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Why people oppose dams: environment and culture in subsistence economies

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The history of social movements goes very far back in India. They have ranged from religious reform movements to Maoist type left-wing insurrections, and include the *adivasi* (tribal), peasant, worker and *dalit* (low-caste) movements. For a long period of time, over fifty years, they were overshadowed by the mostly non-violent nationalist independence movement, led and inspired by Mahatma Gandhi, that enabled the country to oust the British colonialists in 1947. Many of these movements, in different forms, still continue in many parts of the country, supplemented by two mostly post independence movements, the women's and the environmental movements. The sustenance and vibrancy of these movements is perhaps a better indicator of the deep rootedness of the democratic ethos in India, than the rituals of increasingly frequent assembly and parliamentary elections. As a commentator Priya Kurian (1988) notes, 'rarely have we seen the democratic process at work so palpably and so effectively as in the growing mobilization of people against large dams'.

Opting for a parliamentary democracy at the time of independence in 1947 and having ensured wide ranging freedoms for the citizens by adopting an elaborate Constitution for the Republic of India in 1950, people had unbounded hopes that self-governance would mean the participation of all in the reconstruction of the country. Political parties could be formed freely and participate in elections every five years, a process that has continued for nearly 50 years. However, it has got so corrupted and bizarre that the vast majority that still votes does so with increasing scepticism and disgust. The alienation between the candidates who fight or win elections and the people who they are supposed to represent has now reached alarming proportions. The polity has got so fragmented that about 42 political parties competed in the national parliamentary election in September 1999. Because of such fragmentation, no single party can form a government, and this has resulted in various bizarre coalitions in the past few years, which are made and broken with regularity because the issues on which they come together are now rarely related to the aspirations of the people. Governance has mostly to do with extracting maximum power from the dominant party in a ruling coalition. Even when the political fragmentation had not reached such levels, local issues affecting the common people would hardly find a place in the working of these official elected bodies. With globalization and liberalization sweeping the world, local issues have been further marginalized from legislative forums. Beginning in the 1970s, voluntary organizations (VOs, also called NGOs later), unaffiliated to any political party, began working in close collaboration with the common people in their areas, in large numbers. This prompted many scholars to study the phenomenon deeply and some, like the political

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philosopher Rajni Kothari (1988), began calling such social interventions as 'non-party political processes'.

The process is more visible and powerful where a people's movement rather than a VO represents the local aspirations and needs. A VO would normally be constituted as an institution with some amount of resource support from funding agencies, working mostly through a constructive agenda; whereas a people's movement generally implies a collection of a large mass of people in the thousands, struggling under a loose organizational structure without a structured funding support, most of which comes from the community of people constituting the movement, or from their supporters. Generally speaking, the VO would engage with the State more through negotiation and collaboration, whereas a people's movement's agenda would be more confrontational – although many variations to such a rule exist. The situation has, however, become somewhat complicated in the past six years since the formal electoral process has moved down to local levels through a constitutional amendment that has established local Governments at a district level and at the level of a cluster of villages, called the District and Gram Panchayats, respectively. These democratically elected bodies are now operating in the same geographical domains where VOs and people's movements function and the evolving relationship between the two, both conflicting and collaborative, would require a separate treatment. It is important to note that non-electoral political mobilizations, reflected through people's movements, continue to have a significant and vibrant presence in India, although they seem to have a marginal influence on the electoral process itself. The continuation of these diverse movements, however, is also indicative of the fact that even after 50 years of independence, many sections of the society forming a majority of the population are still fighting for their rights and for justice in the social, economic, and political spheres.

During the past ten years or so, anti-dam movements, particularly the one against the Narmada dams, have received national and international attention, both in terms of support and also severe criticism from those who see this as anti-developmental Luddite revivalism (for a recent example see Verghese 1999). Before we get into the specific issues of the anti-Narmada dam movement, a brief overview of dams around the globe may provide an illuminating backdrop.

Dam building has a very long history (McCully 1996; Smith 1971). Irrigation canals that are nearly 8000 year old, found near the foothills of Zagros Mountains in the eastern side of Mesopotamia, suggest that the farmers there may have been the first dam builders. These primitive dams might perhaps have been small weirs of brushwood and earth to divert water into canals. Evidence of dams, nearly 3000 years old, can be found in modern day Jordan, as part of an elaborate water supply system. Evidence of stone and earth dams, from about 1000 BC, is to be found in the Mediterranean, in the Middle East, China and Central America. Romans excelled in the area, and their best works are to be seen in Spain. A 46 m high stone dam near Alicante, began in 1580 and completed 14 years later, was the highest in the world for the better part of three centuries.

River work and dam building also has a long history in South Asia. The canal systems from the Cauvery River in South India, the anicuts, continue to be an engineering marvel even today. Long embankments have existed in Sri Lanka since the fourth century BC. One of these embankments was raised to a height of 34 m and

was the world's highest dam for a millennium. Another embankment was raised to a height of 15 m and had a length of 14 km!

