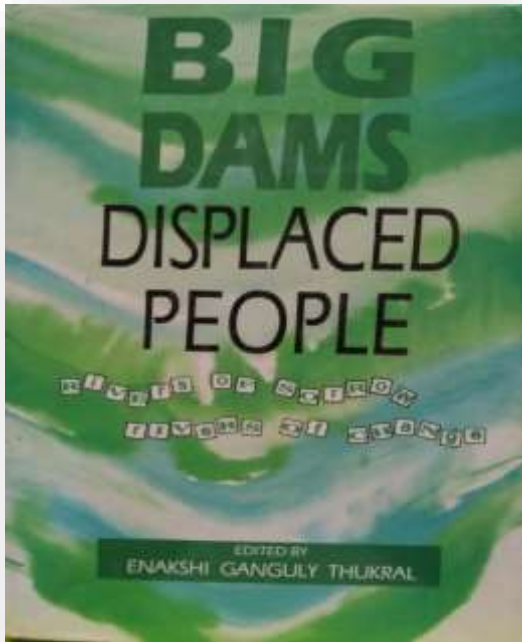


“Evaluating Major Irrigation Projects in India”

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Evaluating Major Irrigation Projects in India

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Cost-Benefit Analysis Method

The task of evaluating major irrigation projects has always been fraught with uncertainties. Traditionally, to establish the financial and economic viability of such projects, a financial and economic cost-benefit analysis was carried out. The Planning Commission laid down that only those projects would be considered for approval whose cost-benefit ratio was not below 1: 1.5. However, in the last few years, this method of evaluation, especially the manner in which it has been applied by project authorities, has lost credibility.

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In addition, there has been an increasing demand to evaluate the social impact of projects as well, including their impact on the environment, and on the lives of people such projects invariably render homeless—the oustees.

The experience of people affected by projects in the past has been very unpleasant, to say the least, and this has led, perhaps for the first time, to a scrutiny by individuals and organisations outside the government, of irrigation project reports and their anticipated costs and benefits.

The cost-benefit method of evaluating major dams is being questioned today primarily for three reasons. First, a scrutiny of past projects has shown that even those cost and benefits which are easily quantifiable and therefore easily anticipated within the traditional, financial and economic framework, have often been wrongly estimated. The Public Accounts Committee of the Parliament stated that, a scrutiny of 32 major projects in post-independence India has shown cost overruns of 500 per cent and more. Not only have the costs been underestimated, the benefits have also been exaggerated.

Second, it has now been recognised that there are additional costs of such projects which have not been taken into consideration in the cost-benefit analysis. The most significant among these are the suffering of displaced families and the impact on the environment. It is now generally accepted that it would be impossible to measure these in purely financial or economic terms.

Third, although no retrospective cost-benefit analysis has been made of the major dams in India, a comparison of their actual and anticipated cost-benefit from available studies of some projects (quoted later) suggest that most of these projects have had higher costs than benefits, and certainly a cost-benefit ratio inferior to what was anticipated or required. This has resulted in the conviction that dams must be evaluated in a wider and more realistic perspective.

This paper is an attempt towards building a broader perspective by discussing the evidence available on these projects, especially on their costs and benefits. It presents a retrospective analysis of major dams in India, based on data gleaned from official documents: primarily reports of the Public Accounts Committee, the Comptroller and Auditor General of India, Committees of Ministry of Irrigation, project reports and other documents pertaining to different projects.

The Context of Evaluation

While evaluating dams one has to consider at least the following aspects:

THE PLANNING PROCESS

The socio-economic reality of the potential command area has to be studied, identifying the primary needs of the area and the region, and the possible alternative methods of satisfying these. For example, there might be poverty and unemployment in an area, but for various reasons the best strategy for alleviating these might not be a promotion of agriculture but the development of an artisanal and rural industrial base.

Where the best option turns out to be the development of agriculture, it is necessary to evaluate whether this should be irrigated agriculture or rainfed dry land farming, or a mixture of the two.

