SHTY-FIRST REPORT

PUBLIC ACCOUNTS COMMITTEE

(1986-87)

(EIGHTH LOK SABHA)

PLANNING PROCESS AND MONITORING MECHANISM w.r. to IRRIGATION PROJECTS

MINISTRY OF PLANNING (PLANNING COMMISSION)

[Action taken on the 141st Report (7th Lok Sabha)]

Presented in Lok Sabha on 24-4-1987

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LOK SABHA SECRETARIAT
NEW DELHI

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INTRODUCTION

I, the Chairman of the Public Accounts Committee as authorised by the Committee do present on their behalf this Eighty-first Report on action taken by Government on the recommendations of the Public Accounts Committee contained in their Hundred and Forty-first Report (Seventh Lok Sabha) on Planning Process and Monitoring Mechanism w.r. to Irrigation Projects.

2. In their earlier Report the Committee had pointed out that one of the strategies|priorities of the Sixth Five Year Plan in irrigation sector, had been the preparations of State-wise 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 therefore. In view of this, the Committee had desired that additional expert assistance of the Central Water Commission should be provided to the States. In their action taken reply, the Ministry of Water Resources have stated that all the States were addressed in September, 1983 but none of the States have so far furnished the requisite Master Plan. In this Report, the Committee have observed that State Governments have not reacted promptly to their suggestion and have failed to appreciate the urgent orderly and phased development of the precious water resources and have urged Government of India to take up the matter at the highest level with the States and render them all possible assistance to expedite investigations and formulation of Master Plans by the end of Seventh Five Year Plan.

3. The Committee in their earlier Report had also pointed out that cost of ayacut development was not being taken into account for assessing cost-benefit ratio though a recommendation to this effect was made by the Irrigation Commission (1972). Pointing out that the present practice of imputing the net increase in yield in Command Area to irrigation alone is incorrect, the Committee had desired that all inputs that go to increased yield e.g. agricultural research and extention, agricultural credit and ayacut development etc. should be taken into account on the cost side. It was also desired that cost benefit analysis of projects should necessarily be preceded by socio-economic survey of the Command Area. In their Action Taken Note the Ministry of Water Resources have detailed the measures suggested by the Committee and have stated that these findings of the Committee are being examined by the Ministry and Planning Commission in consultation with the States. In this context, the Committee have pointed out that a Committee to review the criteria was set up in December, 1981 in pursuance of a recommendation made by Irrigation Commission in 1972. There has already been serious delay as the original recommendation in this regard have been made by the Irrigation Commission as early as 1972. It is a matter for regret that so important matter has been handled in so indifferent and casual

manner. In view of it, the Committee have urged the Government to see that the examination is completed expeditiously.

4. In their earlier Report 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. In their Action Taken Note, 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 have observed that there is no justification for the big land-owners, who are the principal beneficiaries, of the irrigation facilities, to continue to enjoy subsidised water rates.

5. In this Report, the Committee have been also reiterated their earlier recommendations of setting up of monitoring cells in States for concurrent evaluation and monitoring the progress of various projects and control boards for all large inter-state and state projects costing Rs. 50 crores and more.

6. The Committee considered and adopted this Report at their sitting held on 3 April, 1987. Minutes of the sitting form Part II of the Report.

7. For facility of reference and convenience, the recommendations and conclusions of the Committee have been printed in thick type in the body of the Report and have also been reproduced in a consolidated form in the Appendix to the Report.

8. The Committee place on record their appreciation of the assistance rendered to them in the matter by the Office of the Comptroller and Auditor General of India.

E. AYYAPU REDDY,
Chairman,
Public Accounts Committee.

NEW DELHI;
April 6, 1987
Chaitra 16, 1909 (*S*)

CHAPTER I

REPORT

This Report of the Committee deals with action taken by Government on the Committee's recommendations|observations contained in their Hundred and Forty-First Report (Seventh Lok Sabha) on Planning Process and Monitoring Mechanism with reference to Irrigation Projects.

1.2 The Committee's 141st Report was presented to Lok Sabha on 11 April, 1983 and contained 54 recommendations. Action Taken Notes have been received in respect of all the recommendations|observations. The Action Taken Notes received from the Government have been categorised as follows :

(i) Recommendations and observations that have been accepted by Government :

2, 4—7, 9—11, 15, 19—21, 24—26, 28—31, 33, 35, 37, 40-41, 46—48, 50-51, 53 and 54.

(ii) Recommendations and observations which the Committee do not desire to pursue in the light of the replies received from Government :

1, 8, 12, 14, 17-18, 22-23, 27, 42, 49 and 52.

(iii) Recommendations and observations replies to which have not been accepted by the Committee and which require reiteration :

1, 3, 13, 32, 36, 38-39, 43, 44 and 45.

(iv) Recommendations and observations in respect of which Government have furnished interim replies :

16 and 34.