However, one witnesses a frenzy in dam building after the Second World War. According to the 'World Register of Dams' maintained by the largest dam-industry association of the world, the International Commission on Large Dams (ICOLD 1988), the world's rivers are now choked by more than 40 000 large dams, an incredible 35 000 of them having been built since 1950! A large dam is usually defined by ICOLD as one measuring 15 m in height. The frenzy is most evident in China; it had eight large dams at the time of revolution in 1949, 40 years later it had around 19 000! The US is the second most dammed country in the world with around 5500 large dams, followed by the ex-USSR (3000), Japan (2228) and India (1137). Not only did the number of large dams increase since 1950, so did their size. ICOLD defines a major dam (or *megadam*) on the basis of either its height (at least 150 m), volume (at least 15 million cubic metres), reservoir storage (at least 25 cubic kilometres – enough water to flood Luxembourg to a depth of 1 m) or electrical generation capacity (at least 1000 MW – sufficient to power a European city with a million inhabitants). In 1950, ten giants fell in this category, by 1995 the number had risen to 305, the leaders being US (50), ex-USSR (34), Canada (26), Brazil and Japan (19), with China and India at 10 and 7 respectively.

The increase in dam building has not been haphazard. 'Better river planning' has implied identifying and siting dams to cover an entire river basin, of which the Tennessee River valley development project became a dam builders' blueprint. As McCully describes, 'many great rivers are now little more than staircases of reservoirs'. A meagre 70 km of the 2,000 km of the Columbia River flows unimpeded by the slackwater of the 19 dams that cut across it.

Movement against dams

Whereas dams have a very long history, large scale and concerted opposition to them is evident the world over only since the 1970s. This may be because the impacts of the postwar dam building mania took about two decades to sink in.[1] The early movements were mostly inspired and led by conservationists in order to preserve wilderness areas, and many did not succeed (Raina 1999).

Anti-dam struggles in erstwhile socialist countries sometimes became a symbol for the fight against the system itself. In September 1988, 40 000 Hungarians took to the streets of Budapest demanding an end, not to the communist rule, but to the damming of Danube at a place called Nagymoros. Yet one result of the anti-Nagymaros dam movement was that it helped the Hungarian people to gain confidence to speak against the prevailing political system.

The struggle against the Narmada dams in India since the mid-1980s has, in the words of *The Washington Post* (Moore 1993) become a global 'symbol of environmental, political and cultural calamity'. But Narmada is only one of many examples. In 1946, 30 000 people marched against the Hirakuud dam, the first huge multipurpose dam project completed in independent India. In 1970, some 4000 people occupied the Pong Dam construction site to demand resettlement land (Goldsmith and Hildyard 1984). The dam was completed, but 30 years later, a majority of the oustees are still to be resettled. In nearly all the cases, the opposition to the dam could not stop it. It

is therefore curious that the first successful anti-dam campaign in India, spanning late 1970s and early 1980s, against the 120 m Silent Valley dam (D'Monte 1985) in Kerela, was not due to displacement, but conservation. In the end, the concern for the rainforest and its endangered inhabitant, the lion-tailed macaque, persuaded the then Prime Minister, Indira Gandhi to intervene and stop the project.

The campaign against the dam is significant in political terms too. The political left in India has generally kept itself away from the anti-dam movement. But one of the groups in the forefront of the Silent Valley campaign was the left-oriented people's science organization, the Kerela Sastra Sahitya Parishad (KSSP; the *Kerela Science and Literature Society*).[2] The success of the Silent Valley campaign spilled over to proposed dams on the Godavari and Indravati Rivers, at Bhopalpatnam, Inchampalli and Bodhgat that together would have displaced over 100 000 adivasis and flooded thousands of hectares of forests, including a tiger sanctuary. Local people, adivasis and supporting environment and human rights activists combined to have the projects suspended.

Dam building in India after independence in 1947 became a major symbol of modernization, scientific progress and a matter of national pride. 'Temples of modern India' is how the first Prime Minister of the country, Jawahar Lal Nehru described them (Singh 1988). Dam construction was combined with river basin planning for the first time to form the Damodar Valley Corporation. Modelled on the Tennessee River Corporation, the project envisaged many dams on the river Damodar and other works on a number of rivers in the eastern Indian state of Bengal. Although there was no visible campaign against this project, a former civil engineer, Kapil Bhattacharya, in a series of brilliant articles during early 1950s (little known outside since they were written in Bengali, and based on the project documents) analysed the consequences of the project, as it later turned out, with almost magical prophecy (Raina 1998). Kapil Bhattacharya contented that the Calcutta port remained functional only because of the flushing of silt that the rivers that flowed into the port managed during floods. And by damming these rivers for flood control, the port would become non-functional, reducing trade and commerce, which is exactly what happened. He predicted that in order to overcome the problem, the government engineers would be forced to divert water in to the port from an upstream river flowing into the then East Pakistan (Bangladesh) through a barrage, the Farraka barrage, which would create international tensions, which is exactly what happened. In addition, due to silt, when the Calcutta port's bed rose, the sewage flowing into it from Calcutta would have a back flow, and that again is what happened. He even mentioned that in such an eventuality, people would blame the local Municipal Council, little realizing that it was a consequence of dams built far away from the city, outside the control of the Council that was the culprit. Damodar projects today are seen as a curse by hundreds of thousands who were affected by them but no one realizes that one of the best social, economic and environmental impact analyses, perhaps in the world, could have saved a lot of misery, but Kapil Bhattacharya was writing before anyone ever bothered about such things. He was, in fact, preceded by many years by the outstanding Indian physicist, Megnad Saha, who between 1922 and 1934 wrote extensively and brilliantly on the rivers of Bengal (Chatterjee 1982). His models of river planning, written some 80 years ago could be an environmentalist's delight today. It is significant that technical writings that have questioned impediments to river flow, either through

dams or through other means, have had a history longer than people's campaigns against dams in India. One might say that the relative success of the anti-dam movement today is not only because of the participation of affected people and their supporters from a broad spectrum of ideologies, but also because of the association of technically and scientifically trained professionals, who not only provide economic and technical criticism of state plans, but also suggest alternatives.

