network*, 10 May 2010 at <http://blogs.wsj.com/indiarealtime/2010/05/10/the-maheshwar-dam-a-short-lived-victory/> (accessed 4 August 2010); Suchandana Gupta, “Maheshwar Dam: PMO lifts ban on work,” *Times of India*, 9 May 2010 at <http://timesofindia.indiatimes.com/articleshow/5908453.cms> (accessed 4 Ag. 2010).

⁴² Central Water Commission. 2004. *Water and Related Statistics*. (New Delhi: Central Water Commission, May 2004), p. 60 says that Sardar Sarovar is the third largest such dam, after the Soufengyng Dam in China and the Grand Coulee Dam in the USA.

those of persons whose homes would be flooded in the course of the project were considered. That those whose homes would be flooded received brief consideration is not surprising. They were politically immobilized populations having relatively small numbers (in a country the size of India or in comparison to the number who would benefit from the water and electricity to be supplied) of low social status living in remote areas. Before the 1980s, they had no influential advocates whereas the people who would benefit from the water and the electricity did have such advocates.

Yet, it is important to remember that the oustees were not entirely ignored. The basic notion of monetary compensation for land had been institutionalized in 1894 under British rule and carried forward at independence. Individual project managers, civil servants, and members of the political elite did realize that the system of payment for land often failed oustees, particularly unsophisticated and often illiterate rural dwellers. The judges named to the Narmada Water Disputes Tribunal were cognizant of that history, and determined to do better by ordering that oustees be compensated with land somewhere else in the area to be irrigated by waters of the reservoir that would inundate their original homes. Yet, unlike later advocates of indigenous peoples, who would take up the cause of *adivasi* oustees in the 1980s, members of the tribunal made no provision for *adivasi* to move as villages and re-create their traditional modes of living; they believed that everyone displaced would be better off in the modern farming villages to be created.

Though the environmental and social impact criticisms of the Sardar Sarovar Dam, and the Narmada Project as a whole were raised simultaneously in the late 1980s, resettlement was the primary basis of local challenge and transnational advocacy coalition activity. The most active Indian advocates for the oustees, the *Narmada Bachao Andolan*, raised three issues: compliance with the NWDT Award requirement of “land for land,” making provision for *adivasi* to continue their traditional ways, and lack of consultation with all stakeholders, including those who would be displaced, during initial consideration of the project. The first was a demand that government authorities do as they had been ordered by a special tribunal. It refers to the Indian government’s own standards and failure of the governments involved to follow through in ways the advocacy groups desire has inspired continued mobilization and contention.

The second and third issues involved demands to apply newly emerged standards to an already begun activity. Here, the advocacy groups encounter greater opposition because a lot of money has been spent and the larger numbers of stakeholders anticipating benefits from water use and/or hydropower generation are growing impatient with the long delays stemming from the controversies. The term “indigenous peoples” denoting distinct populations living in traditional ways who should have their right to maintain those ways protected was initially applied to native peoples living in an area colonized by Europeans – like Aboriginals in Australia, Maoris in New Zealand, and the many groups variously called “Indians,” “First Nations,” and “Native Americans” in the Western Hemisphere. In the 1990s, it was expanded to include any relatively isolated group, somehow ethnically distinct from the rest of the population of a country that continues to live in its traditional ways. This expanded definition included the *adivasi* and similar groups in Africa and other parts of Asia.⁴³ Though Indian legislation has provided certain legal protections for *adivasi*, the Government of India has resisted the notion that they should be regarded as “indigenous” and covered by UN definitions of distinct indigenous rights. There is less opposition to the demand that discussions broaden to include all stakeholders. Since the efflorescence of NGOs and advocacy groups in the 1980s, the notion of “bottom up” project planning emerging in development and public policy literatures and

⁴³Notd in J. K. Das. 2001. *Human Rights and Indigenous Peoples* (New Delhi: APH).

practice around the world has won a wider following in India. Yet, this sentiment often coexists with support for large projects when it can be shown that operating only at a small local scale will not fully address some particular need.

The environmental challenges to Sardar Sarovar and the whole Narmada Project were strengthened in the 1990s as concepts of ecological sustainability and sustainable development became more widely accepted. The World Commission on Dams marked the transition from old to new visions of water management at the international level, but its work drew on and helped reinforce reconsiderations already underway in many countries, including India. These challenges did not affect the basic design of Sardar Sarovar Dam, which was set by 1980, or the basic parameters of the Narmada project. However, they did inform project management techniques, and the organization of the irrigation systems tied to the canal supplying Narmada waters to Gujarat and Rajasthan.