1.3 The Planning Commission and Ministry of Water Resources etc. were requested to furnish their Action Taken Notes on the recommendations contained in the Report within six months of the presentation of the Report i.e. by 10 October, 1983. The Action Taken Notes were, however, received during February—July, 1984. On perusal, it was found that in a number of cases where the Committee had called for action on the part of Planning Commission/Ministry of Water Resources in concert with the States, the former had merely asked the States to take necessary action. In some other cases, the Planning Commission had referred the Committee's recommendations to concerned Ministries for necessary action. Thus, though action had been initiated, no final/concrete result had emerged. Therefore, Planning Commission/Ministry of Water Resources etc. were

asked in May 1985 to furnish updated Action Taken Notes on recommendation Nos. 3, 4, 13, 17, 18, 23-26, 31-35, 37, 41-47 and 51 by 15 June, 1985. The Committee regret to have to observe that updated Action Taken Notes were furnished to them after a considerable delay. While the same were received from the Planning Commission in two lots in February-March, 1986 the Ministry of Irrigation furnished the notes as late as December, 1986. It is unfortunate that these recommendations were not given the speedy attention that they deserved. The Committee trust that effective suitable arrangements will be made to ensure that Action Taken Notes on the Recommendations are sent promptly and within the prescribed time-limit.

1.4 The Committee will now deal with the action taken by Government on some of their recommendations and observations.

Irrigation Potential of the Country.

(Sl. No. 1—Paras 2.46—2.47)

1.5 The Committee had referred to incorrect information furnished in Lok Sabha on 8 March, 1982 in reply to an Unstarred question and had observed as under :

"In reply to Unstarred Question No. 2419 given to the Lok Sabha on 8 March, 1982 the Minister of Irrigation had confirmed that the target of providing irrigation to 5 million hectares during the period 1975-76 to 1978-79 had been fulfilled. From the statement appended to the reply the Committee find that the additional potential created during this period from major and medium irrigation schemes was 4.78 million hectares from continuing schemes and 302 million hectares, from new schemes, making a total of 5.082 million hectares. The Secretary, Ministry of Irrigation however informed the Committee during evidence that the potential achieved in the 4 years, 1975-76 to 1978-79 was 4.356 million hectares. He admitted that 'there might have been some error in the reply given to Lok Sabha' In a further note on the subject the Ministry of Irrigation have stated :

The error in the reply to the above unstarred question answered in Lok Sabha on 8 March, 1982 came to notice during the oral evidence before the Public Accounts Committee. On verification it has been found that while giving the reply to the above question the figures of targets potential for the period 1975-76 to 1978-79 had been furnished instead of the actual achievements. A correction statement is also being sent to the Lok Sabha Secretariat in this regard. On the basis of information available *prima facie* it is an error through oversight by the Officers who dealt with the reply of the Parliament Question.

The Committee view with serious concern that wrong information was supplied to the Prime Minister and the same was given in a written reply to a question in Lok Sabha by the Minister of Irrigation. The Committee would like the responsibility to be fixed for the serious mistake which would have gone unnoticed but for the cross-examination of the officials by the Committee. The Committee would like to be apprised of the action taken in the matter as early as possible."

1.6 In their Action Taken Note dated 30-1-1984, the Ministry of Irrigation have intimated as under :

"As reported to the Committee, the matter was investigated and it was found that due to an inadvertent error, the figures relating to target of potential were reported. as against the figures of potential created. Apart from forwarding a correction statement to the Lok Sabha Secretariat, a circular (copy enclosed) was also issued to all the officers of the Ministry directing them to take utmost care in preparing replies to Parliament Questions and ensure that no errors occurred in the replies."

1.7 The Committee cannot accept as satisfactory the explanation that incorrect figures were given due to an inadvertant error. The Committee had in their earlier recommendations desired that responsibility be fixed for this serious lapse which would have gone unnoticed but for the cross examination of the officials by the Committee and had desired that the Committee would like to be apprised of the action taken in the matter. Despite this specific recommendation, the Ministry of Irrigation had done nothing more than issue exhortatory instructions to all and sundry. The Committee consider that there has been gross negligence at various levels, and specific responsibility must be fixed at all these levels, for this serious lapse, negligence and carelessness. Action taken should be intimated to the Committee within a period of four months.

Cost Over-run

(Sl. No. 3—Paras 2.49—2.51)

1.8 The Committee had referred to abnormal delays in the completion of irrigation project and had observed as under :

"The Committee observe that out of a total of 205 major irrigation projects taken up since independence only 29 had been completed till the end of 1979-80. In regard to medium irrigation, the number of projects taken up was 916, of which only 469 could be completed during this period. Even after making allowance for the normal gestation period of 10—12 years for major projects the Committee find that at the commencement of the Sixth Five Year Plan, there were as many as 58 projects started before 1969 that remained to be completed. Of these, 11 projects were carried over from the First Plan (1951—56), 13 from the Second Plan (1956—61), 24 from

the Third Plan (1961—67) and 10 projects from the Annual Plans (1966—69). The Committee have been informed that out of 172 on-going major schemes, 88 are likely to be completed during the Sixth Plan while the rest 84 will spill over into the Seventh Plan.