Livelihoods and subsistence

From its inception, the Indian state was confronted by two different visions of reconstruction: the Gandhian project of reviving the village economy as the basis of development, and the Nehruvian plan of prosperity through rapid industrialization. Gandhi put his views together as early as 1909 in his book *Hind Swaraj* (India's Self-Rule). Many years later, on the threshold of India's independence (5 October 1945), Gandhi wrote a letter to Nehru in which he outlined his dream of free India.

> I believe that, if India is to achieve true freedom, and through India the world as well, then sooner or later we will have to live in villages – in huts not in palaces. A few billion people can never live happily and peaceably in cities and palaces … . My villages exist today in my imagination … . The villager in this imagined village will not be apathetic … . No one will live indolently, nor luxuriously. After all this, I can think of many things, which will have to be produced on a large scale. Maybe there will be railways, so also post and telegraph. What it will have and what it will not, I do not know. Nor do I care. If I can maintain the essence, the rest will mean free facility to come and settle. And if I leave the essence, I leave everything.

'God forbid that India should ever take to industrialization in the manner of the West', Gandhi observed. 'The economic imperialism of a single tiny island kingdom (England) is today keeping the world in chains. If an entire nation of 300 million (*nearly a billion today*) took to similar economic exploitation, it would strip the world bare like locusts'. The appeal of Gandhi lay in his programme of revitalizing village communities and craft production by employing simple technologies to provide jobs and a decent livelihood to a predominantly rural population. The liberation that Gandhi promised was not merely an economic independence; it was, most profoundly, an assurance that the cultural traditions of the Indian peasantry would reign ascendant.[3]

Gandhi's vision struck no chords in the mind of Jawaharlal Nehru, who replied rather brusquely to Gandhi through a letter on 9 October 1945: 'It is many years since I read *Hind Swaraj* and I have only a vague picture in my mind. But even when I read it twenty or more years ago it seemed to me completely unreal … . A village, normally speaking, is backward intellectually and culturally and no progress can be made from a backward environment.' Having dismissed Gandhi's plea thus, Nehru's own ambivalence was to surface only a few years later when he talked of the evil of gigantic and 'mega' projects. Nevertheless, the Nehruvian developmental agenda has predominated for over 50 years now. There has, of course, been a great deal of industrialization in these years and a basic technical and service infrastructure laid for self-reliant development. Poverty, however, persists unabated.

As a person associated with the struggle and the issues surrounding the Narmada dams, I come across a large number of well meaning professionals, intellectuals and

ordinary middle class people, who have voiced a certain concern regarding the anti-dam movements with questions like, 'Where will the power come from?', or 'How can we do without irrigation – what about food?', and so on. These concerns need to be considered seriously because they are at the heart of the development debate everywhere. It becomes necessary then to situate the movement against the Narmada dams within the larger socio-economic, political and cultural realities of India.

It is generally believed, particularly by the government, that any kind of development is finally for the benefit of the 'common man'. But who is a common man, or woman in India? The general consensus would be the 'poor' man and woman. The Government of India defines all those who do not get to eat 2200 calories or more per day in terms of food as poor. Such imported mathematical exactness in a highly complex socio-political issue would seem to be particularly irrational from a scientific viewpoint. For example, in order to get a rapid assessment of poverty under this criterion, field agents of the National Sample Survey often ask poor adivasis and villagers: 'Do you get to eat two square meals a day?'. The answer is supposed to decide whether the person being questioned consumes around 2200 calories per day or not!

Indigenous people, or adivasis, are at the poorest rung in the economic ladder of India. Out of a total population of nearly 1000 million in the country, they number about 7 percent, which is around 70 million, or more than half the population of Japan. On a par with them on this ladder are the landless labourers and marginal and subsistence farmers with up to an acre of land. Similarly, there is a large population of people who subsist on their traditional artisinal skills, as potters, iron smelters, bamboo and grass weavers, small-scale handloom workers, leather flayers and tanners, wood, metal and stone craft persons. If we add to these the slum dwellers of the cities, living in abject poverty, the total may add to about 600 million people. India can therefore be seen as divided between a two-thirds population that somehow manages to survive and subsist, and another one third, totalling around 300 million people, that is composed of lower, middle and wealthy classes.