Where irrigated agriculture emerges as the best prospect, it must again be analysed whether this should be through utilisation of ground water, minor irrigation schemes, drip irrigation, or through the building of large dams. A thorough analysis involves the investigation of all possibilities.

COST-BENEFIT ANALYSIS

If a major dam is initially considered the best alternative, a detailed cost-benefit analysis has to be made, which must realistically establish that the benefits from the project are greater than the costs.

Such an exercise includes financial, economic and social costing.

A Financial Cost-benefit Analysis: only considers the purely monetary costs to be incurred by the project, such as the cost of cement, steel and labour for the construction of the dam and canals. Where land has to be acquired, the monetary price of this land is also included in such an exercise. Similarly, it takes into account the monetary benefits flowing to the project, for instance, the water rates collected, or revenue earned through sale of electricity.

An Economic Cost-benefit Analysis: considers the economic costs of the project which are to be borne by society, for example, the loss of produce from land to be submerged, or the economic loss of fisheries, or timber and firewood, even though this is *not* a monetary outflow from the project. Among benefits it would consider the economic benefits of enhanced crop production, even though this does not represent a monetary inflow to the project.

The Social Cost-benefit Analysis: calculates the non-economic costs and benefits of a project, for example, the dislocation and suffering of the people who have been ousted. It similarly calculates the non-economic benefits, such as, the benefits from drinking water. A social cost-benefit analysis also includes an environmental impact assessment, for instance, the biological loss due to submergence of forests or the biological benefit of a freshwater reservoir.

All these aspects of analysis together make for the ability to appraise a given project, and to compare it with other possible projects which have been similarly analysed. It is therefore essential, in order to evaluate a project, that alternatives to the project under consideration be adequately studied in order to arrive at the optimum investment choice.

While conducting a cost-benefit analysis, it has to be ensured that *all* the quantifiable financial, economic, and social costs and benefits are computed realistically.

Next, the project has to be implemented in as short a time as possible, and certainly within the stipulated period, to ensure that the benefits become available as soon as possible and that the costs remain within the levels anticipated.

RETROSPECTIVE COST-BENEFIT ANALYSIS

To verify the accuracy of cost-benefit projections, it is necessary to look at these projects in retrospect and evaluate whether they were completed within the stipulated costs and are giving the projected benefits, and if not, the reasons why.

CLASS-BENEFIT ANALYSIS

In India, with its stark social and economic disparities, there is an avowed commitment to equity and socialism. The Constitution of

India, for example, describes the nation as a 'sovereign, democratic, socialist republic'. It is therefore not enough for a project to have benefits greater than costs; it must be ensured that the benefits of the project accrue primarily to the poor, while the costs are borne primarily by the rich. In any case, the converse is certainly not justifiable.

The Situation Today

COST-BENEFIT ANALYSIS

Cost Over-runs: Although no definitive data on the amount invested in major dam projects since Independence are available, it is estimated that between 30 to 40 thousand crores, at current prices, has so far been invested in this sector. It is interesting to see how efficiently this money has been spent.

Fact 1: 32 major on-going and initiated projects (Fifth and Sixth Plans) studied by the Public Accounts Committee (PAC) show cost overruns of 500 per cent or more (PAC 1982-83: 38).

Fact 2: No project has been completed within the approved cost estimates since Independence (PAC 1982-83: 1).

Acknowledging this, the Ministry of Irrigation reported to the PAC that during the Seventh Plan they would only support medium and minor projects and concentrate on completing all existing projects (PAC 1986-87: 100).

It is true that when a project is delayed, some of the cost increases are due to inflation and do not constitute a real increase in the cost of the project. However, considering the actual cost overruns of projects in India, only a very small proportion of these can be attributed to inflation. Even a delay of 15 years in completing the project would inflate the cost by only 150 per cent (at 8.5 per cent inflation rate per annum) and not by 500 per cent.

Time Overruns: Not only are time overruns one reason for cost overruns, but they also delay the benefits of the projects from reaching the people, sometimes indefinitely. They adversely affect the cost-benefit ratios and it can be argued that projects which are delayed beyond a certain period are no longer economically viable.