Admittedly not a single project in the irrigation, power or flood control sectors has been completed within the time schedule and within the estimates. From the details of cost of on-going major irrigation schemes of the Sixth Plan (Appendix I), the Committee find that the latest cost estimate is of the order of Rs. 11,680 crores *i.e.*, an increase of 290 per cent over the original estimates of Rs. 4,025 crores, 32 of these projects have shown cost overruns of 500 per cent or more.

The Committee consider this situation to be highly unsatisfactory. The Committee urge that topmost priority should be given during the Sixth Plan for schemes undertaken during first three plans and it should be ensured that these are completed without delay and without further cost escalation."

1.9 In their Action Taken Note the Ministry of irrigation have observed as under :

"The State Governments were addressed *vide* D.O. No. 2|5|83-O. II dated 2-9-1983 in respect of major irrigation projects and No. 2|5|83-P. II(B) dated 23-9-1983 in respect of medium projects taken up prior to 1969, requesting allocation of full requirement of funds for their completion during the Sixth Plan period itself. As per information available, out of 58 major projects brought to the notice of concerned State Governments, 26 were completed during the Sixth Plan period. Further, out of 17 medium projects brought to the notice of State Governments, 5 have been completed. The remaining major and medium projects have spilled over in to the Seventh Plan Period. The strategy adopted for the Seventh Plan is to complete all the ongoing schemes, particularly those which are at an advanced stage of completion."

1.10 The Committee note with concern that out of 58 major projects and 17 medium projects brought to the notice of the concerned State Governments, only 26 major and 5 medium were completed during the Sixth Plan period. The Committee consider the situation to be highly unsatisfactory and would like to be apprised of the progress in the completion of the projects which had been started before 1969 and which remained to be completed on 31-3-1987.

Preparation of State-wise Master Plans

(S. No. 13, Para 2.64)

1.11 One of the strategies|priorities of the Sixth Five Year Plan in irrigation sector had been preparation of State-wise Master Plans and completion of all investigations by 1989-90. Emphasising the urgency of

preparing such Plans, the Committee in Para 2.64 of their 141 Report had observed as under :

> "One of the strategies|priorities of the Sixth Five Year Plan in the irrigation sector is preparation of State-wise Master Plans and completion of all investigations by 1989-90. Not a single State has, however, been able to prepare such a plan pending completion of investigation needed therefor. The Committee trust that the State Governments would realise the desirability and the urgency of preparing such plans in the interest of orderly and phased development of the precious water resources. The expert assistance of the Central Water Commission should be made available to the States in this task in an increasing measure."

1.12 In reply the Ministry of Water Resources in their Action Taken Note have explained the position as under :

> "A D.O. letter was sent on 7-9-1983 by Central Water Commission from Member(WR) to all Irrigation Secretaries of the State Governments and to the Union Territories. Only 8 out of 22 States acknowledged the receipt of the above mentioned D.O. but so far none of the States has furnished the requisite Master Plan in pursuance of the above mentioned D.O. The State of Meghalaya has informed that no irrigation scheme has yet been commissioned in the State. The State of Maharashtra has intimated that the basinwise revised Master Plans are under preparation.
>
> Earlier the Working Group for Sixth Plan had also suggested preparation of Master Plan for irrigation development by the end of 1980 itself. The Working Group for VII Plan has suggested that a High Level Committee in Central Water Commission has to be formed to provide necessary expertise and advice, so that Master Plans of all the States become available by the end of the Seventh Plan.
>
> In the meantime the National Water Development Agency (NWDA) set up in July 1982, has undertaken water basin studies of peninsular river basins, by taking into consideration the Master Plan proposals and studies made by the State Governments.
>
> In the background note placed before the first meeting of the National Water Resources Council held in October 1985, the importance of a comprehensive Master Plan for each river basin to cover the entire range of water use and management activities was duly stressed. This was also generally agreed to by most of the States. The National Water Policy document to be placed before the Council would take due note of the need for Master Plans for suitable incorporation."

1.13 The Committee in their earlier Report had pointed out that one of the strategies/priorities of the Sixth Five Year Plan, in irrigation sector, had been the preparation of State-wise 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 therefor. In view of this, the Committee had desired that additional expert assistance of the Central Water Commission should be made available to the States. The Ministry of Water Resources in their action taken reply have stated that all Irrigation Secretaries of the States were addressed on 7-9-1983 but none of the States have so far furnished the requisite Master Plan. The Meghalaya State has reported that no irrigation scheme had yet been constructed in the State, while in Maharashtra it was stated that basinwise revised Master Plans were under preparation. The Committee are constrained to observe that the State Governments have not reacted promptly to their suggestion and have failed to appreciate the urgent necessity of preparing Master Plans in the interest of orderly and phased development of the precious water resources and would urge Government of India to take up the matter at the highest level with the States to expedite investigations and formulation of Master Plans. It is also pertinent to observe that the Working Group for Sixth Plan had suggested preparation of Master Plans for irrigation development by the end of 1980. Subsequently, the Working Group for Seventh Plan had also desired that Master Plans of all the States should be available by the end of the Seventh Plan. In this context, the Committee note that most of the States had generally accepted the importance of a Comprehensive Master Plan for each river-basin to cover the entire range of water use and management activities in the first meeting of the National Water Resources Council held in October 1985. The Committee are unable to comprehend, the reasons for not expediting the investigations and preparation of Master Plans. It is obvious that preparation of State-wise Master Plans would accelerate the orderly and phased development of water resources. The Government of India should render all possible assistance to the States in this regard to enable them to frame their Master Plans at least by the end of the Seventh Five Year Plan.