Except for the urban slum dwellers, the rest of the poor population of India subsists mainly from the availability of some or the other form of natural resource – land for subsistence farming, bamboo, grass, leather, minerals for artisinal occupations, various biomass sources for fuel and housing needs. The best example is that of the adivasis. Living mostly in or close to the forests, their economy, culture and society is organically linked to these forests. The material that goes into making their dwellings or huts, most of the food, fuel wood for cooking and water is obtained as a free common resource from their immediate physical surroundings. Their encounter with the market is mostly at the weekly travelling haats, which provide essential items like salt, kerosene for domestic lighting and, a few times a year, the bare minimum of clothing. Items like cooking oil, cereals, and pulses, sugar, spices and soap are luxuries, to be indulged in once in a while.[4]

Fifty years ago, when the country gained independence after a colonial occupation of more than 150 years, the expectations of the people were boundless in terms of better chances for economic and social improvement. The state, embarking on a massive industrialization and infrastructure-building programme, was hoping that the benefits would eventually trickle down to the common man. In the process,

absolutely no thought or concern was given to populations that were displaced through dam building, urbanization, setting up of industries and the like. The basic premise has been that national development cannot be achieved without a certain amount of sacrifice. Estimates suggest that around 40 million people have been made to suffer through involuntary displacement during the 50 years of national development, many of them being adivasis. Since most of the minerals, sites for dams and hydel projects, timber etc. exist in the environments these people live in, it is not surprising that they have had to face maximum displacement and hardships. Whatever benefits have accrued from these projects, in terms of increased electricity, irrigation or finished products from industries, have generally enriched the wealthiest one-third population more. Consequently, increasing polarization of wealth, facilities, control and inequity between the two population groups has been the visible manifestation of the development process in India.

Apart from displacement, since many people subsist as communities with free access to common natural resources, increasing legislations that have transferred these resources to the state – forests, minor forest produce, land, water, minerals etc – have rendered many of their subsistence and life securities – such as food and housing, as well as the use of their traditional artisinal skills to create produce for the local market, fragile.[5] For example, the absolute control of the state on the forests has deprived most of them easy access to the only source of domestic fuel. In a study of energy consumption patterns, Balaji (1987) calculated that of the total energy consumed in India, forty per cent came from fossil fuels, four per cent from electric power and a mind boggling fifty six per cent from biomass. With depleting and increasingly expensive fossil fuels, even though kerosene and cooking gas is subsidised, it is clear that biomass is going to continue as the main source of energy. Investments to switch from biomass in any substantial manner, particularly for domestic energy in rural areas, even in the present globalisation and privatisation era require mind-boggling investments. So forests have to be conserved so that they can be used in a sustainable manner, otherwise most of the Indians will be unable to cook their food.

As an aside, it is difficult not to comment on the timber policy of another nation in the Asian region, which one hopes no other nation is allowed to follow, namely Japan. It has retained an incredibly thick forest and biomass cover, on over 70 percent of its land, even as its use of timber, particularly for housing is one of the highest in the world. How? Simply by importing high quality timber, which in the process has denuded countries like the Philippines, Indonesia, Malaysia and Thailand. This is why the northern countries tried to call forests a 'global resource' in the aborted Forest Convention at the Earth Summit in 1992, to ensure that national control would be confined to management, whereas the use would be global. The situation is quite similar within India, whereby middle-class needs for timber for fuel and construction have been met by denuding forests, depriving a majority whose need for the same resource is for subsistence. This has in a sense created two conflicting 'countries' within the same nation.

It ought to be clear now as to why people who are likely to be adversely affected by a development project are forced to agitate and struggle all over India. Against dams, against trawler fishing, against the siting of power plants or hazardous industry, against parks and sanctuaries, missile and artillery ranges – the list can go on. Each of these development projects either takes away or pollutes one or another

natural resource critical to these people's subsistence, without providing them with a viable alternative. Each of these projects brings misery to large populations who have little political clout. Unless the economic costs and benefits of these projects do not include social and ecological costs, which constitute the livelihood and subsistence economy of the affected marginalized populations, the iniquitous distribution of benefits cannot but bring in increased social and political strife and disorder.

The Narmada dams

The loosely used term 'Dams on the river Narmada' does not imply just a few dams on the river, but refers to the plan for the development of the entire Narmada river basin, which includes all its tributaries. The plan envisages 30 major, 135 medium and 3000 small dams to harness the power and irrigation potential of the basin, or to choke the entire river system, depending on which viewpoint one holds. If the plan goes through, about 20 million are likely to face displacement. Only two dams from this plan have been completed, the Tawa and Bargi dams, in the mid-1970s and 1980s respectively, with widespread displacement that is still not resolved and water logging from the Tawa dam that has disenchanted even the farmers who benefited from irrigation. Two mega dams – the Sardar Sarovar Project (SSP) and Indira Sagar Project (ISP) – are under construction along with the Mahashwar dam. Five other dams are in various stages of preparation for construction.[6]

The Narmada River flows mainly through the state of Madhya Pradesh in central India, but also touches the state of Maharashtra, and the last 100 km pass through the state of Gujerat before discharging into the Arabian Sea. Its development plan became a matter of serious controversy between these states because of contending claims regarding sharing of waters. Various plans were drawn up right after the independence, but rejected by one or the other state. The central government had to finally set up the Narmada Water Disputes Tribunal (NWDT) under federal law, to resolve the issue. The three main terms of reference for the Tribunal were to assess the total water availability in the river, fix the height for the SSP, and work out a water sharing formula for which the non-riparian but drought prone state of Rajasthan was also included. The Tribunal gave its award in 1978, which is binding on the contending states. The award notes that as far as the first term of reference is concerned, a major technical matter on which most of the other design parameters, including dam heights, rest, was the fact that the Chief Ministers of the contending states, politicians, who were deciding on this vital issue, asked the Tribunal to use the figure of 27.88 MAF (million acre-feet; one acre-foot is the amount of water it takes to cover one acre to a depth of one foot; equivalent to 325 900 gallons or 1233 cubic metres) for its subsequent work. The basis for the politicians' agreement was an error prone and outdated hind-forecasting method based on rainfall data rather than actual river flow data. Since this technical parameter had become a major source of contention, it was, suitably, the politicians who settled it! This is an important issue since the proponents call the Narmada plan as the best technical plan in the entire world. More than 20 years since the Tribunal award was announced, better estimates based on actual river flow measurements suggest that the annual flow of water in the river, at 75 percent dependability is only around 23 MAF, about 17 percent less than the value on which

all the design parameters of the plan are based. This single factor is enough to demand a complete review of the entire plan.