Considering that the returns of a project are calculated on the basis of returns on the investment, the opportunity cost of delayed returns is very high and can make the project economically non-viable even with a delay of a few years. In the case of the Sardar Sarovar project, for example, the World Bank conducted a sensitivity analysis to assess how sensitive the project was to certain variables. They determined that a delay in implementation of 22 per cent (five years for this project) would reduce the present value of the net benefits to zero (Paranjpye 1989).

Fact 1: Of the 205 major projects taken up since Independence, only 29 had been completed till 1979–80 (PAC 1982–83: 48, para 2.49).

Fact 2: Not a single project has been completed, since Independence, within the stipulated target dates (PAC 1982–83: 1, para 1.1).

The Naegamwala Committee (Naegamwala 1973), and a working group constituted by the Planning Commission have identified the following reasons for delays in projects:

- (i) Proliferation of projects under construction by the states, resulting in a thin spread of financial, managerial and technical resources.
- (ii) Large escalations in costs of projects which were found to occur due to large-scale increases in cost of labour, materials, equipment, spares, land, etc.
- (iii) Lack of thorough investigations prior to taking up the projects.
- (iv) Delays in taking important decisions.
- (v) Difficulties in land acquisition.
- (vi) Non-availability of scarce materials like cement, steel, explosives, machinery, spares and foreign exchange.
- (vii) Changes in scope of projects during implementation due to inadequate planning, including addition of drainage arrangements and flood protecting to command areas.
- (viii) Lack of construction planning and monitoring organisations.
- (ix) Lack of detailed plans and estimates for the distribution systems and structure thereon.
- (x) Failure to update estimates in time and keep state governments informed of the rise in costs of projects.

Looking at Alternatives

One of the most disturbing aspects of the planning of major dams in India is the almost total lack of attention to alternatives that might exist or could be developed. Not only could there be alternative designs to a project which could minimise the cost (as has been suggested in the case of Narmada Sagar and Sardar Sarovar), there could also be alternatives to major dams themselves.

One of the alternatives that has not been adequately promoted is minor irrigation. The PAC report of 1982-83, quoting from the *Economic Survey* of the Planning Commission, says, 'Minor irrigation projects cost much less and promote rural capital formation because a part of the investment is funded through the farmers' own savings. Time-lag between investment decision and the flow of benefits is comparatively small' (PAC 1982-83: 29, para 2.29).

The PAC records: 'In any case, drought conditions call for quick result-yielding schemes which is possible only through development of minor irrigation facilities' (PAC 1982-83: 171).

Apart from minor irrigation, many other types of alternatives exist which include use of ground water and sprinklers, drip irrigation, lift irrigation, etc. In the context of arid and semi-arid areas like Gujarat and Rajasthan, it is interesting to note that the PAC, in its report of 1986-87 says, 'The drip method of irrigation has been found to be very useful in reclaiming and developing the Arava desert area in Israel . . . We have large areas in our country which are arid or semi-arid, with problems similar to those in Israel' (PAC 1986-87: 57-58, para 6.42).

Generally speaking, the PAC takes the view that adequate research is not being done to identify and develop alternatives even though such alternatives have shown very promising results in other countries and would save much cost and minimise environmental degradation.

As far back as 1972, the Irrigation Commission had recommended that 'the basin plan should present a comprehensive outline of development possibilities of land and water resources to meet the anticipated regional and local needs' (quoted in PAC 1986-87: 43, para 19.11). The PAC goes on to say, 'There should be a number of fully investigated schemes kept ready for choice, so that

financial resources may not get deployed on relatively uneconomic schemes. The quality of investigations should not be sacrificed to speed up project formulation' (PAC 1987-88: 51).

Ignoring Several Cost Factors

It has already been mentioned that studies on the impact of river valley projects on the environment were not undertaken until this decade. According to the Planning Commission, 'of course environmental impact studies have not been carried out in any of the projects so far' (PAC 1982-82: 8, para 2.5).

