A New Bottle for the Same Old Wine
An Answer to the World Bank

by Ashish Kothari

Dr Robert Goodland is an ecologist whose integrity and erudition are respected by everyone in the Ecological Movement. What is more, his knowledge of the environmental effects of large dams and other water development schemes is legendary. Over the years, we at *The Ecologist* have made considerable use of the many papers he has published on this and related subjects. However, in this case we felt that he was trying to defend the indefensible and his letter (see p. 291) was sent to Ashish Kothari of Kalpavriksh for comment. The latter's reply is published below.

It feels a little strange to write a rejoinder to such a sketchy note presented on behalf of the Government of India, but I will assume that the essence of the government's standpoint is presented in it. Let me make it clear that neither in this note nor in our previous report do we (i.e. the environmental group Kalpavriksh) imply that the officials in charge of the Narmada Project are solely to blame for the problems we have outlined. We realise that their plans and actions are often determined by a certain socio-economic and political system and by a certain ingrained way of thinking rather than by ulterior motivations. Our criticism of the Narmada Project must be taken in this light.

Before I come to the specific points made in the Government of India note, let me raise two fundamental issues. One deals with the fragmentary nature of Government of India's work, the other with the fraudulent nature of the kind of environmental assessment being made.

The Government of India note deals only with one dam, Narmada Sagar. This happens to be just one of the 30 large dams (in addition to 135 medium and 3000 minor ones) which are part of a single Narmada Valley Development Project. While it may be justified to treat each dam separately as and when its construction is to begin, I would argue that an environmental assessment of *the entire Project* must also be made. It should be obvious that the combined environmental and social impact of so many dams within one valley is likely to be far more serious than can be gauged by looking at each dam in isolation. As an example, one can take seismicity. The Narmada Sagar reservoir, says EPCO[1] is unlikely to generate seismic activity on its own. But 30 large reservoirs in one valley may have a disastrous combined effect. At any rate, there is no study to show that this will not happen.

The second point is perhaps the most important. The various studies that the government has commissioned, the various committees it has set up, and the training/staffing it has mentioned, *have all been done after work on the project has started.* Enormous amounts of money have already been spent on planning, site investigation, digging, infrastructure, staff colony construction, etc.; the late Prime Minister has even inaugurated the dam. It is obvious that there is an *a priori* assumption of the dam being more beneficial than costly. It seems that the World Bank has fallen for this fraud: in a letter to Goldsmith, Mr R. Goodland of the 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 you predict so that they are outweighed by the major benefits . . ." But, as I will try to show below, many of the necessary preventive and mitigatory measures have not even been thought of or planned out yet, much less being incorporated into the project finances. The benefit-cost ratio presented by the Narmada Sagar authorities does not include, or underplays several ecological and social costs; in any case, how can it include costs of measures which have yet to be fully studied?! This is a mockery both of a genuine benefit-cost analysis as well as of what is called 'environmental impact assessment'.

This mockery is shown further by the status of the so-called Environmental Review Committee (ERC). I talked to one of its members, and he told me frankly that ERC had a largely advisory status. Even if it found that environmental costs exceeded benefits, it had no power to *halt* the project. In such a situation it would be natural for ERC not to make public any findings which could embarrass the Narmada Planning Agency (NPA), 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 the M.P. Environment Planning & Co-ordination Organisation (EPCO), but the 120 page report it submitted in 1984 contains more queries and gaps than definitive conclusions.

The formation of ERC and the provisions for environment staffing and training do represent commendable steps in the right direction. So also the commissioning of several detailed studies. Most previous river valley projects in India have

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not even gone this far. But the setting up of committees, the crash-course training of officials and detailed studies cannot by themselves ensure the minimisation of environmental costs. There are much more fundamental problems which are not amenable to purely administrative or 'managerial' solutions. As noted above, one basic fault lies in an *a priori* assumption of the project's usefulness. While we cannot comment on many of the studies that the Government of India note mentions, since they have yet to be finished, several other specific points can be made.