National Water Policy

1.14 Emphasising the need for enunciation of a well defined national water policy to provide for a balanced development of water resources and their utilisation in the larger national interest, the Committee in Paras 3.49 and 3.50 of their Original Report had observed as follows :

> "The Second Irrigation Commission (1972) had expressed the view that while domestic requirements should have the highest priority for allocation of water followed by industry and then by irrigation. The Commission, however, felt that between irrigation and power generation, priority should be given to irrigation. It has been represented to the Committee that "hydel power generation often leads to wastage of water. Needs of cultivators for water and those of industries for power never match..... In a single year Chambal Power House released water as much as one MAF (1/3rd of the

normally stored water), carrying with it an irrigation potential of 3 to 4 lakh acres. Many reservoirs like Rihand are meant only for power generation and their releases even do not match with the irrigation needs down stream....In hydel projects we lose precious water that would otherwise have irrigated large areas of land." The Committee have been informed that though irrigation is accorded priority for use of available water, hydel power generation is equally important to meet the peak load demand of power system. "A happy blending of meeting the conflicting requirements of water for irrigation and power has to be evolved through system studies and the overall regulation plan so as to ultimately meet the needs of irrigation without undue wastage".

While agreeing with the above approach enunciated by the Ministry of Irrigation, the Committee consider it extremely essential that a well defined national water policy is enunciated so as to provide for a balanced development of the water rsources and their utilisation in the larger national interest. The Committee trust that the National Water Resources Council proposed to be set up in pursuance of the recommendation of the National Development Council would address itself to this task as a first priority."

1.15 Replying to these observations of the Committee, the Ministry of Water Resources in their Action Taken Note have stated as under :

"Ministry of Water Resources have constituted the National Water Resources Council on 26th March, 1983, under the Chairmanship of the Prime Minister. One of the functions of the Council is to lay down the National Water Policy and to review it from time to time. The first meeting of the National Water Resources Council was held in October 1985. The Council was unanimous that water should be treated as a precious and scarce national resource and dealt with as such, and that there was urgent need for the formulation of a national policy with a view to ensuring an optimal use of the available water resources in the overall national interest. Accordingly, it was decided to set up a group under the Chairmanship of the Union Minister of Water Resources to prepare a national water policy document for consideration by the Council."

1.16 In their earlier recommendation the Committee had desired enunciation of a well thoughtout national water policy designed to provide for a balanced development of water resources in the larger national interest and their utilisation for irrigation and power generation. They had also hoped that National Water Resources Council would take this up as a first priority task. The Committee note that National Water Resources Council has been constituted on 26 March 1983 under the Chairmanship of the Prime Minister. One of the functions of the Council is to lay down the National Water Policy and to review it from time to time. However,

the Committee regret to note that the first meeting of the National Water Resources Council was held only in October 1985, that is 30 months after its constitution.

Need to make cost-benefit ratio more scientific

(S. No. 36, Para 4.11

1.17 In view of the fact that cost of ayacut development was not being taken into account for assessing the cost-benefit ratio, the Committee in their earlier report had emphasised that while computing cost-benefit ratio, all inputs on cost side should be taken into account that bring increase in the yield as under :

> "The Committee understand that the cost of ayacut development is not being taken into account for assessing the cost benefit ratio though a recommendation to this effect was made by the Irrigation Commission (1972). A Committee to review the criteria adopted for determining the costs and benefits of irrigation projects was constituted by the Planning Commission in December 1981. The Committee would like to be apprised of the action taken in pursuance of the findings of this Committee. The present practice of imputing the net increase in the yield in the Command to irrigation alone is obviously incorrect. It is necessary to take into account on the cost side all the inputs that go to increase the yield e.g., agricultural research and extension, agricultural credit, ayacut development, etc. Cost-benefit analysis of projects should necessarily be preceded by socio-economic survey of the Command Area."

1.18 In their Action Taken Note the Ministry of Water Resources have stated as under :

> "The Committee's report recommends data collection by the Indian Council of Agricultural Research (ICAR) in respect of crop yields according to different agro-climatic zones of the country, indicating the research stations relevant for such zones. It was suggested that the estimates may be based on the costs of cultivation surveys sponsored by the Deptt. of Agriculture. The cost of cultivation studies could be carried out by the Department of Agriculture in regions where the data was not adequate. In order to facilitate understanding the revised methodology proposed by the Committee, it had recommended that the project Appraisal Division of the Planning Commission may prepare one or more detailed case studies to illustrate its application.
>
> The Committee had recommended the Discounted Cash Flow (DCF) Method to calculate the Internal Rates of Return rather than the present value at a given discount rate. For selection of a project it has recommended a minimum cut-off

rate of 9 per cent in general areas and 7 per cent in respect of drought prone, chronically flood-affected and hilly areas as well as for those areas in which 75 per cent of the dependable flow has been utilised.