After chopping and churning regarding the sites and heights of the major dams on the river, the other major recommendation of the Tribunal award concerns the heights of the SSP and the ISP. The SSP height was fixed at 455 feet (about139 m). Curiously, at the same site, Navgam, construction work for a dam of a height of 162 feet had been inaugurated by Nehru in 1961! Work was stopped on that to await the resolution of the inter-state dispute. The history of the evolution of the project since around 1948 therefore reads like a TV sitcom where the plot changes continuously; only here the change in plot had more to do with the changing political clouts between the contending states. The impact of the dam heights on the quantum of displacement was never an issue. In fact, the logic of the Tribunal determined 453 feet as the height of the Sardar Sarovar dam (Raina 1994), but the chairperson proposed the figure 455 feet as an aesthetic rounding off, and no one in the Tribunal bothered to recognize that the extra two feet at that height meant an increase in the submergence area by around 19 000 hectares of densely populated land! So much for detailed scientific planning!

The making of a movement

Although it is difficult to pinpoint when the movement against the dam started, events in 1986 started the ball rolling. The Narmada Dharangrastha Samiti (*Association of the Narmada Dam Affected*) was set up in Maharashtra and focused on the SSP. Independently and during the same year, some of us who were involved in the aftermath of the Bhopal Gas Disaster set up CAISA (Campaign against Indira Sarovar), and volunteers went to stay with the threatened oustees of Harsud town. Their very strong views against the proposed dam, gathered over a year's interaction, were published in the form of a booklet in 1986 (*In Sorrow and Anger – the Victims Speak*, 1986). During the same year, the Multiple Action Research Group (MARG) (1986) based in New Delhi initiated field studies in the villages of the Narmada valley. They published a series of reports entitled 'Sardar Sarovar oustees of Madhya Pradesh what do they know?' The objective of their reports was 'to access the extent of information communicated to the inhabitants of these villages by the concerned authorities and how far the information conveyed was accurate'. Their major conclusion was that the villagers were largely ignorant of the implications of the dams on their livelihood and existence. Around the same time, Medha Patkar, at that time working with a social action group in Gujarat, travelled through the valley and made contact with local people. These events triggered a spurt of protests from all over. Medha, along with a few others, decided to live full time with the threatened villagers, and gradually, they began to organize against the dams. In August 1988, the oustee organizations from two states issued memoranda to the local offices, *tehsils*, of the government opposing the SSP and launching a movement for non-cooperation, along Gandhian lines, against all survey and construction work. The supporters of the campaign reacted spontaneously in all parts of the country issuing memoranda, staging rallies and sit-ins (*dharnas*). On 12 September 1988 over 300 scientists, academicians and prominent citizens submitted a memorandum to the Prime Minister asking for a complete reappraisal of SSP.

A series of actions, including at the dam site, drew a larger number of people into the movement. The state reacted as it always does, through repression, in the form of police action and also clamping the Official Secrets Act on information and sites relating to the dam. These actions actually helped increase the momentum of the movement and the government was compelled to withdraw the Act in 1989. Two major turning points of the movement came in 1989. A massive rally of about 50 000 people at Harsud, with representatives from hundreds of organizations from all over the country, local people and the presence of national and international media galvanized the movement. Sometime later, thousands staged a sit-in on the Khalghat Bridge over Narmada, completely blocking traffic on the Delhi–Bombay highway for three days and forcing the government to negotiate. Since 1988, the movement has been spearheaded by the Narmada Bachao Andolan (NBA), a loose confederation of groups from all across the country, led by individuals from the oustee villages and their associated activists who have been living full time with them. Amongst these activists are professionals such as engineers and sociologists.

Although NBA consists of individuals from diverse professions and ideologies, from right-wing BJP to the extreme left-wing Maoists, one could perhaps say that socialist and Gandhian thoughts dominate. There is, however, an acute awareness regarding the need for a more inclusive ideology, and the Jansahyog Trust set up from the funds received by the NBA from the Right Livelihood Award has been organizing annual brainstorming meetings for the purpose. The attitude of the main stream parties is on expected lines, they view the movement largely as anti-developmental. Traditionally, the left parties have been wary, or even opposed, to non-party groups, whether NGO or movement type and, in particular, those espousing environmental causes that can impede developmental projects. Such stances are mostly seen as anti-worker. However, the degree of mobilization under the NBA banner has been difficult to ignore for most of the mainstream parties, and individuals from these parties have covertly and overtly supported the movement from time to time, and have increasingly expressed a desire to initiate discussions at party forums. Local candidates in the valley have been forced to take a stand at the time of elections to the state assembly or the national parliament because of the pressure from the electorate.