Even environmental costs are not adequately computed or considered in the cost-benefit analysis. Though this is partly due to the difficulty in computing some of these costs in financial and economic terms, a more important reason is the hesitation on the part of project authorities to acknowledge these costs. There is also a general lack of sensitivity to environmental issues.

Another cost that is usually underestimated is that of properly rehabilitating those displaced by the project. This not only distorts the cost-benefit analysis but also implies grave hardships for the displaced families.

A cost that is even today not properly computed in a cost-benefit analysis is that of the waterlogging and salinity caused by the project. Though this has been recognised for many years as a major negative effect of irrigation projects in India, the Secretary, Ministry of Irrigation, Government of India, admitted to the PAC that, 'After all, some items are not provided for in the original estimates. It so happens, for instance, drainage is not provided for in many projects' (PAC 1982-82: 60).

The CAG, in his report for 1979-80 for Madhya Pradesh, made the following observations regarding Tawa dam, the first major dam to be built in the Narmada Valley:

The Table given below shows the comparative position of the yields per acre under various crops after irrigation during 1977-78 and 1978-79 and the yields prior to introduction of irrigation (1971-72) in Hoshangabad district, as per the Agricultural Statistics compiled by the Commissioner. Land Records.

<i>Crop</i>	<i>Before irrigation</i>	<i>Average yields per acre after irrigation</i>	
		<i>1977-78</i>	<i>1978-79</i>
		<i>(in quintals)</i>	
1. Paddy	4.00	2.98	3.83
2. Jowar	2.82	3.64	2.74
3. Maize	4.81	4.07	4.01
4. Wheat	3.14	3.30	3.06
5. Gram	2.43	1.96	2.08

It will be noticed that the yields per acre after irrigation had actually declined.

According to the scientific and technical opinion now available, because of the soil and weather conditions in the command area of the Tawa project, agricultural operations in both kharif and rabi seasons with the help of irrigation could not have been productive, but on the other hand, irrigation could be even harmful. There was also resistance on the part of cultivators to a change in their habits and the cropping pattern they have been used to. Thus, it would appear that the project was ill-concieved and the benefits that were presumed would be available could not have been realised. (CAG 1979-80)

The PAC report of 1986-87 once again reiterates these fears:

In irrigation projects due attention should be paid to the drainage problems of the command area, to avoid waterlogging and its attendant evil, salt efflorescence. In some of our earlier irrigation projects, the aspect had been neglected with the result that hundreds of thousands of hectares of irrigated land have been damaged or rendered completely unfit for cultivation. (PAC 1986-87: 49, para 5.36)

OVERESTIMATION OF BENEFITS

Shortfall in Utilising Irrigation Potential: An analysis of some of the major dams reveals interesting figures concerning the shortfall in the utilisation of irrigation potential.

The Comptroller and Auditor General of India, in the supplementary report for 1975-76, studied 12 major projects and came to the conclusion that the area actually irrigated was on average only 64.4 per cent of the area planned to be irrigated. Even this average is misleading as there were five among these 12, where the irrigated area was less than 40 per cent and one with less than 20 per cent of that anticipated (see Table 8.1).

TABLE 8.1

<i>Name of the Project</i>	<i>Area planned to be irrigated (in thousand hectares)</i>	<i>Average area irrigated in 5 years</i>	<i>Percentage of achievement over expectation</i>
<i>Bhakra Nangal</i>			
Punjab	433.4	284.8	65.7
Haryana	717.1	869.7	121.3
Rajasthan	231.0	266.6	115.4
<i>Chambal</i>			
Madhya Pradesh	273.3	134.5	49.2
Rajasthan	283.5	164.8	58.1
<i>Sardar Canal System</i>			
Uttar Pradesh	1100.2	848.2	77.1
<i>Kosi Eastern Main Canal and Rajpur Branch Canal</i>			
Bihar	743.7	135.1	18.2
Hirakud Orissa	249.4	240.9	96.6
Mayurakshi West Bengal	289.5	217.4	75.1
Tungabhadra Karnataka (B)	353.8	209.3	59.2
<i>Right Bank Low Level Canal</i>			
Andhra Pradesh	60.2	39.5	65.6
Nagarjunasagar Andhra Pradesh (C)	831.6	322.6	38.8
<i>Parambikulam Aliyar</i>			
Tamil Nadu	101.5	30.1	29.7
Kakrapar Gujarat	256.0	84.1	32.9
Purna Maharashtra	62.0	24.7	39.8
Girna Maharashtra	57.2	22.3	39.0
Total	6043.4	3894.6	64.4

