

THIS DAM SPELLS DOOM

ASHISH KOTHARI reports on the Kalpavriksh study of the impact of the Narmada Sagar project in Madhya Pradesh

SILENT Valley has been saved. At least for the time being. Unfortunately, the same cannot be said of a massive area of rich forest in the heart of our country, threatened by the proposed construction of a large dam. The area: the moist deciduous forest of central Madhya Pradesh. The dam: the Narmada Sagar Project in the Khandwa district of Madhya Pradesh.

Slated to be commissioned in 1991-92, the Narmada Sagar Dam is going to be one of India's biggest multi-purpose dams. With a concrete dam 640 metres long and 94 metres high, and a storage capacity of 9.9 million acre feet (MAF), Narmada Sagar is expected to irrigate 1.2 lakh hectares (ha) of land in Khandwa and Khargaon districts. In addition, it will create an installed power capacity of 1,000 mw and supply 73.8 million cubic metres of water for domestic and industrial use. The huge reservoir that will be created will be ideal for large-scale pisciculture, and also for development of tourism. Thus, the dam will bring agricultural, industrial and fisheries revolutions to the region.

Or so the project authorities say. An investigation by Kalpavriksh, the Delhi based environmental group, reveals that the actual impact may be very different.

Perhaps the most disastrous effect of the Narmada Sagar Project will be the loss of land under submergence. The water impounded by the dam is going to spread over a lake some 90,000 ha (909 sq km) in size — the biggest human-made lake in India. Over one-third of this threatened area is forested; in one single blow, 33,000 ha of forests will be wiped out forever. And the figure does not indicate the full implications of this loss, for this area has amongst India's richest moist deciduous forests, dominated by top quality teak. This itself is a good enough reason to question the sanity of the project, for India, down to 10 per cent forest cover, can simply not afford any more large-scale loss of natural forests.

The project authorities claim that adequate compensatory afforestation in the project budget is very meagre. An amount of Rs 31 lakh has been allotted for afforestation, enforcement of anti-poaching laws, fire prevention and establishment of fuel depots and public health measures. Even with the unrealistic assumption that most of this money will be used only for afforestation, this will be adequate to cover only 1,500 ha of land at an approximate average cost, Rs 2,000 per ha. This is not even one-twentieth of the total forest area to be submerged. Second, even supposing that adequate finances are provided, what is the guarantee that afforestation will be with the same species as are lost? It has been observed that in most such cases, afforestation has involved trees which are commercially, rather than ecologically, useful.



Site of the Narmada Sagar project: lack of environmental concern

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The destruction of natural habitat inevitably causes the decimation of wildlife. The forests to be submerged harbour a wide range of wild flora and fauna, including many of India's endangered species. The *Detailed Project Report of Narmada Sagar* (July '82) lists tiger, panther, wolf, wild dog, bear, nilgai and langur as some of the animals found in the area.

And what is to happen to these animals if the reservoir floods their habitat? According to the project report, "the impact on wildlife shall be nil, since wildlife has got natural characteristics of shifting to nearby jungles, when it is felt unsuitable for them". In other words, wildlife is expected to relocate itself. But such relocation is possible only if there is adequate contiguous forest. A map of the submergence zone shows that while there is contiguous forest area to the north of the forests to be inundated, this is not so to the south. For the latter, MP's Environment Planning and Coordination Organisation (EPCO) has made a suggestion to create corridors linking the submergence zone with the nearest forest area. This, however, seems highly unrealistic, especially

in the south-east and east, where the nearest suitable areas are 100 km and 40 km away, respectively.

Narmada Sagar will submerge over 50 buildings of religious importance. This includes the Singhaji-ki-Samadhi, a greatly revered spot where a large fair has been held for over 450 years. As the project report admits, its loss "may hurt the feelings of East and West Nimar people who have got a lot of devotion and faith in this Samadhi". To their credit, the Narmada authorities plan to relocate this samadhi. But such special treatment may not extend to all the other religious buildings to be submerged. It is interesting to note here that article 3.7.8.2 of the project report states that "No archaeological monument of significant importance is going under submergence." Even curiously, the project documents do not even mention a 500-year-old island fort (Joga Fort) situated on the river within the submergence zone. Attention drawn to this glaring omission has evoked no response from the project authorities.

Even more crucial is likely to be the impact of the dam on non-material elements of traditional cul-

ture. This includes the disruption of the famous Narmada parikrama, the centuries old practice of circumambulating the entire river on foot and along its banks. The Narmada Sagar reservoir will submerge part of the parikrama route.

Perhaps the most serious effect is likely to be on local tribal cultures. Many tribal communities are going to be thrown into an alien, materialist, consumerist and competitive environment where their complex cultures may just disintegrate.

As frightening as the ecological cost of the Narmada Sagar is the direct human cost in terms of displacement. The dam reservoir is expected to submerge 255 villages, partially or fully, and a *tehsil* town (Harsud). This will displace about one lakh people. There is as yet no comprehensive policy on rehabilitation. There are indications that MP may adopt the policy adopted by Gujarat for relocation of the oustees of its Sardar Sarovar Project, which is a sister dam of the Narmada Sagar on the Narmada itself. If this is so, at least three serious issues arise.

First, the Gujarat policy states that those oustees who lose their land under submergence will be

place almost 11,000 landless labourers and 900 artisans. Some of these people may get employment at the dam site, but this will only be temporary, and anyway the economic future of the rest will become highly insecure. Again, the worst affected will be the tribal oustee population. Most of these are small farmers living in predominantly forest surroundings. They are not likely to be relocated in similar surroundings. S. C. Verma has clearly stated in this regard that "it is no longer possible to reduce forest area any further".