The main strength of the movement comes naturally from the thousands who are affected by displacement, but the professional support is critical in confronting the state and its allies, as in the NBA petition to the Supreme Court in 1995, which froze the construction of SSP at 80 m. It was only after four years that the stay on construction was lifted, and permission was granted to increase the height to 85 m, ensuring all those affected have been adequately resettled. Since that has not happened, the struggle has intensified against the Court's order. In the meantime, recognizing that a major portion of the dam has already been constructed, alternative plans ranging from height reduction (Raina 1994) to a comprehensive restructuring[7] have already been suggested. In a recent lecture, however, the noted novelist Arundhati Roy suggested leaving the dam wall as it is, unfinished, as a monument to the twentieth century foolishness of big dams! The government of Madhya Pradesh has in fact also requested height reduction. Restricting the height to about 95 m would reduce the displacement of about 200 000 people by about 70 percent. It is true that

power generation would also reduce, but power anyway is a questionable component of the plan (see Reddy and Sant 1994).

The involvement of a large number of city-based and middle-class professionals in people's movements surprises many who are unfamiliar with the functioning of these movements. One particular explanation may have to do with the history of the independence movement, which saw the involvement of a very large number of middle and upper class Indians, including lawyers, educationalists, scientists, poets and artistes and journalists. The Congress party, which became the rallying platform for the nationalists seeking to oust the British, was mostly a party of the middle classes rather than of the working class. In a sense, the tradition continues into the post-independence era, although it has been somewhat muted in the last ten years or so, since the liberalization process has opened lucrative avenues for the middle classes, somewhat lessening their social sensitivity. However, networks of medical, legal, science, journalist, social science and other professional groups, devoted to activism or supportive of movements, still exist, but how active or for how long they can survive the multi-faceted onslaught of the globalized market economy, with its cultural, educational and material baggage, is a matter of constant debate nowadays in these circles.

A question of cultures and beliefs

Movements are formed by the coming together of a large number of human beings, not only because of their rationalities but also, or mainly, because of their emotions. People have faces and names; by analysing their actions and agendas mostly through aggregates (i.e. thousands are opposing the dams), we get a skeletal description, bereft of the living elements. The idea here is not to allude to some shadowy debate between modernism and whatever is called post-modern, but to confess to a personal dilemma. For a person trained professionally in mathematics and natural sciences, the overlaid experience of participation in movements creates an extreme tension. A tension that demands that the smiles, tears, valour, fear, values, philosophies, cultural identities and the living elements of the humans that form a movement be evident in the analysis of the social, economic, and even technical issues raised by them. Clearly such a methodology does not exist, though Arundhati Roy's recent long essay '*The Greater Common Good*' may be considered as an impressive attempt to achieve such integration (Roy 1999). The alternative, that of a participant observer, the anthropologist, is generally considered less positivistic, but such a participant is normally a professional intellectual motivated more by a PhD, or publications that would advance his or her career or bring prestige, which is clearly different from the motivation of the 'observed', for whom the struggle may be, as it often is, a matter of life and death. Such motivational differences, combined with the cultural differences between the observer and the observed often produce end results that are less than satisfactory, and also become a cause of tension between the two, the activist and the academician. When the activist and the academician is the same person, the internal conflict has to be extreme.

The interconnection between the global and the local and of culture and struggle as George Marcus (1986) contends is that 'the issues in social science reflect a world increasingly pulled asunder by the expansive tendency of the global capitalist

economy to incorporate everyone into itself. The world of larger systems and events no longer merely impinges upon and constrains 'little communities'; it is becoming integral to them. 'Little communities' – and subordinated people in general – are the besieged strongholds of autonomous cultural traditions. The research of critics of capitalism scales the bounds of beleaguered consciousness; for the quest for the native's point of view has now become a search for an authentic critical theory, embodied in the lives of those on the margins of capitalism. Thus, it is a seductive idea at the moment to liberal and radical culture critics in search of some direction that the necessary insights are *there* in the lives of subjects, to be unearthed by careful interpretation … . Such an understanding tries to synthesize two divergent perspectives: one, the anthropological understanding of culture as autonomous, enduring over time, 'not without its own internal contradictions, but at least with its own integrity against the world; the other is the Marxist view of culture as a product of struggle'. 'This merging, when successful, endows the research enterprise with a new legitimacy, for it can claim to make a localized critique known to the rest of the world' (Baviskar 1995). Since every social movement is almost always a cultural movement too, to understand it better, it is imperative to reflect on its cultural roots.

Any observer who spends time with the people of the Narmada movement wonders what motivates people to keep on going for years. I believe the strength and sustenance of the movement is derived from these deeper concerns. Rivers have been an integral part in the rise of civilizations all over the world. Most of the Indian cities, big or small, have a river associated with them, and both in folklore and recorded history, these associated rivers are seen as a source of life for the natural elements, including humans, existing in their vicinity. This has resulted in a deep-rooted reverence for rivers. Riverbanks abound with temples and holy sites in every nook and corner of the country. Exalted to the form of a goddess, bathing in most rivers is seen as a process of washing away one's sins. The flow of the river is basic to these beliefs, the goddess associated with each river is seen as virginal, and the purity is supposed to be maintained because of the flow. Impeding the flow of a river is therefore seen as an irreligious act, and if such obstacles occur naturally, as in the Himalayan rivers due to massive land and rock slides, it is the general belief that the goddess river will mightily hurtle down the obstacle and restore its flow, as most often happens in these mountain rivers. In addition to the rituals followed regularly by millions of people in temples on the river banks daily, these beliefs find an expression in the numerous songs, stories and literature that form an integral part of the cultural milieu of the people living close by. In a majority of these songs, specific to 'fishfolk', peasants and women, the image of the river is mostly of that of a provider, a giver. In many women's songs the allusion is to that of an empathizer; it is only the river that will understand the sadness of a woman's existence, and its constant flow signifies steadfastness, a constant companion whose life sustaining qualities act as a balm in her life. This is not surprising since a woman in India spends a large part of her life in and around the river, fetching water, washing clothes, and bathing furtively in groups, wary of male intrusions.[8]