The Committee has suggested that the project cost should take into account for benefit-cost analysis, the cost of irrigation upto the field level, the costs of on-farm development required for the utilisation of irrigation water, the costs of providing drainage facilities in the command area and the economic and psychic costs associated with the displacement of persons in the submerged areas. However, the costs of providing extension services, credit and input supply, marketing, etc., has not been suggested to be taken into account as these are generally required to be incurred both for irrigated and unirrigated areas.

The findings of the Committee are being examined in the Ministry of Irrigation and the Planning Commission in consultation with the States."

1.19 The Committee in their earlier recommendation had pointed out that cost of ayacut development was not being taken into account for assessing cost-benefit ratio though a recommendation to this effect was made by the Irrigation Commission (1972). Planning Commission had constituted in 1981 a Committee to review the criteria adopted for determining the cost and benefit of irrigation projects. Pointing out that the present practice of imputing the net increase in yield in Command Area to irrigation alone is incorrect, the Committee had desired that all inputs that go to increase yield e.g. agricultural research and extension, agricultural credit and ayacut development etc. should be taken into account on the cost side. It was also desired that cost benefit analysis of projects should necessarily be preceded by socio-economic survey of the Command Area. In their Action Taken Note the Ministry of Water Resources have detailed the measures suggested by the Committee and have stated that these findings of the Committee are being examined by the Ministry and Planning Commission in consultation with the States.

1.20 In this context, the Committee would point out that a Committee to review the criteria was set up in December 1981 in pursuance of a recommendation made by Irrigation Commission in 1972. The Committee would urge the Government to see that the examination is completed expeditiously. There has already been serious delay, the original recommendation in this regard have been made by the Irrigation Commission as early as 1972. It is a matter for great regret that so important a matter has been handled in so indifferent and casual manner.

Level of productivity in irrigated and unirrigated areas

(S. Nos. 38 and 39, Paras 4.24 and 4.25)

1.21 The Committee in Paras 4.24 and 4.25 of their earlier Report had stressed that an indepth study should be carried out to find out the productivity levels in irrigated areas, *vis-a-vis*, unirrigated areas to know

the extent to which production could be increased by providing further irrigation facilities. They had also desired that statistical data on net increase in yield in Command of an irrigation project should be compiled regularly as under :

> "In this context, the Committee note with concern that so far no indepth study has been carried out with a view to finding out the productivity level in irrigated areas, *vis-a-vis*, unirrigated areas. This is necessary at least to know the extent to which production could be increased by providing further irrigation facilities. As stated by the Planning Commission, an indepth study in this regard is necessary at the regional and State levels for different crops and for different agro-climatic conditions. In the view of the Planning Commission, such a study should be undertaken by a multi-disciplinary group under the aegis of institutions like the Indian Council of Agricultural Research and the agricultural universities. Since the Ministry of Irrigation is also looking after the Command, Area Development Activity, the Planning Commission consider that it will be appropriate that the study is coordinated by the Ministry of Irrigation. The Committee urge that the study should be initiated forthwith.
>
> The Committee are surprised to learn that the net increase in yield in the command of an irrigation project is not assessed. In the absence of such an assessment, the Committee wonder how actual benefit derived could be ascertained and compared with the project anticipation. Henceforth such data should be compiled regularly."

1.22 In their Action Taken Note, the Ministry of Water Resources have stated as under :

> "For constituting the multi-disciplinary group, as recommended by the Committee, the Ministry of Agriculture and the Planning Commission have been requested to nominate the officers for the Group.
>
> The Group of officers will also be directed to report on the procedure to be advised to the State Governments for regular compilation of data for comparing benefit actually derived with that anticipated when the project was formulated."

1.23 In reply to the above observations of the Committee contained in Para 4.25 (Sl. No. 39) the Ministry of Agriculture (Department of Agriculture & Cooperation) have stated as under :

> "In order to implement the recommendations made by the Public Accounts Committee, the Director of Economics & Statistics, Ministry of Agriculture, took up (28th September 1983) the matter with the National Sample Survey Organisation (NSSO), Department of Statistics, who provided technical guidance to the State Governments in the matter of crop estimation

surveys, and advised them to initiate action for estimation of crop yield in the command areas of irrigation projects. The NSSO had addressed (19th Oct. 1983) a communication to all the State Agricultural Statistics Authorities (SASA) to ascertain the details of any special surveys conducted by them in the command areas to assess the yield of the crops.

2. On the basis of the information received by the NSSO, in Andhra Pradesh, the Command Area Development Department conducts separate crop estimation surveys for 7 principal crops, i.e. rice, jowar, bajra, maize, groundnut, cotton and chillies. Currently, such surveys are carried out in four commands, i.e. Nagarjuna Sagar Project-Right and Left, Tungabhadra Project and Srirama Sagar Project. The crop cutting experiments conducted by the Command Area Development Department in these four commands have been integrated with the General Crop Estimation Surveys (GCES) conducted by the State Bureau of Economics & Statistics so as to avoid any overlapping of the areas from which samples are drawn. In addition to the usual sample of two plots drawn from each selected village the yield of the best plot is also reported in case of Command Areas.

