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1. Introduction

Increasingly more amount is being spent on irrigation works, and specially after Independence, without reference to return on capital invested. Consequently, scarce capital resources are getting looked up in a sort of dead investment.

Again, after Independence all facilities have been provided to cultivators while tax burden of urban population is increasing. Thus, a rural development has been financed by urban population without being rewarded for.

One more aspect of rural development in Maharashtra State is also noteworthy. Due to peculiar topography and shortage of water resources, limited area can be brought under irrigation and that too at a very heavy cost. As a result of it only a small section of cultivators is earning sufficient profit almost free of cost leading towards a disparity in incomes. Consequently, a class of agricultural capitalists has emerged, who does not accept any obligation to support the uplift of the poor agriculturists whose burden is still lying on the general tax payer.

This raises doubt about the wisdom of the present policy of investments in irrigation. It seems that the aspect of equitable return on capital invested
has been completely neglected. It is not only unreasonable but against the sound policy of financing development activities. It might lead to utter chaos and might retard the economic progress of the State. And, hence, the study of various financial aspects of irrigation project is essential.

2. Sanctioning of Irrigation Projects

It is necessary to judge the utility of irrigation project before it is sanctioned. Various criteria have been adopted since an advent of the Britishers in this country. In recent years, specially after an independence, there has been a complete switch-over from criterion of "financial productivity" to that "economic benefit" as represented by "Benefit-Cost Ratio". This transition can be described on the following stages.

1) Financial Productivity Test suggested by the Select Committee in 1879

While applying financial test the Select Committee recommended the consideration of the following elements:

A) Consideration of the capital cost of work, i.e., the sum actually spent on its construction.
B) Debit the Revenue Account yearly with -
   a) the simple interest on the capital cost of the works at the commencement of the year.
   b) the working expenses of the year.

C) Credit the Revenue Account yearly with -
   a) Direct receipts, and
   b) Indirect receipts.

The difference between (B) and (C) for one year would show the profit or loss for that year.

ii) Irrigation Commission, 1901

There was a lot of dissatisfaction with the criteria suggested by the Select Committee, 1879 as it was too rigorous and a consideration of "indirect benefits" was altogether neglected. Consequently, the Government of India, asked the Irrigation Commission, 1901, to go into the problem of indirect benefits. The Commission pointed out number of difficulties in correctly ascertaining the quantum of indirect benefits and, therefore, turned down the idea of including indirect benefits. This policy was followed upto 1960 uninterrupted.

iii) Committee of Direction, 1958-61

Under the guidance of the Committee of Direction, headed by Prof. D.R. Gadgil, the Planning Commission initiated studies of five major irrigation projects, viz.,
the Sarda Canal, the Ganga Canal, the Tribeni Canal, the Damodar Canal and the Cauvery-Mettur Project, to assess the over-all benefits and to find a better test for deciding whether or not the project is apt to be undertaken.

The studies were completed in 1961. The studies established that the total benefits of irrigation were far larger than the direct financial returns to Governments from irrigation rates and, hence, advocated the adoption of "Benefit-Cost Ratio" technique.

iv) The Committee to Suggest ways and means of improving financial return from irrigation projects, 1964 also favoured the use of the "Benefit-Cost Ratio".


The Commission favoured the adoption of economic benefit criterion instead of financial return criterion for sanctioning irrigation projects.

vi) The Irrigation Commission, 1972

The Commission recommended the use of the benefit cost ratio for according sanction to the irrigation projects.

Benefit - Cost Ratio

The term "Benefit" includes all useful goods and services that are expected to flow in as a result of a provision of a project made for implementing the
programme of river valley or basin development.

The term "Cost", on the other hand, contains in itself the values of those useful goods and services that have been diverted from some other alternative application and any adverse effects resulting therefrom.

Naturally, if the benefits derived during the working or useful life of the project are found to be more than the total costs incurred on it, the project would be certainly attractive. It can be interpreted in better words that undertaking is adding more to the "Social Product" than is lost by the withdrawal of resources from other fields of application.

vii) Concept of "Rate of Return"

The World Bank sanctioned loan for the Kadana Irrigation Scheme in 1970. It applied a Rate of Return criterion instead of benefit-Cost Ratio. A rate of return connotes a ratio between current annual net benefits from a project and the capital investment on the project. It is a complicated method but is more suited as a basis for making a choice between two investments and where financial return is the dominant consideration and no constraints are imposed by national goals.