The more dominant adivasi cultural value, or belief, that needs a brief exposition here, relates to their relation to their land, their dwelling place. As is well known, it is the natural elements – the forest, the fire, thunder and rain, sun, moon and stars, animals – that generally dominate the adivasi belief system. In many ways they see

these as external elements that can influence their lives, for good or for bad. Most of their ritual is based in appeasing and keeping peace with these elements. Long conversations with many of them, in the Narmada area and outside has formed a somewhat ridiculous simile in my mind about the very militant possessiveness they feel for their traditional land, in which, as they say, lie the bones of their ancestors, whose spirits hover above.

Just as in satellite-based global communications technology, the ground stations provide the necessary and critical link to the invisible satellites, so it seems they see the spirits of their ancestors as the link to these external elements that influence their lives. Their ritual, centred around the totem pole placed at the burial site, suggests a considerable dependence on these spirits to keep the external elements calm, which provides them with a sense of security. Since the proximity of the sites where the ancestors are buried is critical to this belief system, displacement from such sites is such a puzzling, alien and incomprehensible thought to them that it can arouse immediate militancy. Imagine if the land where all the ground stations for satellite communication are situated were to be acquired for other purposes, say agriculture, what would happen? In many ways, the adivasis see their lands as similar ground stations for their belief systems and naturally try to resist attempts at displacement. And they feel puzzled and angry when offered land-for-land compensation. For a non-adivasi farmer, that may be a viable choice, provided the land in exchange is adequate and of good quality. But for the adivasi, land is not merely material, so how do you exchange one piece for the other?

I am reminded here of an encounter of the modern with the traditional that was related to me in Bastar, another adivasi area. Some years ago, the electricity department, implementing the government policy of providing single-point electric connection in villages started putting up wooden poles in the area. Only the poles would be found uprooted in the morning. This went on for some time and finally it was decided to summon the police, since government property was being tampered with, to teach a lesson to these uncouth idiots who were opposing the fruits of modernization from entering their homes. A local journalist, who has done commendable work as a human rights activist there heard about it and pleaded with the Collector to let him speak to the adivasis – he speaks their Maria language. He came back in a day or two and told the Collector that the people had nothing against electricity; in fact they were keen to have it in their homes. The only problem was that a vertical wooden pole in the ground could not be dug in without a ceremony since it disturbed their dead ancestors. They pleaded to be allowed to perform a short ceremony around each pole, as it was erected and no more. The plea was accepted and to their joy, electric lines reached their homes. How can one displace such people from their lands without doing and inviting violence?

The Indian reverence for rivers, where damming is akin to the rape of a virgin goddess, and the adivasi's reverence for its ancestral lands are just two examples of what could be considered as the propelling elements for the local people involved in a movement like that against Narmada dams. These elements remain mostly invisible since the language of discourse is mostly developmental, which does not recognize beliefs as part of human development. However, these are matters of controversy because in many ways the agenda of modernization is not only developmental, but philosophical too. In such an agenda, traditional and ritual beliefs are indicators of

backwardness that need to be altered and scientifically tempered. This may be why Nehru saw village-based cultures as backward. And in a mechanical Marxist framework, such belief systems constitute the 'false consciousness' of people that hinder a 'proper' understanding of the material basis of life and existence. The developmental agenda from both these points of view would consist of purging the concerned populations from such beliefs, and physical displacement, one may well argue, might even help in such a pursuit!

This is a major accusation of the dam proponents, who hurl the question more like an abuse at their opponents: should the traditional social groups, the adivasis, live as they have for centuries, as animals in forests, as museum pieces, with their cultures and beliefs intact? Do they not have a right to progress? The answer is very simple and best illustrated by the electricity example of Bastar. Of course, any social group must have the right to change, to imbibe and to assimilate. But that must be through a just and democratic process, which ensures that the concerned population is socially, economically and politically empowered to decide on the processes of assimilation and integration. A police action would have forced electricity on a population who actually did not oppose it. A process that ensured their dignity and participation made the encounter between tradition and modernity assimilative rather than violative; it showed respect for their beliefs. A court order to vacate traditional habitations issued under the Land Acquisition Act in the name of a project of national interest can in no way allow the marginalized to progress and modernize, if that be the logic of the proponents. It can and does, however, further alienate them. A much wider and deeper debate seems necessary to explore and understand the notion and importance of 'belief security', in the same manner as we recognize it in the material sphere, as for example with food or housing security – recognizing, of course, that just as the nature of material securities can change and transform over time, so can that of beliefs.