Source: Adapted from CAG 1975-76: 23-24.

Transmission Loss of Water: Another parameter crucial in evaluating the benefits of dams is the transmission loss of water, sometimes causing waterlogging. Again, no detailed figures are

available but the Public Accounts Committee, quoting the Comptroller and Auditor General's supplementary report of 1975-76, has stated that the difference between projected and observed losses has been around 150 to 300 per cent, in one case going up to nearly 500 per cent (see Table 8.2).

TABLE 8.2

<i>Canal</i>	<i>Losses projected</i>	<i>Losses observed</i>	<i>Difference between observed and projected losses (cusecs/million sft)</i>	<i>Losses observed as percentage of losses projected</i>
Chambal Right Main Canal	8	15	7	187.5
Tawa	8	22.8	14.8	285.0
Mahanadi Canal System (MP)	8	39.7	31.7	496.2
Nagarjunasagar Left Bank Canal	8	21.2	13.2	265.0
Nagarjunasagar Right Bank Canal	8	16.7	8.7	208.7
Periyar Main Canal (Lined)	2	3.5	1.5	175.0
Periyar Branch Canals (Lined)	2	3.25	1.25	162.5
Periyar Branch Canals (Lined)	2	3.26	1.26	163.0
Periyar Vaigai Distribute and Water Courses (unlined)	8	2.7	5.3	33.7
Girna/Jamda LBC	8	11.0	3.0	137.5
Mula Right Bank Canal	8	24-25	16-17	300-312.5
Nira Right Bank Canal	8	6.0	-2.0	75.0
Purna (Bamath Branch)	8	15.0	7.0	187.5
Mula Sonai Distributary	8	9-19	1-11	112.5-237.5

Source: PAC 1982-83: 100.¹

Siltation: The benefits of a project depend a great deal on the life of the project. Siltation of reservoirs significantly reduces their life and sometimes even their safety. The most effective method of controlling siltation rates of reservoirs is by treating the catchment areas. The construction of dams invariably degrades the catchment areas as pressures supported by the land and forests that are submerged by the project, get transferred partly or wholly to the remaining land and forest in the catchment area. In its turn this degradation negatively affects the dam and the reservoir.

Many estimates show that the rate of siltation in most of our reservoirs is much higher than that anticipated, in many cases over 400 per cent more than anticipated. In one case, Nizamsagar, the

rate of siltation is 1,642 per cent higher than anticipated (see Tables 8.3 and 8.4).

TABLE 8.3

Name of reservoir	Annual rate of siltation (ha m/1000 sq km)		Percentage of assumed life actually available*
	Assumed	Observed	
Bhakra	4.29	5.95	72.2
Tungabhadra	4.29	5.98	78.77
Matatila	1.33	4.33	30.25
Panchet	6.67	10.48	63.88
Maithon	9.05	12.39	72.85
Mayurakshi	3.75	16.48	22.70
Shivaji Sagar	6.67	15.24	44
Hirakud	2.52	6.6	38.087
Gandhi Sagar	3.61	9.64	37.41

Source: Adapted from PAC 1982-83: 103.