viii) Choice Between Rate of Return and Benefit-Cost Ratio

It is advisable to use benefit-Cost Ratio in Maharashtra State on the following grounds -
i) In order to protect a scarcity zone against recurrence of famine development of irrigation has been given a top priority. Naturally, investments in this field would be made with little reference to benefits in other fields. And, hence, application of rate of return formula is unnecessary.

ii) Maharashtra State is deficient in food. And, hence, the choice of investments of the State Government is guided by the principle of upgrading the economic standard of the society as a whole and to the social products. This attitude can be well adopted by the benefit-cost ratio.

iii) It is true that the benefit-cost ratio can be distorted. But if a ratio more than unity is adopted, the risk would be minimized.

iv) Benefit-cost ratio is comparatively easy to calculate.

v) This ratio takes a long term view. And, therefore, the "Benefit-Cost Technique" be adopted.

ix) Suggestions

To make the application of "Benefit-Cost Technique" more realistic, the following suggestions can be made -
i) **Using Prevailing Rate of Interest**

The technique takes into account the cost of capital invested, i.e., rate of interest. In this connection, it can be suggested that the prevailing rate of interest be taken into account.

ii) **Adopting More than Unity Ratio**

According to theory a ratio of unity can meet the criterion. But the projects with a benefit-cost ratio less than 1.5 are not considered for acceptance. It is certainly a prudent precaution. And, hence, it can be suggested that the projects having benefit-cost ratio more than unity be accepted for construction.

iii) **Apportionment of Costs and Benefits in case of Multi-purpose Projects**

In case of multipurpose projects, the benefit-cost ratio is generally worked out for the project as a whole. It is against the sound principle of accounts. And, hence, it can be suggested that the cost of a multipurpose project be allocated or apportioned between its major uses. It would help to point out which particular aspect of the project is economic or otherwise.

iv) **Investments on Ayacut Development be Considered**

While making an appraisal of an irrigation scheme, the cost incurred on ayacut development of the area coming under irrigation, like land shapping,
preparing for irrigation, drainages, etc., be considered. Since such investment is essential, its inclusion in cost of the project is quite appropriate.

3. Inadequate Irrigation Revenue in Maharashtra State Resulting into Loss

It is expected that the water rates should collect amount at least sufficient to meet the recurring expenses of maintenance and repairs of irrigation projects. But in Maharashtra the water rates are quite low. It has been pointed out by Hon. Shri H.J. Deotale, Minister of State, Department of Irrigation, the Government of Maharashtra, that the total revenue derived by the water rates is inadequate even to cover interest charges on the investments made on different projects. He also stressed the need to revise water rates in upward direction in order to speed up development of irrigation facilities in the State.

The Irrigation Commission, 1972, has also pointed out that during 1967-68, the State of Maharashtra has incurred a net loss of Rs. 57.60 million on its irrigation system.* The State ranks second among other States and stands next only to Uttar Pradesh so far as the losses are concerned.

Water Rate System in Maharashtra State

Upto 1905, the "Crop-rate" system was prevailing. It has then been replaced by "Seasonal Rate System" and is still being practiced with an exception of sugarcane and other perennials on account of the high return they give to irrigators.

In the initial stages some distinction was made between crops grown in the same season on the basis of their comparative water requirements, viz., "heavy seasonals" and "light seasonals". But this distinction was abolished on the recommendation of the Bombay Irrigation Enquiry Committee, 1938.

It is noteworthy that water rates are not uniform all over the State.

Water Rate Policy Adopted in Maharashtra State

In this connection two quite contradictory views have been held. According to one school of thought, irrigation projects should be undertaken not for the purpose of earning revenue but as a measure of social welfare and, hence, irrigation rates be kept low.

But this view has been highly objected by other school of thought. It has been pointed out that this approach would have been valid, had the benefits of irrigation projects been more or less distributed evenly
over the entire farming community. But it is not the case. In fact irrigation projects benefit only a small section of the farming community. Thus, it would be highly unjust to call upon the farmers in the dry areas and the general tax-payer to pay for the benefits enjoyed by irrigators. And it has been concluded that the general tax-payer should not be made to pay for benefits enjoyed by a small section of population. This policy has been accepted by the Indian Irrigation Commission, 1901, the Maharashtra State Irrigation Commission, 1962 and the Irrigation Commission, 1972.