Lest the allusion to something like belief security be misconstrued as a glorification of misconceived irrationality, we need to remind ourselves of the active role beliefs play even in the domain of the rational, the sciences. Although tomes can be written on that and Einstein's essays on the subject remain seminal, a view expressed by the great physicist Max Planck should suffice here. Reflecting on the severe opposition to ideas of quantum mechanics, about which he himself was initially sceptical even though he was the first to uncover them, he maintained that it was not as if logical arguments or experimental evidence changed previously held beliefs immediately. The opposition to new views, he maintained, wanes simply because the older generation of scientists dies and the new ones grow up with these new ideas. This idea is not much different from the Kuhnian notion of paradigm dominance and shift over periods of time in the evolution of scientific knowledge. These shifts, however, take place over generations in an atmosphere that provides the freedom to explore and exercise choices. When that freedom is taken away, or attempted to be fitted into a particular belief system even momentarily for a few years, as was done in Nazi Germany, the opposition and resistance of people who were otherwise supposed to be pursuing 'value-neutral rational science, unaffected by social and political beliefs' was heroic, as the displaced refugee scientists demonstrated.

The question of resistance to dams is therefore not that of Luddite revivalism, as Verghese would like us to believe. It is more a question of choices. Choices deter-

mined not through a rejection of rationality, but as far as I am concerned, choices *within* science and technology itself, since building a dam is not the only scientific choice for water conservation and management. However, these choices are not autonomous of the material, cultural and belief systems of the affected populations. That modernization of science and technology cannot be integrated and harmonized with such systems and must be institutionalized and bureaucratized, so to remain alienated from them, is an extreme form of scientific positivism, which I am afraid is the essence of the Verghese kind of arguments that need to be rejected, as even science has, since the rejection of the philosophy of logical positivism, the Vienna school, which surfaced for some years in the 1920s.

Cultures, beliefs and local life systems cannot after all be mutated through coercion, no matter how competent the coercion is technologically. Nazi Germany found that out in a different setting, why must we replicate the experiment in the name of development?

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Notes

1. Responses to dam building around the world can be found in McCully (1996).
2. KSSP was formed in the early 1960s by a group of scientists in the southern Indian state of Kerela as a movement to integrate science, literature and culture using the local language, Malyalam, rather than English. Over the years it has grown into a major movement involved in education, literacy campaigns, development, travelling theatre (*kala jatha*) and people's science.
3. Gandhi mostly expressed his views in the newspaper *Harijan* (called *Young India* earlier) that he edited for many years. Apart from his collected works that run into 100 volumes, the following references have been used here: Ganguli, B.N. (1973) *Gandhi's Social Philosophy*, New Delhi: Indian Social Science Research Council, New Delhi; Nanda, B. (1974) *Gokhale, Gandhi and the Nehrus*, London: Allen and Unwin; Bideleux, R (1985) *Communism and Development* , New York: Methuen, an interesting work that compares developmental ideas from Herzen and Bakunin to Gandhi and Chayanov as an alternative to Stalinist industrialization.
4. Extensive literature exists describing the life of *adivasis*, officially called scheduled tribes, and *dalits*, also called scheduled castes. For an analysis of the impacts of developmental projects on these marginalized groups, including those from Narmada dams, the 28th and the 29th

Reports of the Commissioner, Scheduled Castes and Scheduled Tribes, New Delhi, are very illuminating.

5. For similar ideas regarding two population groups based on access to natural resources and environment see Guha, R. and Gadgil, M. (1995) *Ecology and Equity – the Use and Abuse of Nature in Contemporary India*, India: Penguin Books.
6. The blueprint for the development of the Narmada basin is contained in the Report of *The Narmada Water Disputes Tribunal with Its Decision*, New Delhi: Government of India (1978). For a summary of the Report and the early history of the movement against the dams see Paranjpye, V. (1993) *High Dams on the Narmada*, New Delhi: INTACH. See also Fisher, W.F. (ed) (1995) *Towards Sustainable Development? Struggling Over India's Narmada River*, Armonk, New York: M.E. Sharpe.
7. For example, All India People's Science Network (AIPSN) (1994) *Report on the Consultation for Restructuring the Sardar Sarovar Project* (in mimeo), New Delhi (available on the net at www.irn.org); and Joy, K.J. and Paranjpye, S. (1995) *Sustainable Technology – Making The Sardar Sarovar Project Viable*, Ahmedabad: Centre for Environmental Education.
8. For such a description of Narmada, see Grewal R. (1994) *Sacred Virgin – Travels Along the Narmada*, India: Penguin Books, as also the long poem in Hindi by Sudha Chauhan (1988) '*Will you remain silent?*' (bolo tum kya chup baithoge), Bhopal: Eklavya.

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Author's biography

A theoretical physicist, Vinod Raina resigned his job from Delhi University in 1982 to work full time at grass roots level in the areas of education and rural development. With like-minded people, he has helped to evolve the People's Science Movement, something unique in India, that attempts to empower people to plan and implement their own developmental ideas and needs, so as to reverse the trickle-down paradigm of development. He has worked in developing alternative school curricula for rural areas, has edited a children's magazine and a developmental news feature service. He has helped conceive a major regional project, and was the main editor of the outcome, a book entitled '*The Dispossessed Victims of Development in Asia*', published by the Asian Regional Exchange for New Alternatives (ARENA), Hong Kong, of which he is a board member. Has worked closely with the Bhopal Gas Tragedy victims and with the Narmada Dams movement. Has been a Homi Bhabha Fellow, a senior Fellow at the Nehru Memorial Museum and Library and is a Honorary Fellow of the Indian Science Writers Association. He lives in the city of Bhopal in India.