* Life of reservoir refers to physical life based on the rates of siltation assumed at the design stage and presently observed

TABLE 8.4

Reservoir	Annual rate of siltation in acre ft.		Percentage difference between observed and assumed siltation rate
	Assumed	Observed	
Bhakra	23,000	33,745	146.7
Maithon (DVC)	684	5,980	874.2
Panchet (DVC)	1,982	9,533	480.9
Ramganga	1,089	4,366	400.9
Tungabhadra	9,796	41,058	419.1
Mayurakshi	538	2,000	371.7
Nizam Sagar	530	8,725	1,646.2
Ukai	7,448	21,758	292.1

Source: ICR 1972, Vol. I: 326, Table 14.1.

Recovery of Water Rates: One of the factors in calculating the benefits of major irrigation projects are financial returns obtained from these projects by way of recovery of water rates. However, despite these being shown as a surplus in all cost-benefit analyses,

the actual situation is somewhat different. The PAC has the following to say:

In 1945-46, i.e., just before Independence, the return from irrigation schemes was Rs 7.92 crores on an investment of Rs 149 crores, i.e., 5.3 per cent. This came down to Rs 1 crore in the following year and thereafter the irrigation and multi purpose projects have been consistently showing losses. These have mounted from nearly Rs 154.6 crores in 1975-76 to Rs 424.75 crores in 1981-82 (budget estimates), both in respect of irrigation (commercial) and multi purpose river valley projects. (PAC 1982-83: 135, para 4.39)

The Fifth Five Year Plan document had pointed out that in certain states, receipts from irrigation were not sufficient even to cover the working expenses and this in fact amounted to subsidising of farmers, rather the relatively better-off farmers The Committee find that the cumulative losses were of the order of Rs 2,053 crores between 1975-76 and 1981-82. Obviously, this situation cannot and should not be allowed to continue. (PAC 1982-83: 135-136, para 4.40)

RETROSPECTIVE COST-BENEFIT ANALYSIS

It seems incredible that despite the huge investment made on major dams in India there has been little effort at evaluating the actual returns from these projects and comparing these to the projected returns. The Planning Commission admits that 'there is no regular system of assessing actual economic returns of irrigation projects' (PAC 1982-83: 114).

The PAC states that:

The Committee are surprised to learn that net increase in yield in the command of an irrigation project is not assessed. In the absence of such an assessment the Committee wonders how actual benefit derived could be ascertained and compared with the project anticipation. Henceforth such data should be compiled regularly. (PAC 1982-83: 124, para 4.25)

The PAC further recommends that:

In future the Planning Commission should therefore undertake a detailed appraisal of implementation of plans, inter-alia bringing out the physical and financial targets and achievements and reasons for the shortfall in achievements as well as the deficiencies in implementation during the mid-term and after every five year plan to apply on-course corrections and formulate the next plan in the light of these. These detailed appraisal reports should be made public. (PAC 1982-83: 146, para 6.10)

Class-Benefit Analysis

In virtually every project it is seen that the primary costs are being paid by the very poor and the tribals, while the benefits are flowing to big farmers and the urban elite. Those who are displaced by such projects are usually too poor and politically weak to safeguard their own interests. The government has little difficulty in imposing its will on such people. However, when it comes to finding suitable alternative land for the displaced, the government seems to lack the political will required to ensure that good cultivable lands are made available. To resettle families to be dislocated by the Sardar Sarovar project, the Maharashtra government is now insisting that forest land be made available. In most projects, current and past, the authorities have been unwilling to make the rich farmers who would benefit from the project, share some of these benefits with those who would be uprooted.

As already mentioned, even in fixing and recovering water rates, the government is socially remiss. The PAC in its report has the following to say:

In their earlier recommendation the Committee had specifically observed that they saw no reason why the big land owners who were the principal beneficiaries of the irrigation facility should continue to be subsidised and desired that this matter should be thrashed out at the next Conference of Chief Ministers so that the oft-repeated exhortations of the planners were translated into action without further loss of time. The Committee note that the government have merely stated that the states have necessarily to raise the irrigation

rates with a view to covering at least the working expenses and have not examined the aforesaid recommendations of the Committee relating to big land owners. The Committee are unable to understand this. There is no warrant for the big land owners who are the principal beneficiaries of the irrigation facilities to continue to be subsidised in respect of water rates. (PAC 1986-87: 139).

