CHAPTER II

DEBATES ON DAM

The dam building across a river is a world phenomenon. It has caused tremendous progress in the field of agricultural production and generation of electricity the world over. No doubt its contribution to the progress of modern civilisation is immense and cannot be ignored. It has been the backbone of industrial and economic growth of every nation of the world. However, of late, the dam projects have become the subject of intense debate all over the world due to their negative impact particularly on socio-economic life and environment of the region. As John A. Dracup has rightly pointed out “the planning, design and construction of large scale water resource system has for a long time enjoyed virtually unlimited growth and development. However, much of these growth has recently been curtailed by a myriad of significant problems”.\(^1\) As dam building is a world wide phenomenon, it could be interesting or rather appropriate to look into some of the important discussions on dam in the global context before we take up the Indian scene.

THE GLOBAL SCENE

In USA, the Bureau of Reclamation and the Army Corps of Engineers’ were in competition with each other and created a new culture of gigantism, financed by public money. In Reisner’s words, “what had begun as an emergency program to put the country back to work, to restore its sense of self worth, to settle the refugees of the
Dust Bowl, grew into a nature wrecking, money eating monster that our leaders lack the courage or ability to stop." It is quite obvious that in the wake of such developmental projects like dams and reservoirs, many interest groups have mushroomed around the project sites with varied interests and objectives which are often in conflict with not only those affected indigenous populations but also with the ecologists and social activists. As Bemett has pointed out that "public water projects – dams, reservoirs, irrigation pipelines, schemes for rerouting streams and a host of other feats of engineering – are viewed by proponents – usually the US Army Corps of Engineers who built them, politicians looking for federal money, and large agribusiness interest and power companies, which directly benefit from them – as modern wonders of the world. Opponents – environmentalists, Indian tribes whose land is taken or ruined, and cost conscious politicians and bureaucrats denounce the implantation of huge concrete water works in the midst of America’s wilderness and the accompanying hydraulic technologies as the worst example of pork barrel politics and extravagant waste". Such problems caused due to construction of pumped storage stations and reservoirs is not different in Central Europe which is densely populated. While pumped storage stations have played a major part in ensuring the supply of electricity for the past many decades it had also caused various human problems as well. For example, the ratings and capacity of pumped storage stations are constantly rising as consumption of electricity and the ratings of other power stations unit increase. But sites at which such stations can be built without seriously jeopardising other development have become rare in Central Europe, which is densely populated.
Similarly, the flow of Danube is already used for hydro-electricity power generation at a number of sites. However, one major dam in particular which has been completed in 1970 near Turner-Severin, where the river forms the border between Romania and Serbia has been criticised on environmental grounds. The resulting lake, stretching some fifty miles upstream, has completely obliterated the unique and spectacular Iron Gates Gorge, famous for centuries as one of the Europe’s most dramatic landscapes.5

Another Danube project which has been the subject of controversy for more than a decade is the development on the Slovak-Hungarian border downstream from Bratislova. The 880 MW scheme agreed in 1977, included barrages with power plants at Gabcikova and Nagymaros. It was intended to build the Dunakiliti reservoir and an 18 Km. canal to carry diverted water to Gabcikova. Work proceeded for about a decade, but with the change of the late 1980s, opposition on environmental grounds became increasingly vocal particularly in Hungary. Thus, construction on Hungarian side effectively stopped in 1989, and finally in May 1992, the Government officially announced cancellation of 1977 agreement. The newly established Slovak State, however, remained committed to the scheme, declaring that agreement could not legally be cancelled. Saying so the Slovak engineers started working on the project making a concrete walls rising to a high of 15 metres above the surrounding land. This carries the water to the main plant at Gabcikova. The result was fall in the water table, with village wells drying up, vegetation dying and unique forms of wild life in danger, has reinforced call for legal limits to the amount of water which may be diverted.
However, despite a number of meetings and interventions by the E.U. the situation remained unresolved.6

The threats to the Amazon Ecosystem due to developmental processes has also attracted the attention world over. It is observed that the areas of Amazonia are threaten by (a) colonisation based on the new highways, (b) industries unsuited to the region and (c) poorly planned hydro-electric project.7

Seven hydro-electric projects are being considered for Amazonia. None of them is actually as destructive or as drastic as one dreamed up in North America for Amazonia by the Hudson River Project. Ecologically speaking, there are two hydroelectric development: we have to balance the destruction of areas flooded behind the dam against the energy produced by falling water rather than the burning of fossil fuels. It is probable that some hydroelectricity would be ecologically better for region than the present system of fossil-fuel-burning diesel generation and wood-burning thermo-electric plants. In contrast hydroelectric dams create lake in which fish farming is possible. The chief danger in planning these hydroelectric plants is politics. If dam sites are planned which minimise damage to the forest, avoid flooding areas of high plant or animal endemism, and include animal rescue work, only then will these hydroelectric project benefits Amazonia.8