Structure of Water Rates

It has now been accepted that irrigation works, as a whole, should fetch an annual income at leastly equivalent to annual cost thereof. And, therefore, in order to satisfy this objective, the structure of water rates be prepared with due consideration of the following points:

i) There are crops which yield higher returns, e.g. Cash crops, while other crops yield a normal return. And, hence, the percentage of gross income charged as a water rate should not be the same for all crops. The percentage should vary between crops on the basis of their value.

ii) The water rates should be related to the ability of crops to pay for the water.
iii) Since, irrigation is a public utility, the users should be charged at a uniform rate.

iv) The value of irrigation water is the net gain or benefit which the farmer derives from time to time. But the net gains cannot be calculated. And, hence, the water rates be calculated on a crop basis and the ratio be fixed between 6 to 12 per cent of the total gross income. Both the Maharashtra State Irrigation Commission, 1962, and the Indian Irrigation, 1972, have accepted this range to charge water rates. The same range be accepted in Maharashtra State.

vi) Water Rates for Block Area

The Block system is prevalent on the major canal systems in Western Maharashtra. A water rate for entire block area is worked out and charged uniformly.

vi) Water Rates for Lift Irrigation Schemes

Water rates for the Government Lift Irrigation Scheme should be comprised of actual cost of pumping and the cost of water pumped. These costs are worked out for individual scheme and there is no pooling up of costs for the region.

vii) Charge for Water Lifted by Private Agencies

The half of the rate chargeable for flow irrigation be charged for water lifted between the pick-up
weir and reservoir, and the cost of lifting water is to be borne by the private agencies.

viii) **Concessional Water Rates**

During early stages of adoption of irrigated agriculture, the input is high while output is low. And, therefore, it is reasonable that the burden of water rates should be light. But concessional water rates should not be charged for a long time, as concessions entail losses, and the farmers may resist any move for raising water rates in future.

ix) **Revision of Water-Rates**

Water rates are linked with the gross income derived by farmers. The gross income varies with the periods of boom and depression. And, hence, water rates should vary with the variations in incomes. Of course, administratively inconvenient frequent changes be avoided. And, therefore, long term rates be preferred with a provision to revise them after a certain fixed interval. The Irrigation Commission, 1972, suggested that a revision be undertaken in the fourth-year of every plan. It would facilitate assessing the resources of the State for the next plan. This suggestion is more realistic and, hence, be accepted.

x) **Consolidated Land Revenue**

1. It is a practice to charge uniform water
rates on all second class irrigation works without a reference to the crops grown. Again, these water rates are jointly charged with land revenue. The system is called a "consolidated land revenue". It is administratively convenient.

2. The system works well where a single category of crop is grown leading to an equalization of irrigation benefits amongst cultivators. Again, in areas where each irrigator gets approximately the same average benefit per unit of land due to uniform cropping pattern over a rotation period, the consolidated land revenue system would be suitable.

3. It is noticed that this system is not suitable where different categories of crops are grown.

4. Under the system a uniform water rates are charged irrespective of the crop grown. This violets the basic principle of charging water rates according to the capacity of crops to bear them. And, hence, should be dropped.

4. Irrigation Cess

Irrigation Cess has been defined as "a fee to be paid by every landholder under irrigable command of a canal system for the facility provided by the State of obtaining water for his fields, and is primarily meant to meet recurring expenses of the canal system. The
liability to pay irrigation cess is not dependent upon the use or otherwise of this facility. It is a sufficient justification for the levy of the cess that an opportunity to utilize canal water has been created which did not exist before."  

In 1947, the then Bombay Government appointed a Cabinet Sub-Committee to review the financial position of major works. In order to speed up the development of irrigation, the Committee recommended the levy of irrigation cess. The State Government accepted the recommendation and accordingly the Bombay Irrigation Act, 1879, was amended in 1950.

Though the Cabinet Sub-Committee has suggested to charge irrigation cess on all lands under irrigable command, the Government of Maharashtra is charging cess only on irrigated lands. The rate of cess is decided by the quantum of recurring expenditure and is recovered as a surcharge on the water rates.

The Maharashtra State Irrigation Commission, 1962, recommended to abolish this cess. But the Government of Maharashtra is still collecting irrigation cess.

In this connection, it can be suggested that irrigation cess should be continued, specially when the

cess is levied only on these cultivators who utilize irrigation water. Again, the cess helps to increase irrigation revenue. And, hence, it is justified.