The third immediate problem is that the Gujarat policy does not provide for basic necessities like fuelwood and fodder to the oustees, not to speak of material facilities to the landless to earn a livelihood.

Large dams all over the world are known to have created serious human health problems due to hydrological and micro-climatic changes. Preliminary studies on the health impact of Narmada Sagar conducted by the Madhya Pradesh Council of Science and Technology, indicate that while schistosomiasis and guinea-worm diseases are not likely to occur or increase, incidence of malaria, filaria, cholera, gastroenteritis, viral encephalitis, goitre, and some other water borne diseases is likely to go up. It is extremely unclear how the Madhya Pradesh government intends to cope with this, especially considering that no funds have been earmarked for health measures.

While the various costs of Narmada Sagar are very high, some of the expected benefits are uncertain. The proposed irrigation of 1.23 lakh ha in Khandwa and Khargaon districts is expected to yield a four-fold increase in agricultural production. That this may be an unrealistic estimate is indicated by two facts: firstly, due to various reasons an increase in crop yields has fallen far short of target all over India — the Planning Commission has recently noted that instead of yielding four to five tons per ha, irrigated land has on the average yielded only 1.7 tons. The Narmada Sagar authorities provide no convincing answers on why it is likely to be any different in their case.

Secondly, the command area of Narmada Sagar has black soil and certain other conditions which make it prone to water-logging. Indeed, a recent study by the Indian Institute of Science, Bangalore, has warned that as much as 40 per cent of Narmada Sagar's command area is likely to become waterlogged, unless extremely careful and wide-spread measures are taken.

While judging benefits, there is also the question of the lifespan of

the dam. Narmada Sagar is expected to yield benefits for at least 100 years. But Kalpavriksh's observations indicate that the catchment forests of the Narmada are under heavy pressure from a number of sources, and this pressure will be greatly increased due to the boost the dam itself will give to urbanisation and industrialisation. In such a situation of rapid deforestation, soil erosion is likely to be high, and the reservoir could well silt up permanently. This will obviously reduce the total benefits from Narmada Sagar.

The Planning Commission requires that any development project to be given a green signal must show a benefit cost (B-C) ratio of 1.5 to 1, ie, a return of Rs 1.50 for every rupee spent. Narmada Project officials themselves admitted that this leads to a tendency on the part of the dam authorities to exaggerate benefits and underplay costs. As indicated above, this indeed seems to be the case for Narmada Sagar.

But there are other indications of an inadequate or less than honest B-C analysis. For instance, loss of forests under submergence has been greatly undervalued. The cost of Unit 1 of Narmada Sagar (including dam construction, submergence loss and rehabilitation) has been put at Rs 345 crores in the project report. A senior official of EPCO, however, told us that the loss of forest alone is worth Rs 330 crore not to speak of the other components of Unit 1. Similarly, several other costs have been ignored altogether, for example, those of ecological disturbances caused by groundwater utilisation and other hydrological changes (noted by EPCO itself), or those of health measures in the command area. There is also the interesting question of how costs of human rehabilitation have been given even before formulating a rehabilitation policy!

Kalpavriksh has pointed out two other crucial considerations here. First, the B-C analysis totally ignores intangible ecological and cultural damage as a legitimate cost.

Secondly, such analysis always seems to leave out the crucial class factor, ie, who benefit and at whose cost. It is by now evident that most river valley projects in India have overwhelmingly benefited the privileged sections, and at the cost of the already disprivileged.

One final factor in the B-C ratio is that of cost escalation. In 1954, when the first project report on the dam was prepared, the cost had been put at Rs 54 crores. Additional surveys updated the figures to Rs 111 crores in 1969. In 1980, the expected cost had shot up to Rs 622 crores. Certainly by the time the

project is commissioned, the actual cost will be much greater.

Partly on its own initiatives, partly as a response to growing criticism, the Madhya Pradesh government seems to have taken a few steps towards a system of environmental safeguards. Apart from the EPCO, a special Environmental Review Committee (ERC) has been set up for Narmada Sagar. For perhaps the first time in India, dam officials of various ranks are to go through a series of environmental training courses. Also some detailed studies on the displacement villages, on flora and fauna in the submergence zone, and other such issues are being commissioned.

These are all welcome steps, but in Narmada Sagar's case not only are they inadequate, but also largely cosmetic in nature. All these steps have been initiated after work on the project has started, and after enormous amounts of money have already been spent on planning, site investigation, digging, infrastructure, staff colony construction, etc.

Even the World Bank has fallen for this: in a letter to Edward Goldsmith of *The Ecologist*, R. Goodland of the World Bank states that "the preventive and mitigatory measures financed as an integral part of the project will, we believe, reduce the social and ecological effects so that they are outweighed by the major benefits". It is difficult to understand how he can come to such a conclusion when several preventive and mitigatory measures have not even been thought of or planned out as yet, much less being incorporated into the project budget. Surely this is a mockery of what is called "environmental impact assessment"?

Indeed, the status of the ERC itself indicates the lack of any adequate machinery to ensure environmental safeguards. The ERC has a largely advisory status. Even if it found that long-term environmental costs exceeded benefits, it has no power to halt the project. In such a situation it would be natural for ERC not to make public any findings that could embarrass the Narmada Planning Agency, the top body in charge of the Project. Indeed, the ERC is not even conducting a full environmental impact assessment. This was supposed to have been done by EPCO, but the 120-page report it submitted in 1984 contains more queries and gaps than definitive conclusions and recommendations.

If the government is genuinely concerned about human welfare and about environmental safety, let it immediately halt work on the Narmada Sagar dam, as it did in the case of Silent Valley, until an honest and independent benefit cost analysis is done. Otherwise, the plea that "we have already spent too much money, we can't stop this project now" will overrule any environmental and socio-cultural considerations, however serious they may be.