In the modern day analysis between development and environment, even the famous Aswan Dam, one of the largest and wonder dams in the world, in spite of its
multifarious benefits to the people of Egypt could not escape criticism for contributing to environmental disruption. The scheme completed in 1968 was built primarily to generate hydro-power, but it has contributed to many social and environmental problems. The negative impact of Aswan dams on environment as accounted by Asit K. Biswas, is astounding. For the benefit of the present research work, it may be interesting to reproduce his findings. According to him:

First is the question of silt. Before the dam was constructed, large amount of silt used to be either deposited in the Nile Valley or carried all the way to the delta and the sea. These sediments are now being trapped in the reservoir, Lake Nasser, created by the dam… As a result of the siltation in the reservoir, clean water is flowing downstream of the dam, causing erosion to the river bed and banks.

Another effect of the siltation in the reservoir is erosion of the Nile Delta, some 1000 Kms. away… without enough siltation, erosion of the Delta has become a major problem and studies are now being carried out to find a suitable solution.

Loss of silt has further affected the productive capacity of the Nile Valley, which used to get regular deposits of sediments every year.

Lack of sediments downstream of the dam has contributed to the significant reduction of plankton and organic carbons. It has in turn, reduced the sardine, scrombroid and crustacean population of the area. Loss of sardine along the eastern Mediterranean has created economic problems for the fishermen who used to depend on the catch for their livelihood. Furthermore, there was a thriving small-scale industry making bricks from the silt dredged from the canals. In the absence of such silts, many such industries have now resorted to using the topsoil near the canals to make breaks. Thus contributing further to the loss of productive soil in the country.
Besides this situation, it changed 500 Kms. of the river Nile from a riverine to lacustrine system. Though much of the land inundated was thinly populated, it contains areas rich in historical monuments, foremost of which was Abu Simbel temple. Thus the Temple of Abu Simbel and Philai (near Aswan) had to be dismantled and moved to higher location. The huge man-made reservoir also changed the micro-climate of the area. The destruction caused due to the construction of Aswan dam on the physical environment and materials have also directly affected unprecedented social cost to the people of the region. It is observed that approximately, 100,000 people had to be relocated for the Aswan high dam without sufficient planning and the world food programme had to rush in famine relief for the Nubians.

What has been discussed on Aswan dam and its negative impact is just one example among many more dams around the world which has caused untold suffering and misery to humanity. Many of the major water development projects have also created other human problems, especially in terms of displacement of local inhabitants. The process of relocation of people to often unknown and alien destinations involving massive expenditure is the only area where the authorities take pride. However, the socio-economic and cultural costs of such a process were never realised or rather sidelined by the authority concerned. For example, the Volta Dam in Ghana has inundated an area of about 3,275 Sq. Miles, and the resulting lake has a shoreline of over 4,000 miles. As a result of the development, some 78,000 people and more than 170,000 domestic animals had to be evacuated from over 700 towns and villages of different sizes. Eventually, 52 new settlements were developed to house
69,149 people from 12,789 families. It was a major social problem since a large number of people coming from small villages and having different ethnic background, languages, traditions, religions, social values, and cultures had to be resettled in only 52 locations.\(^{12}\)

Similarly, the Kariba Dam on the Zambasi (Zambia) displaced approximately, 57,000 Tonga tribesmen, who had to pay a major price for this progress. The resettlement programme left much to be desired; not only did they suffer great cultural shock when being thrust into communities as different from their own, but also it took two years to clear sufficient land to meet their subsistence needs.\(^{13}\)

The process of such shifting of people due to river valley development projects has brought poverty and emotional breakdown for the affected people. The socially, economically and emotionally cohesive and integrated communities to which they once belonged were destroyed when they were thrust into different and heterogeneous communities of other regions and land through the process of resettlement. It is unfortunate that such complex emotional relationship between the different tribes, communities and land was not properly understood. The fact that the development of a socially cohesive and integrated community, having a viable institutional infrastructure becomes hard to achieve was also not realised by the authority. Ironically, this well-intentioned step of development became one of the worst destructive part of the whole process.
There are also cases where water development projects to increase irrigation for agricultural purpose has caused problems by reducing total food production due to salination. It is rather ironical to say that the world is losing quite a large area of good arable land due to progressive development of salinity. For example, one time Pakistan alone was losing 24,280 hectares of fertile cropped land every year, and currently nearly 10 percent of the total Perunian agricultural area is affected by land degradation due to salination. Among other major areas affected by salination are the Helmud valley in Afganistan, the Punjab and Indus Valley in Indian Sub-Continent, Mexcali Valley in northern Mexico and Euphrates and Tigris basin in Syria and Iraq.\textsuperscript{14}