Catchment and Siltation

It is now well-recognised that adequate forest cover in the catchment area of a river is absolutely necessary for a river valley project to have a long lifespan. As pointed out in our earlier report,[2] the Narmada catchment forests are under serious threat from a variety of sources: paper mills and other forest-based industries, urbanisation, mining, agricultural extension, firewood collection and grazing. In view of the fact that all these threats are rapidly increasing, we find unjustified the assumption that the siltation rate of the Narmada Sagar reservoir will remain constant.[1] This assumption has been proved wrong for almost all of India's major river valley projects. Moreover, some of the direct threats to the catchment forests, vis. industrial and urban demand, and mining, will themselves be greatly increased by the Narmada Sagar Project. While a detailed proposal on soil conservation in the catchment has been forwarded by the Forest Department we are not at all confident about its success, for three reasons:

* The previous record of the Forest Department in such matters is quite poor;
* Soil conservation will require perfect coordination between various government departments, which does not seem very likely; and
* Most important, *there is no study to assess the demand on forest produce that will be generated by the rapid industrial and urban growth brought about by the project.* Without such a study, how can the government claim that the catchment forests (which will inevitably be a major supplier to the demand) will be preserved?

Loss of Forests

A huge area of forest will be submerged by Narmada Sagar reservoir: 35,325 ha (approx 353 sq km) of classified forest and 5,007 ha (50 sq km) of unclassified forests.[1] In addition, some 1,500 ha (15 sq km) of forest will be cut for building the staff colony, canal and related works. This represents a very large loss indeed, especially considering the fact that a lot of it is amongst India's richest natural moist deciduous forests. In a country with natural forest cover down to less than 10 per cent of the total surface area (as against the required minimum of 33 per cent, stipulated by the government itself), such a loss is in itself a cause to question the sanity of the project.

It is claimed that 'compensatory afforestation' will be undertaken to make good this loss. I have several problems with this:

(a) The amount of money allocated for afforestation is very meagre,[3] adequate perhaps for compensating only *one-twentieth* of the forest lost. This has been noted by EPCO itself,[1] and it has made a plea for the amount to be increased. So far, this has not been done.

(b) Even if enough funds are allocated, the *nature* of the afforestation must be studied. Plantation will be in the hands of the Forest Department which even now has more of a commercial viewpoint than an ecological one. Among the species of trees suggested by EPCO for afforestation, some are native, some exotic (including the controversial eucalyptus); some ecologically and socially useful, others commercially so.[1] If the choice of species is left to the Forest Department, we are frankly not confident that afforestation will be oriented to compensating the ecological loss of submergence. Indeed, Dr S.D.N. Tiwari, who has been asked to prepare the report on forests and wildlife, has suggested 'irrigated plantations' and the use of chemical fertilisers for 'intensive forestry'. Obviously the stress is on commercial plantations—a mixed plantation left untouched for ecological benefits does not need irrigation, much less fertilisers! It does not seem, therefore, that the government is even thinking of adequately compensating the *natural* ecosystems to be lost under submergence.

Loss of Wildlife

The forest area to be submerged is extremely rich in wildlife, though no sanctuary has been declared there. We cannot comment here on the studies to be undertaken by the Zoological and Botanical Surveys of India, for they will be ready only after a few years. A few remarks on some suggestions made by EPCO can however be made.[1]

A map of the submergence zone [1] shows that while there is contiguous forest area to the north of the forests to be inundated, this is not so in the south. The assumption of wildlife 'relocating itself' thus holds true only for the former. For the latter, there is a suggestion to create 'corridors' linking the submergence zone with the nearest forest area. However, this seems to be highly unrealistic, especially in the south-east and east, where the nearest suitable areas are 100 km and 40 km away, respectively. Another suggestion made is to have 'squads' of specially trained staff for driving the animals to safety, for animals may stray into agricultural fields before reaching other forests. One ERC member I talked to agreed that this seemed to be a rather harebrained scheme! It is fairly apparent that loss of wildlife on the southern side will be significant.

But even to the north, there is the question of whether the contiguous forest area can support the sudden and large-scale influx of wildlife from the submergence zone. Declaration of this area as a National Park may help, but there is no study to show that its carrying capacity will not be crossed by the additional population. Nor is there any study of the potential conflicts between highly territorial species. Finally EPCO itself has noted that submergence of such a large area is bound to increase pressure of all sorts on the surrounding forests. This will further reduce the carrying capacity.

Cultural and Archaeological Loss

One must commend the NPA policy (if properly implemented) of relocating important temples which are in

the submergence zone. This was often not done in earlier river valley schemes. But here too there are curious anomalies; on our visit to the area in 1983, we noted the existence of a 500-year-old island fort (Joga Fort) on the river, which will be submerged by Narmada Sagar, but which finds no mention in the documents relating to archaeological rehabilitation!