It is also learnt that special crop cutting surveys are being conducted in Jammu & Kashmir to know the impact of Command Area Development Programme. The sample size for this survey is taken as a matching sample from the GCES.

3. On the basis of the replies received by the NSSO, it transpired that some States like Haryana, Himachal Pradesh, Kerala and the Union Territory of Pondicherry are not conducting any such surveys to assess the yield of crops in the commands of irrigation projects. Replies from other States are awaited.

4. The Directorate of Economics & Statistics have again requested (4th January 1984) NSSO to advise the various State Governments to take up the crop estimation surveys in irrigation commands as part of General crop estimation surveys or independently on a regular basis and provide the necessary technical guidance in this respect. The matter would be pursued with the NSSO and the States so that a regular reporting system is established for estimating yields of crops in the commands of irrigation projects."

1.24 The Committee in their earlier Report had emphasised the need to compile data on regular basis to assess net increase in yield in command area of irrigation projects. The Ministry of Agriculture have stated that National Sample Survey Organisation (NSSO) Department of Statistics had taken up the matter with the state agricultural statistics authorities in October 1983 to find out if any special survey was conducted by them in the command areas to assess the yield of crops. On the basis of information received so far it is evident that only in Andhra Pradesh and J&K such data have been collected through special crop cutting experiments in command areas. It has also been reported that some States like Haryana, Himachal Pradesh, Kerala and Union Territory of Pondicherry are not conducting any

such surveys to assess the yield of crops in command area. Replies from other States are still awaited. The Committee cannot but deprecate such inordinate delay in implementation of an important recommendation. The matter should be pursued with the States with utmost vigour so that the required data on net increases in yield in command area of irrigation project become available at the earliest date possible.

Financial Losses

(Sl. No. 43—Paras 4.39 and 4.40)

1.25 The Committee while pointing out that in certain States receipts from irrigation were not sufficient even to cover the working expenses had in Paras 4.39 and 4.40 of their earlier Report had observed :

"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 multipurpose river valley projects. In the successive Five Year Plans, the Planning Commission have been emphasising the need for revision of rates with a view to cover at least the maintenance, operation and depreciation charges and also yield some interest on the capital. The Committee find that the National Development Council have also been exercised over the matter. However, the resolutions passed by the Council have remained only a pious wish and the losses on the irrigation and multipurpose river valley projects continue to mount.

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. It was therefore emphasised that the irrigation system should be no longer be a burden on the State's finances. Again, the Sixth Plan stipulates that the minimum objectives should be to set rates at levels so as to cover the working expenses and bring additional resources to the tune of Rs. 325 crores over the Plan period. The Committee find that the cumulative losses were of the order of Rs. 2053 crores between 1975-76 and 1981-82. Obviously, this situation cannot and should not be allowed to continue in the development schemes in this vital area of our economy have to be pursued with the earnestness that is called for to make up for the heavy shortfalls caused by paucity of resources. The Committee see no reason why the big land owners who are the principal beneficiaries of the irrigation facilities, should continue to be subsidised any

longer though it may be justified in the case of small and marginal farmers and share-croppers. The Committee would therefore like this matter to be thrashed out as the next Conference of Chief Ministers so that the oft-repeated exhortations of the planners are translated into action without further loss of time."

1.26 In reply the Ministry of Planning (Planning Commission) have observed as under :

"The Seventh Five Year Plan has stressed upon the need for undertaking measures for minimising irrigation losses. The draft Seventh Plan document has pointed out that :

"Among the departmental enterprises of the State Governments, receipts from multipurpose, major and medium irrigation works are expected to fall short of working expenses by Rs. 966 crores over the Seventh Plan period. Water rates need to be fixed at reasonable levels so as to reduce the recurring burden of subsidies to irrigation works on the States' current revenues. During the Sixth Plan, the States have raised not more than Rs. 79 crores through revision in the irrigation rates against the target of Rs. 325 crores. During the Seventh Plan period, the States have necessarily to raise the irrigation rates with a view to covering at least the working expenses".

The National Development Council which met on the 8th and 9th November, 1985 has approved the Draft Seventh Plan and has thus endorsed the above approach."

1.27 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.

Monitoring Mechanism

(S. Nos. 44 and 45, Paras 5.11 to 5.13)

1.28 Stressing the import and necessity of setting up of monitoring cells at the State and Project levels and also Control Boards for all large projects costing more than Rs. 50 crores, the Committee in paras 5.11 to 5.14 of their earlier Report had observed :

"The first Conference of State Irrigation Ministers held in 1975 had recognised the importance of monitoring and evaluation of

Plan Projects. The Conference had recommended the setting up of an effective monitoring organisation at the project, State and Central levels. Accordingly a Central Monitoring Cell was set up in the Central Water Commission in August 1975. Over the years, the Cell has been strengthened and at present it monitors 66 selected major irrigation projects in the country. The Committee, however, find that the progress in setting up the monitoring organisations at the project and State levels has been lagging behind in certain States. The Sixth Five Year Plan documents has also pointed out that adequate organisation and systems do not exist at present for monitoring and evaluation of plan projects and programmes at different levels. While certain States have created monitoring Cells, they have been given additional duties. In certain other States, like Karnataka and Jammu and Kashmir, the Planning Departments are carrying out the task of Monitoring also. The Committee understand that a proposal for providing matching assistance to the extent of 50 per cent for setting up monitoring organisations at the State and project levels was submitted to the Planning Commission but was not found acceptable as the policy is not to increase the number of centrally sponsored programmes.