Dams and their environmental and social effects cannot be isolated. Any structure on the scale of a major hydroelectric dam must affect its environment and people in many ways not directly linked to the hydrology. The construction process itself can cause widespread disturbances, and although the building period may be only a few years, the effect on fragile environment can be long lasting. Unfortunately, it is not only the desirability of the predicted change which is the subject of debate. But there is also considerable disagreement about the predictions themselves, and unpredicted consequences resulting from large-scale schemes are not uncommon. Dams themselves are often the subject of concern, for their possibility of catastrophic failure. It is observed that there are some 15000 dams in the world. Over recent decades the frequency of major disasters involving significant loss of life seem to be about one per 6-10 years.\textsuperscript{15} Dams in an earthquake prone region are particularly at risk is obvious. Recent debate has also centred on the question whether the weight of a
major dam and its associated large volume of water can actually cause earthquakes. It is said that the measurement made on the Kariba dam in the early 1960s revealed changes in ground level as much as 36 Kms. away, and the year or so after the reservoir reached its final level saw a striking rise in the number of earthquakes, including some at magnitude 5 or more on the Richter Scale.16

The cost-benefit analysis, it has been said, usually means that I pay the cost and you get the benefits. Even for people immediately affected, the building of dams can have very different consequences. For those living in a valley which will become a reservoir it means the lose of family home and entire village. In contrast, however, we should also remember that for the people living on a river which periodically overflows its banks, the barrier and embankment of a hydroelectric scheme can bring freedom at least from devastating floods.17

It, therefore, should not be forgotten either that the choice may not be hydroelectricity or nothing but hydroelectricity or some other form of power station. The current issue of particular relevance are: (a) the environment impact of a hydroelectric project must be thoroughly analysed since after it is completed, they are essentially irreversible, (b) the cost of long-term compensation for the large numbers of people displaced by major new dams must be attended to.

Despite so much debate around the world, the problem of rehabilitation and resettlement of displaced people are not taken with seriousness, particularly in the
developing countries. It is generally observed that resettlement of people due to river valley projects in many of the developing countries has not been a satisfactory experience. Inadequate planning, insufficient budget, incomplete execution of plans and little appreciation of the problem of technology transfer have all contributed to the failure of plans. The fact that much of the population to be resettled were rural and illiterate, and thus had very little political power, did not help either. The direct beneficiaries of the project were often the educated elite, who are in power, whereas the direct social costs were mostly attributed to the rural poor.\(^\text{18}\)

In spite of so much destruction to men and environment, reservoirs and dams are still built and much needed in the world, for not only are their positive affects impressive but for the progress of modern civilisation as well. Dams provide water for irrigation, hydropower and other beneficial uses, thereby providing direct positive effects and avoiding the negative effects of alternative developments. A reservoir may make an urban fossil plant unnecessary, conserving non-renewable fossil fuels and curtailing air pollution. New organism may thrive and new species may prosper at the expense of the less desirable ones.\(^\text{19}\) Likewise, the positive effects of building large dams and reservoirs are many and cannot be ignored. Therefore, while dealing with its various negative impacts one should not sideline the benefits and exaggerate the negative side of it and vice-versa.

Now looking at such a background, where projects like dam and reservoirs construction involve maximum destruction to environment and humanity and yet, at
the same time its developmental aspects cannot be ignored for progress of civilisation. However, it becomes very difficult for us to decide which one to support. We tend to have option, either to reject the one and support the other. In Stockholm Summit of 1972, for example, the pursuit of environmental quality through adequate pollution control measures was viewed as an obstacle to economic development by several countries. It was rather thought that measures to enhance and preserve environmental quality were seen to be for the rich western countries only. However, while this type of thinking has greatly changed today, mainly due to the admirable work done by the United Nations Environmental Programme, the thinking has not been completely eliminated. For example, in 1977, Brazil argued strongly at the United Nations Water Conference that environmental protection measures are serious obstacles to development. Fortunately, this type of thinking is not very prevalent at present. Today, the question is not, whether to accept or not, but what should be done? So that maximum benefits could be realised by constructing dams and reservoirs without seriously causing socio-economic and environmental destruction of the region. Hence, “the fundamental question that should be asked is not whether there should be water development but rather how to meet the basic human needs and aspirations of all the world’s people, without simultaneously destroying the resource base, that is, the environment, from which these needs must be met”.21