More crucial however is the impact of the dam on non-material elements of traditional culture. It is uncertain how exactly the government plans to reroute the ages old 'Narmada pilgrimage', which involves a 2600km long circumambulation of the river on foot. Are the thousands of pilgrims who undertake this journey expected to circle around the ten massive lakes that will be created on the Narmada? Or will they be provided with boats to cross directly, in which case, it no longer remains a foot march? We doubt very much if the pilgrimage can be 'rerouted' without drastically affecting its very nature.

The effect on traditional local cultures, especially tribal, is likely to be even more serious. The devastating effect of throwing tribals into a materialist, consumerist and competitive environment has been shown in previous 'development' schemes of this type, and it seems highly unlikely that the Narmada project authorities can do anything about it.

Impact of Irrigation

A study just released 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 water logged* if very careful and widespread measures are not taken. The most important measure will be groundwater utilisation—the institute has recommended that one well be dug for every 6.2 hectares, and that water from this be pumped out for at least 400 hours yearly. This is a colossal task, and we are not at all confident that MP's irrigation department has the capacity to do it. In any case, the cost of these measures has *not* been budgeted for. It seems more than likely that, as in the case of the two major projects completed so far in the Narmada Basin (Tawa and Barna Dams), Narmada Sagar is going to cause waterlogging in a huge area. Up to 100,000 hectares of agricultural land faces possible ruin.

Public Health

Preliminary studies on the health impact of the project indicate that while schistosomiasis and Guinea-worm diseases are not likely to occur or increase significantly, incidence of malaria, filaria, cholera, gastro-enteritis, viral encephalitis, goitre, and some other water borne diseases is likely to go up.[4] How the government intends to cope is extremely unclear, especially considering that no funds for this have been budgeted for in the project proposal. With respect to malaria, for instance, EPCO has admitted that "it may not be possible to take preventive action through spraying, etc, over such a large area (i.e. the command), it can only be hoped that medical facilities will be adequate to deal with cases of malaria".[1] This seems a rather callous attitude. It is difficult to say anything further on health impact until government plans become clear, except for the observation that to date there seems to be no example in India where such an impact has been effectively minimised.

Displacement

The Government of India note does not mention the massive problem of human displacement to be caused by Narmada Sagar, possibly because this is not considered an 'environmental' problem. Nearly 100,000 people will be displaced. The past record of rehabilitation of both the state and central governments has been dismal, even where much smaller numbers have been handled. However, the Narmada Project does incorporate a few welcome steps towards a better rehabilitation policy, as we have noted in our earlier report. One of these is the commissioning of very detailed studies on some of the oustee villages.

Nevertheless, very serious problems remain. The Madhya Pradesh Government has not formulated its own rehabilitation policy yet, but ERC members were told in February 1985 that the policy adopted by the neighbouring state of Gujarat would be used. If this is so, we can immediately note three potential problems:

(a) The Gujarat policy states that those oustees who lose their lands under submergence will be given equal or greater amounts of land elsewhere. But this 'land for land' policy has hardly been implemented in Gujarat itself. In the case of Narmada Sagar Dam, Mr S.C. Verma, Chairman of the NPA, has admitted that there is just not enough suitable land for this policy to be applied.[5] In other words, cash compensation will be given and it will be necessary to "motivate and mentally prepare the oustee families to take avocations other than agriculture". That this represents a major disruption is obvious. The practice of cash compensation is also known to cause serious problems like social fragmentation, exploitation by commercial agents, indebtedness, etc.[6] It makes impossible the creation of resettlement villages with amenities. This has already occurred in the case of Sardar Sarovar, a sister dam of Narmada Sagar in Gujarat State, but the project authorities do not seem to have learnt the lesson.

(b) The EPCO report states that there are 11 tribal villages existing in predominantly forest surroundings, to be submerged by Narmada Sagar.[1] The Forest Department proposes to settle them in other forest villages, for which 2000 ha of forest will have to be cut. But this contradicts the latest policy of Gujarat and other states *not* to lease out forest land for rehabilitation. Mr S.C. Verma himself has stated that "It is no longer possible to reduce the forest area any further."[5] This is a typical example of how various government departments or personnel contradict each other. Anyway, it seems highly likely that alternative forest land will not be given, in which case the socio-cultural disruption caused will be immense.