Transnational advocacy had three intertwined but distinct effects on the Narmada Dams: adding to the weight of oustee advocates in India, encouraging new visions of water management in all of India, and persuading major shareholders of the World Bank to stop Bank involvement in lending for Sardar Sarovar Dam.

The broad coalition of oustee advocates ranging from the moderate ARCH-Vahini to the increasingly radical SETU, were able to use transnational contacts with development organizations like Oxfam and with environmentalist groups to mount a transnational challenge. Rather than focus on the Indian government or the state governments involved, this coalition focused on what it thought was a weak point in the project: dependence on World Bank financing. The World Bank and other MDBs were already being criticized for failure to pay sufficient attention to the social and ecological impacts of their projects; it was easy to add the Narmada Project as another example. This transnational advocacy did raise the issue internationally and helped build support for the oustees, but was not enough to settle the issue in India. The *pari passu* requirement that oustees must be resettled before the next increment of height is added to Sardar Sarovar had several effects: 1) it spread the project costs over a longer period, 2) it gave mostly unprepared state governments longer to muster their capacities or join efforts with NGOs already working in villages, and 3) kept the issue alive longer. *Narmada Bachao Andolan* is still campaigning, using the full repertoire of Gandhian civil resistance techniques, on oustees' behalf. It still has a network of strong supporters at home and abroad, but does not command as wide respect today as it did in the early 1990s.⁴⁴ Its continuing campaigns for the oustees, the most recent in spring 2010,⁴⁵ have held the Indian and state governments more closely to the terms of the NWDI Award, but have not realized the greater ambition of stopping the project altogether. Even if elites were inclined to give in to NBA's continuing sit-ins and fasting protests, the user groups are too large for the project to be abandoned. They are more numerous, have more votes, and at various times have mounted effective counter-mobilizations. Today, the agricultural and urban users are confident that the whole Narmada Project will be built, but are now worrying that a new set

⁴⁴See comments in, e.g., Tavleen Singh, "Luddite sisters." *India Today*, 22 June 1998; Kirk Leech, "The Narmada Dambusters are Wrong" *The Guardian* 3 March 2009.

⁴⁵"Narmada Bachao Abndolan protests against resettlement program failures regarding Maheshwar Dam in Madhya Pradesh," available at <http://blog.taragana.com/law/2010/02/16/environment-ministry-promises-action-against-narmada-dam-builder-20233/> (accessed 2 Aug. 2010).

of users – industry – now wants a share of Narmada waters. Farmers and households are mobilizing to limit allocations to industry on grounds the NWDT Award gave priority to irrigation and drinking water.⁴⁶

Transnational networking on issues of water management, dam design, and sustainable development provided opportunities for professionals concerned with the environment to advocate new models of water infrastructure – smaller in scale, lower in cost, more attuned to natural cycles. The World Commission on Dams made these discussions more visible to the general public, but they would have proceeded as new generations of technical experts trained to pay more attention to the environmental and social impacts of projects rose in their professions. How these new ideas play out depends very much on conditions in each area: small projects can help villages, individual farms, and households with enough land to build their own storage tanks. Cities and industrial complexes will still need larger-scale water infrastructure, though both can do more to use water more efficiently and lose less of it to leaky pipes, contamination by human or animal wastes, or pollution from industrial processes.

Pressuring major member governments to block World Bank loans in 1992 did not work out quite as the transnational advocacy coalition hoped. The campaign did call attention to severe problems with World Bank lending and lead to changes in its policies and practices. It did not lead to stopping or significantly scaling back Sardar Sarovar Dam or the larger Narmada Project. The Indian and state governments remained sufficiently committed to fund the project out of their own resources, resources that have become more plentiful as the pace of India's economic development picked up in the 1990s and 2000s. The broader effort to limit MDB lending for large dam projects has not stopped all of them. Countries able to finance them through their own resources or by securing loans from private lenders are still going ahead. Contemporary dam projects can benefit from lessons provided by the Narmada Project experience, but the extent they do will depend primarily on the orientations of the national actors involved. Transnational contacts can help spread new ideas, but will only have effect on the politics of dam projects in countries where national institutions permit a wide range of stakeholders to participate effectively in decisions.

<End>

⁴⁶E.g., remarks of former SSNNL chairman Sanat Mehta at a meeting commemorating the 50th anniversary of the Sardar Sarovar Project pointing out the lagging development of irrigation systems connecting to the canal and expressing concern that low agricultural use would give industrial groups chances to get allocations, reported in *The Indian Express*, xx April 2010 and available at <http://www.indianexpress.com/news/narmada-dam-veterans-criticise-slow-work/600010/> (accessed 2 Aug. 2010).