THE INDIAN SCENE

Coming to the Indian situation, this phenomenon is not different either, rather it is much worse than other countries of the world. It is, therefore, imperative to have a
closer scrutiny into the Indian situation arising due to the construction of dams. It is observed that along with the transfer of technology of dam building the concomitants of ecological disruptions and social conflicts have also been transferred. These conflicts and destruction are more aggravated in India than the havoc caused in the West because India is a reparian civilisation, which has evolved in a monsoon climate. Thus the associated problems of building dams are found to be much more heavier in India than any other parts of the world. In India, almost all major river valley projects came up in the 1950s and 1960s. It was thought that they offered the solution to our poverty or so everyone, or nearly everyone, said. To be fair, even then there were a few muted voices who challenged the claims made on behalf of dams, who presaged waterlogging, floods and salination. The damage to wildlife and destruction to human habitat did not, however, feature in the arguments. No one was in a mood to listen. From Aswan in Egypt to the Damodar Valley Corporation (DVC) in India, cautions were given but of no avail.

Slowly, as the process of dam construction and water development projects became more intensified, the human problems associated with them also became much more heavy, so also the voices that expressed doubts about the claims made in favour of dams became louder and more numerous. People begun to realise that the dams are more expensive than benefits and it made the rich richer and poor poorer. It is observed that canals that are built to carry waters for agricultural and drinking purposes to far away and needy areas were rarely completed. Electricity was also lost in transmission, the dams could not control the heavy flow of monsoon waters and
flood continues to destroy our lands. Furthermore, as more land comes under irrigation system our land becomes salinated and gives low yields. Yet dams are still built. As Enakshi Ganguly Thukral has recorded, by late 1980s, India had more than 1500 large dams[^24], and many more were under construction and still many more were under consideration for construction. If construction of dams are so much destructive and less beneficial, why then they are built? In the beginning dams were considered as the symbol of technological advancement and development the world over. Not to be left behind, India too went into sudden frenzy to construct more dams. Land was acquired, peoples were displaced and devastated. But all this was in the interest of the nation and the spirit of national good and national development carried the people .... Environmental and social costs were brushed aside[^25]. Few who voiced against were totally ignored. However, such act of patriotism of giving away one’s own habitat for national good has no meaning today as more and more people are becoming aware of the long lasting negative socio-economic and environmental impact of such mega projects like dam construction. People begun to question the viability of constructing such large dams. They began to reason in terms of locational advantages, socio-cultural upheaval and environmental degradation in constructing such projects and came to realise that it causes more destruction than benefits. The colonial approach of building dams and reservoirs is also critically examined by the people particularly by the affectees now a days. Because as always has been, the direct benefits go to the few rich and educated elites and often to the people of far away region who have not even heard of the suffering of the affected local people. People also begin to ask questions such as, why should we sacrifice our precious land and forest which can give
livelihood to thousands of people for hundred years to come for a project which can stand for few decades only? Why should we sacrifice our habitats to give comforts to far away people who do not care for us even the least and we live in poverty? Such are certain obvious questions people have started to ask today. However, despite such realistic approach of the people opposed to the dams, yet dams are built in India brushing aside all hues and cries. Thus, it is clear that construction of large dams in India have become more an issue of political and economic nature serving the interest of few politicians, bureaucrats and big businessmen.

As Bal Govind Baboo has rightly pointed out “it would seem that the government and the bureaucracy always support the construction of dams and go to the extent of constructing them in unsuitable area primarily for achieving political and economic ends”. Thus dams are built for political and economic gains while social and environmental costs are always brushed aside making the people in the catchment and command areas to carry untold misery and sufferings. Earlier these victims were made to understand that they are suffering for national interest and national good, but today, such phrases are outdated and have no meaning. As building of dams has become the objective for achieving political ends and economic gains by few selfish people, it is not surprising that the end result is always biased towards the socio-economic and environmental costs of the project. They play all dirty games to continue construction of dams and more dams to achieve their selfish objectives. Thus, it is alleged that the cost-benefit analysis is heavily biased: it underestimates the cost
and overestimates the benefits... and in most cases such exercises is done to justify the construction of the dam in question.\textsuperscript{27}