Planning Process

The fact that such a situation exists in India today is necessarily a reflection of the planning process out of which such projects emerge, are appraised and evaluated. Recorded below are some of the relevant observations made by the CAG and the PAC about the planning process in India.

1. For no major irrigation project in India has a study been conducted to establish, step by step, that such a project is the best choice for the region and its problems.
2. Though there have been repeated demands, to date no state has prepared the required Master Plans for water management. The PAC had this to say:

The Committee in their earlier report had pointed out that one of the strategies/priorities of the Sixth Five Year Plan, in the irrigation sector, had been the preparation of Statewise Master Plans and completion of all investigations by 1989-90. However, not a single state had prepared such a plan pending completion of investigations needed thereof The Committee are unable to comprehend the reasons for not expediting the investigations and preparations of Master Plans. (PAC 1986-87: 135-36)

3. Lack of comprehensive planning, and the absence of an adequate National Water Utilisation Plan, built on the basis of state management plans, has led to the proliferation of projects and the subsequent shortage of funds and other inputs. The PAC observes:

The Committee, therefore, consider it to be a negation of planning for the Planning Commission to sanction a large number of major schemes without making sure of the availability of funds, the technical personnel and essential inputs like cement, steel, coal etc. to enable completion of the projects within the time schedule laid down and within the approved estimates. (PAC 1982-83: 171)

4. Another distortion in the planning process occurs when projects are begun before clearance is given by the Planning Commission and other relevant authorities. This not only subverts the process of project appraisal, aimed at selecting only beneficial projects, but also puts pressure on the various authorities to grant *post-facto* clearance for such projects. Even for those projects which can be shown to be economically non-viable, considering the huge amounts of money already spent prior to the clearance, it becomes uneconomical and politically difficult to abandon them. Table 8.5 shows the record of certain past projects.

TABLE 8.5

<i>Name of scheme</i>	<i>Date of approval by Planning Commission/Ministry of Irrigation</i>	<i>Date of commencement of work</i>
1. Nagarjunasagar (Andhra Pradesh)	22-9-60	1955
2. Rajasthan Canal Project (Rajasthan)		
Stage I	4-7-57	1958
Stage II	17-5-72	1972
3. Gandak (Bihar)	13-7-61	1961
4. Kosi (Bihar)	25-4-58	1955
5. Malaprabha (Karnataka)	5-8-63	Oct. 1960
6. Kallida (Kerala)	4/7-2-66	1966
7. Tawa (MP)	5-8-60	1956
8. Kangasabati (West Bengal)	28-11-61	1956

Source: (PAC 1982-83: 42).

The Public Accounts Committee has observed:

The Committee find that in several cases the approval by the Planning Commission/Ministry of Irrigation was accorded three to five years after commencement of work. Irrigation

being a state subject and central assistance not being tied to any individual project or sector, the states are reported to commence work on some irrigation projects on their own. However, plan allocation of funds for any such unapproved projects is on the stipulation that the project would be cleared by the Planning Commission. The tendency to take up too many projects without getting prior clearance of the Planning Commission/Ministry of Irrigation amounts to pre-empting such clearance. It was conceded in evidence that there should be certain discipline and proper procedure in regard to these things. The Committee considered that any ad-hocism in project selection could be a self-defeating exercise. (PAC 1982-83: 171)

Conclusions

Given these facts, it is essential that before embarking upon any new project we must:

1. Carry out a retrospective cost-benefit analysis to determine, at least for a sample of our major projects, how beneficial they have been to the country.
2. Examine the reasons why the costs were higher and the benefits lower than anticipated, if the analysis establishes this.
3. Ensure that the new projects are so planned and implemented that this does not recur.
4. Ensure that all the costs and benefits are realistically considered before a project is approved.
5. Ensure that all the alternatives are also properly evaluated so that the country has the benefit of the best of these.
6. Ensure that the projects are socially just.

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