(c) The Gujarat policy does not include provision of basic necessities like fuelwood and fodder to the displaced people.[2] To people dependent on nearby forests for these needs, resettlement in an area with meagre forest cover can

be very disruptive. They have to buy these items, which cuts down their income. Moreover, most tribals are heavily dependent on minor and major forest produce of all sorts (gum, honey, bamboo, edible plants, saps, juices, etc) many of which may be absent at the resettlement site. Gujarat policy has no provisions to provide alternatives to these. If the Narmada Sagar authorities are going to follow this policy, then the suffering caused is likely to be great.

Benefit-Cost Analysis

While I am not in a position to give a detailed independent assessment of the benefit-cost ratio of Narmada Sagar, I can point to certain glaring distortions which question the validity of the ratio presented by the dam authorities. As pointed out in our earlier report, these distortions are inevitable when planning is done with the stubborn assumption that a project *is* beneficial, whatever its costs. There then emerges a tendency, openly acknowledged by project officials themselves to exaggerate benefits and underplay costs.

Take the case of benefits from increase in agricultural production due to irrigation. We noted in our earlier report[2] that the expected eight-fold increase in production (as stated in the Detailed Project Report 1982[3]) seemed highly unrealistic. It seems the project authorities realised this: The 1984 EPCO report[1] envisages a more modest four-fold increase. But even this may be on the high side judging by the performance of irrigation schemes elsewhere in India—the Planning Commission has noted that on average irrigation has increased production to just 1.7 tonnes per hectare rather than the expected 4.5 tonnes per hectare.

Moreover, while calculating agricultural benefits it seems that the cost of only irrigation extension is taken into account. This is curious, for the government itself notes that a leap in agricultural production will be possible only if several other inputs are provided, viz. fertilisers, pesticides, education of farmers, development of markets, and utilisation of groundwater. To the best of my knowledge the cost of these units is not included in the ratio.[3]

The loss of forests under submergence is greatly underestimated. As noted in our earlier report, the cost of Unit 1 of Narmada Sagar (including dam construction, submergence loss and rehabilitation) has been put as Rs. 3,450 million. But a senior official of EPCO told us that loss of forest alone is worth Rs. 3,300 million. Obviously forest loss has been undervalued.

Several other costs have not been taken into account at all, e.g. those of ecological disturbances caused by groundwater utilisation and other hydrological changes (noted by EPCO itself)[1] or those of health measures in the command and reservoir areas. There is also the question of how costs of human displacement and rehabilitation can be reasonably calculated without first formulating a clear cut policy, which has yet to be done!

Obviously the Benefit-Cost ratio presented in 1982[3] for approval by the Planning Commission is far from accurate.

Finally, two important considerations. First, the Narmada Sagar Scheme, like all such schemes, totally ignores *ecological and cultural damage as a 'legitimate' cost.* For instance, the value of forests is taken to be merely the value of the timber, firewood, and minor forest produce it yields. This ignores its more essential ecological functions. The Forest Research Institute, India, has calculated that each tree performs Rs. 1.5 million worth of such functions in 50 years. We do not know if a similar value has been put on the psychological and social costs of human displacement. *But simply because such costs may not be quantifiable is no justification for ignoring them.* Benefit-cost analysis must, after all, be a study of human welfare relative to human cost, *not* a simple exercise in mathematics.

Secondly, such analysis always leaves out the crucial *class-factor,* i.e. who benefits and at whose cost? It is by now evident that most river valley projects in India overwhelmingly benefited the privileged sections, and at the cost of the already underprivileged. The section to be worst hit are tribals, and landless peasants, and those to benefit the most are landlords, industrialists, contractors, bureaucrats, and rich urban consumers. The very logic of the present developmental process is such, and it is highly unlikely that the same logic will not apply in the Narmada Project.

In conclusion, therefore, I would like to assert that while a number of positive, new steps have been taken by the Narmada Project authorities, most of these are cosmetic in nature and do not tackle certain fundamental problems. There is thus no justification for assuming, as the World Bank seems to do, that the project's benefits will be greater than its costs. If the Indian Government is genuinely concerned about human welfare and about environmental safety, let it immediately halt work on the Narmada Project till an honest and independent benefit-cost and class-benefit analysis is completed. Otherwise, the plea that "we've already spent too much money, we cannot stop this project now" will overrule any environmental and socio-cultural considerations, however serious they may be.

References

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