Now it is quite obvious that dams are built only to fatten someone’s pockets. Since building of large dams involves large amount of money, a lot of interest groups mushroomed around such projects with corrupt motives. In such a situation there is less or no chance to take into account the social and environmental costs. These people have ‘a die hard’ attitudes, they want the project to continue construction come what may, so that they still have the opportunity to siphon what the construction of the project could offer with their ulterior motives. So much so that dams are never completed in the stipulated time frame, it rather keeps on extending the time of its commissioning time and again, thereby incurring time and cost over-run. According to Enakshi Ganguly Thukral, the reports of the public accounts committee 1982-83 reported that of the 205 major projects taken up since independence, only 29 had been completed till 1979-80, and not one had been completed by the stipulated target date.\textsuperscript{28}

 Failures of dams in India is also one of the highest in the world. The then Minister of Water Resources, Shri Manubhai Kotadia, had also admitted in the Lok Sabha on 21\textsuperscript{st} March 1990 that “16 cases of failure of large dams have been reported in the country. Of them 13 were reported in the post-independence era and 11 had reportedly failed within five years of completion”.\textsuperscript{29} More specifically, K.K. Oza, has recorded that “the Central Water Commission has admitted several failures of dams all over India. The Kaddam dam in A.P. built in 1957, failed in 1958, the Machhu in
Gujarat constructed in 1972, burst in 1979, drowning the hole city of Morvi with heavy casualties. Sampana in Madhya Pradesh (1956) failed in 1964, Nowgaon in Madhya Pradesh (1958) failed in 1959 Kadarnala in Madhya Pradesh, Panshed in Maharashtra and Kodeganer in Tamil Nadu all failed in the very years in which they were completed. It has been admitted by the Central Water Commission that the rate of dam failure in India is among the highest in the world.\(^{30}\)

The debate and opposition to large dams for their negative impact to mankind is a world phenomenon which will go on and on. What has only begun to emerge in India has been happening elsewhere. One undeniable gain of all these anti-development agitations and movements has been the increase in the level of public consciousness throughout the world about the human, environmental and ecological costs involved.\(^{31}\) In India the 1960s and 1970s saw the emergence of agitations against construction of dams and formation of various associations by the affected people. But all these agitations and movements were project specific and therefore were localised and mass participation was not possible. It was only with the Silent Valley and the controversial Tehri and Narmada projects that international attention was focussed in India.\(^{32}\)

A typical response of the authorities to the opposition to mega projects is that the experts who have the requisite technical knowledge have approved these projects so people have no basis for opposing these projects. But it is argued that there are a number of examples when experts have also opposed these projects but the
Government as well as the aid-agencies have over-ruled the experts’ viewpoints. For example, the Tehri Dam Project (TDP) even after having been evaluated as unacceptable by the experts appointed by the Government on three occasions the construction of the Tehri project continued unhindered. It is said that in August 1986, the Chairman of the Working Group on TDP set up by the Department of Science and Technology wrote a letter accompanying its final report. He said “I have from the outset held the view that work should be halted on the Tehri Dam”.

However, soon efforts were set in motion to call a meeting of selected experts. In that special meeting convened in the Central Water Commission on the Seismicity aspects of TDP which gave a clear chit to the project.

After due consideration of the Working Group report, the Ministry of Environment and Forest conveyed its unequivocal stand to abandon the project to the Prime Minister’s Office. However, just three months after in January 1987 the Ministry of Environment and Forest issued a press release stating that “the government have cleared the project after a thorough assessment of the impact of the project on environment”.

But again in February 1990, the Environment Appraisal Committee (EAC) (River Valley Project) of the Ministry of Environment and Forest, submitted its report on TDP stating that “the committee has come to the unanimous conclusion that the Tehri Dam Project, as proposed should not be taken up as it does not merit environmental clearance”. When this report became public the government announced yet another high power committee to examine the safety aspects of the TDP. So the pattern is clear. As soon as an adverse official report on TDP comes efforts are immediately set in motion to get something done to wash out this report or
undermine its impact, so that the Rs. 3,000 crores Tehri Dam Project which involves giving massive contract can continue.  

Such attitudes of the government and the project authority clearly show the political and economic interest of few people, whereas the experts’ opinion and the cries of the affected people are rejected and ignored. Experts’ opinion are accepted and publicised by the government and aid agencies only when they suit their objectives.