The Committee need hardly stress the importance and the necessity of setting up monitoring cells at the State and project levels for concurrent evaluation and monitoring of the progress of various projects taken up under the Five Year Plan to enable timely on course corrections. The Committee therefore desire that the question of setting up such organisations should be pursued vigorously with the State Governments concerned.

The Second Irrigation Commission had recommended the setting up of Control Boards for all large inter-State projects and State projects costing Rs. 50 crores or more, with a view to promote the best use of man power and equipment. It was further recommended that these boards should be delegated maximum powers and the Boards in turn should be liberal in delegating powers to the Chief Engineers of projects in the interest of efficiency. The Committee find that in pursuance of the recommendation Control Boards have been set up for three projects handled by the Ministry of Irrigation *viz.*, Betwa River Board, Banasagar Control Board and Mahi Control Board. The Government of India is also represented on other Boards set up by the State Governments. To inter-State Control Boards have been set up bilaterally by the States. The Government of Madhya Pradesh has set up a Control Board for all major projects in the State. In respect of other projects, no information is available with the Government of India as to the reasons why the State Governments have not found it necessary to set up such Control Boards.

Delays in decision making at various levels have been a common feature in the execution of various projects. Adequate delegation of financial powers has been emphasised from time to time,

viz., by the Third Irrigation Ministers Conference held in 1977 and by the Working Group constituted by the Planning Commission in May 1980. However, the progress in this regard does not appear to be very encouraging. The Committee would like the matter to be pursued with the State Governments concerned. So far as major irrigation projects are concerned, the Committee consider it imperative that Control Boards comprising representatives of the Central and State Governments and other agencies concerned are set up without loss of time. The question of delegation of adequate powers to these Boards as well as to the Chief Engineers of the projects in the interest of their speedy execution should be pursued vigorously both by the Planning Commission and the Ministry of Irrigation."

1.29 In reply to the above quoted observations of the Committee the Ministry of Water Resources in their Action Taken Notes have stated as under :

"The observation of the Committee were communicated to the State Governments urging them to set up Monitoring Cells at the Project level and at the State level, wherever not established so far, and wherever already set up to ensure that these Cells were not burdened with any other work so that these Cells could concentrate on monitoring of the projects. In reply, the State Government of Meghalaya and the Union Territory Administrations of Chandigarh, Dadra and Nagar Haveli, Delhi and Lakshadweep have informed that as there are no major or medium irrigation projects, there is no need to set up Monitoring Cells at this stage. The State Government of Maharashtra have stated that a Monitoring Cell at the State-level has been set up; besides creation of 8 posts of Field Chief Engineers with their offices at Divisional Headquarters for ensuring closer control on execution, including monitoring of projects. The State Government of Uttar Pradesh have stated that there is a Monitoring Cell at State level and three at Project level. The State Government of West Bengal have informed that a State level Monitoring Cell headed by a Director assisted by 5 Deputy Directors has been set up. The Government of Kerala has set up a Secretarial Level Committee. The Andaman and Nicobar Administration have also set up a monitoring cell. The replies from the remaining State Governments|Union Territories' Administrations are awaited.

The question of setting up of Control Boards was taken up with State Governments in August 1983. In response, the Government of Karnataka have stated that since there already exists a Major Irrigation Projects Control Board in the state with sufficiently vast functions for speeding up the construction activities, it is not felt necessary to set up Control Boards for each project ing more than Rs. 50 crores. The State Government of Manipur have replied that a Control Board for Thoubal and Khuga projects was set up in November, 1982. The State Government

of Kerala have accepted the recommendation. Response from remaining States is awaited."

1.30 The Committee in their earlier report had emphasised the need to set up monitoring cells at State and Project levels for concurrent evaluation and monitoring the progress of various projects taken up under the Five Year Plans and had desired that this matter should be pursued vigorously with the concerned States. The Ministry of Water Resources in their Action Taken Note have intimated that while Maharashtra, Uttar Pradesh, Kerala, West Bengal and Andaman and Nicobar have set up such monitoring cells, Union Territory Administrations of Delhi, Chandigarh, Dadra-Nagar Haveli and Lakshadweep have intimated that they do not require such monitoring cells as they do not have any major or medium irrigation projects. Replies from the remaining States were still awaited.