5. Betterment-Levy

"Betterment levy can be described as a tax meant to tap the unearned increment in the land values consequent upon the advent of irrigation."*

Difficulties in Assessing Betterment Charges

In Maharashtra State, the following major difficulties are experienced while assessing betterment charges.

i) Irrigation system is optional.

ii) There is no fixation or compulsion to grow particular crops in a particular piece of land.

iii) Due to enactment of tenancy act and implementation of other land reforms there is no market price as such for the land. Consequently, assessment of levy as a portion of an unearned increase in value of land is not practicable.

Different Basis for Betterment Levy

The Maharashtra State Irrigation Commission, 1962, suggested a different basis for betterment levy, viz., increased productivity.

The Indian Irrigation Commission, 1972, suggested that half of the capital cost of the irrigation projects be recovered from the beneficiaries concerned in the form of betterment levy.

In this connection, the basis suggested by the Indian Irrigation Commission, 1972, is acceptable on the following grounds -

i) Number of difficulties would be faced while deciding increase in productivity.

ii) Linking of betterment levy with the cost of construction of irrigation project is more reasonable and just.

iii) The basis of cost of construction would not cause any resentment on the part of cultivators.

Suggestions

The Betterment Levy provides capital resources for the construction of new irrigation projects. And, hence, it should be collected. In this connection the following suggestions can be offered.

i) **Collect Cost of Construction in Full**

The main purpose behind betterment levy is to get more capital resources for development activities in the field of irrigation. It would, therefore, be
equitable and just to recover the cost of construction of irrigation project in full.

ii) **Charge on all Systems**

The betterment charge should not be restricted for new and improved irrigation works but be levied even on old irrigation systems where the cultivators have earned sufficient gains due to establishment of irrigation in that region.

iii) **Encouraging Payment of Betterment Charges in a Short Period of Time**

A long term period, viz., 30-years for payment of betterment charges has been advocated by the Indian Irrigation Commission, 1972. But considering the paucity of financial resources for development works the farmers be encouraged to pay betterment charges in as much short period of time as possible by subsidy for lump-sum payment and charging interest on arrears.

iv) **Depreciation Charges**

A depreciation charge be levied to enable an asset to be replaced when it becomes obsolete. The economic working life of the irrigation project is assumed as 60 years. And, the Maharashtra State Irrigation Commission, 1962, suggested that there should be only one charge, viz., betterment-cum-depreciation and for administrative convenience it should be merged with water
rates. The suggestion is fully acceptable on the ground of administrative convenience.

6. Agricultural Income Tax

It is levied on agricultural income exceeding Rs.36,000/- in the previous year. The rate of tax is half a rupee for each rupee in excess of Rs.36,000/-. It is payable by individual, a Hindu Undivided Family, a company an association of persons, a body of individuals irrespective of its incorporation.

Suggestions

The discussion outlined above leads to the following suggestions:

i) Reducing Level of Exemption for Agricultural Income Tax

An exemption limit for agricultural income tax should also be reduced to Rs.5,000 to Rs.6,000, in order to achieve parity with income tax exemption limit set in urban areas.

ii) Tax Proceeds be Utilized for Irrigation and Dry Farming

The amount of agricultural income tax be utilized specially for extension of irrigation facilities and encouraging adoption of dry farming technique in the State. It would help to increase capital resources necessary for rural development.
iii) Linking Agricultural Income Tax with Land Revenue or Water Charges

The procedure employed for collection of agricultural income tax is quite complicated. It can, therefore, be suggested that the Agricultural Income Tax be linked with land revenue or water rates. Thus, the amount of tax payable should be equivalent to water charges or double the land revenue.

This suggestion has two more aspects -

a) It would achieve administrative convenience and economy in collection expenditure.

b) It would fetch more revenue bring under the purview of tax all holders of land.

v) Concession to Small Farmers

A concession can be given to farmers who hold small piece of land in arid region and pay land revenue less than Rs.20 per year. This exemption limit would be sufficient for collecting agricultural income tax.

Measures for Improving Financial Position of Irrigation Works

In this connection the following measures can be suggested -
i) **Full Utilization of Irrigation Potential**

All efforts have to be made to achieve at an early date a full utilization of irrigation potential created. It would increase the total amount of revenue and sum-at-charge would be less.

ii) **Exploitation of all Irrigation Resources**

All available water resources be exploited for irrigation and all wastages be avoided.

iii) **Raising the Water Rates**

This is the most important suggestion. At present it has been observed that water rates are low and, hence, proceeds are inadequate even to pay interest charges. Consequently, the general tax payers suffer. It is, therefore, necessary to see that water rates are raised sufficiently and general tax payers are relieved.