Among the modern dams in India, the Narmada project is the most controversial, the largest and also the one which has received the widest debate and publicity involving international community. It is also the most recent one and is being debated by politicians, bureaucrats, scientists, intellectuals and social activists alike. It may, therefore, be noteworthy to have a closer scrutiny. The Gujarat Government is accused of its ulterior and selfish motives in building the Narmada project with all their might and wealth. A detailed account of Narmada Project has been provided by Jashibhai Patel in his book “The Myth Exploded”, in which the arguments against the project are clear and to the point, detail and logical, well informed and original, which has exposed the Indian way of constructing dams. It is, therefore, noteworthy to inform ourselves with some of the important inferences from the book. The author at the outset has taken strong exception by observing that they (Gujaratis) have money and morcha power. They have the most vulgar arrogance of wealth. They think that it is their birthright to do what pleases them without any regard to fellow feeling of
compassion. It is accused that Gujarat is building the Sardar Sarovar Project (SSP) at Navagam after gaining a totally unfair victory which has full of legal quibbling and political chicanery. To cover up this dirty games, it had to invoke the Official Secret Act and needs an advertising agency to do its false propaganda. Looking at the extent of destructions the project has caused to the region and also the misery and suffering it has inflicted to the inhabitants, such acts of the Gujarat Government and that of the authority of the project have become a matter of great concern.

The question of drought-prone pockets as declared also comes under sever criticism. It is said that the government arbitrarily declares some regions as drought prone to obtain political mileage by undertaking all kinds of welfare schemes in the region to please the people. However, it is argued that the state of Gujarat lies on the West Coast of India and the slightest common sense would tell anyone that it cannot be a drought-prone region. Thus the myth of drought has been invented to serve the industrial belt between Baroda and Ahmedabad.

The destruction of land and forests by the SSP dam is unprecedented and unimaginable. It is observed that in the last 44 years Gujarat has plundered the forest wealth to annex adivasi area right from the Danta State in the north to Dangs in the south... annexing hilly tribal region to exploit their natural wealth and to use them as bonded labourers. Besides these, tribals are useful to project rich Gujarat’s poverty and to extort grants from the Central Government. Now the obvious question every sensible man would ask is, why at the expense of the tribals? It is gross injustice to
keep one community as a bait to gain profit out of it to make the rich richer and suppressing the other – a crime against humanity. Thus looking at the attitudes of the Gujarat government, terming their riches as ‘vulgar and arrogance’ by the author is not surprising but it is much appropriate. Thus, the tribal people became the ultimate victims of the Narmada project like anywhere in India. The author has recorded that Narmada project destroy 1,30,482 hectares of virgin forest and cultivable land of high quality mainly in MP and Maharashtra to irrigate 18,00,000 hectares in Gujarat.\textsuperscript{45} Destruction of a large area of high quality of land and forest to such an extent by the project does really have a great socio-economic and environmental concern to the region. It is believed that such a large area could easily feed and maintain millions of people and could provide an abode to various species of flora and fauna for centuries to come. It is a great loss not only to the affected tribals but it is a national loss too. Such unthoughtful attitudes of human being will naturally create a grim future on the fate of the wildlife. The Rajpipla area once had “tigers, panthers, civets, and jungle cats, the mongoose, hyena, wolf, wild dogs, foxes and jackals, otters and sloth bears. The black buck once common sight is now seen rarely. This is the fate of wild life. How can anyone assess this loss in terms of money or compensation.\textsuperscript{46} It is argued that can artificial forest be equated to a virgin or a true forest? The compensatory forestry is agro or commercial forestry. It is beneficial to the government officials and contractors. But to grow natural forest requires devotion, love for nature and a rare expertise.\textsuperscript{47}
The destruction caused by the Narmada Project does not end here. The author also argued that ancient and medieval historical sites such as Maheshwar or Mahishmati and Bojpur and Dhar which had Bhoj-Sata university. Flora and fauna of Narmada basin has specifically magnificent Sal forest, historical monuments, archaeological sites and temples. All these will be submerged. To top it all, not satisfied with so much destruction, the people and the region will also be not safe from the danger of earthquakes. Though the Gujrat Government has said that the SSP dam is safe against earthquakes, but it is argued that ‘the new technological shock-proof against earthquakes to be installed does not rule out the reservoir induced seismicity all around 212 Kms. of submergence.’ Mass destruction of land, forest materials and flora and fauna to such an extent is truly a great environmental and ecological disaster.

Further, the project’s social cost which was not handled with utmost care by the Gujrat Government and the project authority have come under heavy criticism from both the sponsoring agencies and the government representative. It is observed that the number of people who will get ousted by the Narmada project ranges between 1,00,000 to 3,00,000. Taking the lowest possible figure of 1,00,000 as true ... even then, human suffering involved is heart rending. Assuming four persons to a family, this means 25,000 families and 250 villages. To honestly document the aspirations and hopes of 25,000 families is not an easy task. To complete the task in a year or two would need at least 250 well qualified social workers. People threatened with displacement live in Gujrat, Maharashtra and Madhya Pradesh, the larger number in Madhya Pradesh. While several experts have studied the question of the SSP
resettlement, the most experienced and well informed of them are Thayer Scudder, a representative of the World Bank and B.D. Sharma, former Commissioner for Scheduled Castes and Scheduled Tribes, Government of India. It will be appropriate to refer here some of their findings.

Scudder, who studied the resettlement efforts in SSP for seven years during 1983-90, on the basis of his study concludes:

Throughout the time period, the government of Gujrat has continued to be the principal constraint to rehabilitation programme that meets even minimal bank requirements. Aside from failure to correct the deficiencies relating to its own relocates, the government of Gujrat in my opinion have actively attempted to discourage project affected people from Madhya Pradesh and Maharashtra from coming to Gujrat by (i) conducting a shockingly sub-standard relocation programme for Maharashtrian project affected people at Parveta and (ii) in regard to the large majority of oustees who live in Madhya Pradesh, not re-setting a single family at Guttal in spite of the fact that the site was identified and set aside as pilot project for MP relocatees some ten years ago".51

It is learnt that only after this report was out that relocation at Guttal started. Thus, he further observed that “I believed that Bank disbursement to SSP should be stopped until the government of Gujrat correct within a specified time period the various deficiencies relating to its own relocatees, and to MP and Maharashtra relocatees. Should time required action not occur, I believe the World Bank should withdraw from SSP".52
A similar observation has been made also by B.D. Sharma. According to him “there is uncertainty on a number of elementary issues such as the definition of displaced persons, their entitlement, the differences between the field situation and government records, dissonance because of changing criteria, neglect of the problems of transition, estimates about land necessary for rehabilitation, financial outlays etc.”

Thus after thoroughly examining the rehabilitation issues, the Commissioner has summarised the existing situation in the following words:

“So long as the execution of this project continues as it is now, law, constitution and human rights will continue to be violated and the state will continue to be guilty of ignoring its responsibility for protecting the tribal people. Therefore, in the present situation, it will be necessary to assure that the execution of Sardar Sarovar Project will be allowed to continue only after a satisfactory solution has been found with the consent of the people after considering all aspects of the problems”.

Both these senior experts have reached essentially the same conclusion. Ironically, however, their views have been sidelined by the authorities to whom they have submitted their reports. However, due to heavy pressures from different sections of the people including the mouth-piece of the affectees, i.e., the Narmada Bachao Andolan, at the end, the World Bank, true to its commitments had withdrawn from the project because of the misery and suffering of the oustees. The Bank also withdrew from about eighteen such projects around the world, it is reported. The World Bank Chief Legal Officer in an internal memo says, “India has failed to carry out
resettlement and rehabilitation (R & R) under the Sardar Sarovar Project as per the legal agreement with the Bank. The instances of non-compliance include (a) identification of eligible oustees, (b) taking timely steps for land acquisition and preparation of the resettlement sites and (c) planning and implementing rehabilitation of oustees etc.56 However, in spite of all these reports and action taken by the sponsoring agency, the Gujrat Government is determined to construct the project and continues to do so.

There is also fear that the people will face the catastrophe of ‘second displacement’ because of private purchase of land and upcoming projects in and around the settlement areas which are on the line in the wake of the completion of SSP. Such situations of displacing the already displaced people for consecutive times is not a new phenomenon in India as had been faced by the Tehri Dam oustees when the government proposed to acquire the land from the resettled oustees to extend the Dehradun airport.57

Involvement of corrupt practices in building such large projects is also not a new phenomenon in India, for example, the Dharoi Dam project, estimated at a cost of Rs. 17.59 crores was completed at the cost of Rs. 118 crores. The dam is in the Mehsana-Sabarkantha belt but it supplied drinking water to Gandhinagar and Ahmedabad. Unfortunately, these are not isolated incidents of haphazard planning, exploitation of the poor and wastage of public resources.58 Corruption is scourge of our time. It has gone so deep into our social fabric that no one even talks about it,
leave alone condemn it. It is accepted as a way of life. The Sardar Sarovar Project has been alleged of rampant corruption from the beginning of its construction. It is alleged that “the PWD works on the basis of fixed percentages to be paid to the authorities for the contract awarded. If the percentage at 30 percent is correct, every year some 200 to 300 crores of Rupees go into private pockets and it will continue as long as SSP remain under construction”. One was however, deeply disturbed when reports appeared that a company known as “Gujrat Securities Ltd., which is not a government concern, was paid an under writing commission of Rs. 8 crores for the bond issue of Rs. 300 crores of the Nigam. It raised eye brows as the Chairman of the Nigam was also the chairman of this new company which had no track record but was paid huge commission”.

The main argument in favour of the Sardar Sarovar Project is that it will provide badly needed relief to the Saurashtra and Kutch region which are experiencing water scarcity. However, as per the existing plans, it is said that the Sardar Sarovar water is supposed to reach only a small part of this region .... Therefore it will be better to meet this pressing needs by small environment friendly projects that conserve water and make best possible use of the available water. If the Gujrat Government agrees to devote even half of the money it is committing to the Sardar Sarovar Project for such work, it is likely that the water scarcity of Kutch and Saurashtra will be tackled in a much quicker and efficient way. Such practical proposition and suggestion were never taken with seriousness, but continued to construct the much controversial project of the century leaving aside so much destruction to humanity.
The Sardar Sarovar Project has, but become the darkest chapter of modern India, particularly for the affected tribals of MP, Gujarat and Maharashtra.

As have been discussed, the negative impact of every dam project, whether in India or any other parts of the world, whether large, medium or small, the nature of its associated problems and destruction to humanity is the same. Whether the number of affected people is large or small the attitude of the government and that of the project’s authorities is also the same – a negligent attitude. However, as mentioned earlier, despite its destruction, dams on the other hand are also much needed for progress and development. Therefore, our planning process has to ensure an in-depth evaluation of the project, taking into account all the social and environmental costs. For a sustainable development, various ideas have been put forward by the experts, of which mention may be made in brief of the “Test of Water Resource Project Feasibility” suggested by Dr. John A. Dracup, Professor, School of Engineering and Applied Science, University of California. According to him, every water resource project must pass eight different tests in the areas of technical, economic, financial, social, environmental, legal, political, and institutional feasibility. While all others are of technical nature and do not concern much for our research at hand, the social and environmental feasibility constitute the core of our research and therefore, needs a closer scrutiny. To him,

“Social feasibility refers to whether a project is acceptable to those sector of society most directly affected by its implementation. Such social problems may be associated with the movement of the people
from down stream flood plains or from expanding upstream reservoir storages, or it could involve the settling of people. It should be noted that projects that may be feasible from all other viewpoints are often not successful if they are not acceptable to the people directly affected by them. However, it is the category of environmental feasibility which currently causes most water resource projects to fail... Endangered species, flora and fauna must be carefully catalogued assessed and accounted for.... Many projects that could be feasible from other standpoints have been unjustifiable from the environmental standpoint".  

We can further add here another feasibility, i.e., economic feasibility. The economic feasibility is meant not only the assessment of the input or returns the project could realise after being operational, but most importantly the impact on the economic conditions of the local people who are directly affected by the project. How hard the local economic set up will be affected by its implementation should be thoroughly assessed before any project is set up. Because one cannot just sacrifice the livelihood of the local people to facilitate construction of a project. This very fact has been time and again ignored by the authority in India. The cost-benefit analysis should be thoroughly assessed without any biased attitude in any way, but plan in such a way that maximum benefits is realised at a minimum possible costs and casualties to its impact.

Therefore, socio-economic and environmental feasibility of any resource project is of paramount importance. It is vitally important that planners and engineers should learn from the past mistakes and should not make similar mistakes all over
again. The planning process should become responsive to socio-economic and environmental problems. Since long term sustaining development can only take place within the framework of appropriate environmental guidelines; otherwise development will become a self defeating process. It should be recognised that harmony can only come with integrated planning but discord is comparatively easy to produce.63
References


3. Ibid., pp. 202-203.


6. Ibid.


8. Ibid., p. 201.


10. Ibid., p. 17.

11. Ibid., p. 19.

12. Ibid., p. 19.

13. Ibid., p. 19.


17. Ibid., pp. 215-216.


21. Ibid.


24. Ibid., p. 8.

25. Ibid., p. 8.


27. Ibid., p. 17.


29. Ibid., p. 9.


32. Ibid., p. 10.

34. Ibid., p. 2292.

35. Ibid., p. 2292.

36. Ibid., p. 2292.

37. Ibid., p. 2292.


40. Ibid., p. 4.

41. Ibid., p. 2.

42. Ibid., p. 13.

43. Ibid., p. 15.

44. Ibid., p. 6.

45. Ibid., p. 23.

46. Ibid., p. 16.

47. Ibid., p. 17.

48. Ibid., p. 22.

49. Ibid., p. 23.

50. Ibid., p. 22.


52. Ibid., 2292.

53. Ibid., p. 2293.

54. Ibid., p. 2293.
56. Ibid., p. 13.
58. K.K. Oza, op.cit.
59. Ibid., p. 12.
60. Ibid., p. 12.
SKETCH MAP OF NAGALAND SHOWING POSITION OF WOKHA DISTRICT

Fig. 2

NOT TO SCALE