1.31 Similarly, the Committee had also recommended earlier that the advisibility of setting up Control Boards for all large inter-State projects and State projects costing Rs. 50 crores or more be taken up with the States with a view to promote the best use of man-power and equipment. The Committee note with regret that although the Ministry of Water Resources had taken this up with the States in August 1983 all States other than Karnataka, Manipur and Kerala have not yet responded. No information is available with the Government of India as to why the State Governments other than Manipur, Karnataka and Kerala found it necessary to set up such Control Board which would go a long way in removing bottlenecks in the execution of State and Inter-State projects costing Rs. 50 crores and above. Implementation of the Committee's recommendation regarding delegation of financial powers to the Boards as well as to the Chief Engineers of the projects in the interest of their speedy execution should be expedited. The Commmittee would again emphasise the desirability of pursuing all these suggestions vigorously by the State Governments.

CHAPTER II

RECOMMENDATIONS AND OBSERVATIONS THAT HAVE BEEN ACCEPTED BY GOVERNMENT

Recommendation

The Committee have been given to understand that the ultimate potential is 113 million hectares. A rough assessment indicates that the cost at 1979-80 price level for developing the balance irrigation potential of 51.42 m.ha. would be of the order of Rs. 50,000 crores. This works out to nearly Rs. 7,000 per hectare. As the total shortfall during the 31 years of planning was of the order of 20.59 m.ha. the financial resources needed to bridge this gap alone would be a colossal sum of Rs. 14,000 crores. This is bound to escalate with further delays. This is the price the poor tax payer has to pay for the failure to realise the plan targets. In view of such heavy shortfalls entailing severe penalty in terms of cost escalation and denial of timely benefit to the economy in a vital sector, our planning process and implementation and monitoring mechanism cannot be regarded as sound. The Committee have dealt with these aspects in the succeeding sections of this Report.

[S. No. 2 Appendix III (para 2.48) of 141st Report of PAC (Seventh Lok Sabha)]

Action Taken

The observation is noted.

[Ministry of Irrigation O.M. No. 14|1|83-Coord. dated February, 1984]

Recommendation

As many as 8 major projects, viz., Nagarjuna Sagar (Andhra Pradesh), Gandak (Bihar), Kosi (Bihar), Malaprabha (Karnataka), Kallada (Kerala), Tawa (Madhya Pradesh), Rajasthan Canal Project, Stage-I, Stage-II (Rajasthan), and Kangsabati (West Bengal), sanctioned during the First and Second Plan periods, have been lingering on for 15-20 years. As against the originally approved estimate of cost of these projects amounting to Rs. 386.07 crores, the latest cost anticipation is Rs. 2144.75 crores. Till the end of 1979-80, the total expenditure of these projects amounted to Rs. 1221.45 crores and the spill-over cost as per latest indications would be Rs. 923.30 crores.

The Committee observe that while full spill-over expenditure has been provided in the Sixth Plan for Nagarjunasagar, Gandak, Kosi, Tawa, Kangsabati and Rajasthan Canal Stage-I, the other projects viz., Mala-Prabha, Klalada and Rajasthan Canal Stage-II will still have to be carried over to the Seventh Plan. Since work on these projects was commenced in 1960, 1961 and 1972 respectively and these have shown

heavy cost over-runs, the Committee strongly urge that necessary financial and other resources must be found for their completion within the Current Plan.

[Sl. No. 4 Appendix II Para 2.52 and 2.53 of 141st Report of PAC (Seventh Lok Sabha)]

Action Taken

As explained against recommendation No. 3 (Appendix III Para 2.49 to 2.51), the State Governments were addressed vide d.o. letter No. 2|5|83-P.II dated 2-9-1983 in respect of major irrigation projects taken up prior to 1969, requesting for allocation of full requirement of funds for their completion during the Sixth Plan period itself. The work on Gandak and Kosi Projects in Bihar and Tawa Project in Madhya Pradesh is reported to have been completed during the Sixth Plan period. The remaining five major projects have spilled over into the Seventh Plan. The strategy during the Seventh Plan is to complete the ongoing schemes, particularly those which are in an advanced stage of completion by providing requisite funds on a priority basis.

[Ministry of Water Resources O.M. No. 14|1|83-Cood. dated December, 1986]

Recommendation

During the Sixth Five Year Plan, a total provision of Rs. 10,202.66 crores has been made—Rs. 8391.36 crores for major and medium irrigation and Rs. 1811.30 crores for minor irrigation schemes. In addition, institutional investment of Rs. 1700 crores is envisaged for minor irrigation schemes. The physical target of 13.7 million hectares (5.7 m. ha. for major and medium irrigation and 8 m. ha. for minor irrigation) is stated to have since been raised to 14 m. ha. The Committee understand that taking into account the cost escalation and increase in the potential target, an additional outlay of Rs. 2600 crores would be required as per assessment made by the Ministry of Irrigation.

Since the on-going schemes have necessarily to be the first charge on the plan provision, the Committee cannot too strongly emphasize the need for exercising utmost restraint in starting work on new major and medium irrigation schemes unless it is ensured that necessary funds therefor can be provided.

[S. No. 5 Appendix III, para 2.54 and 2.55 of the 141st Report of PAC (Seventh Lok Sabha)]

Action Taken

The recommendation of the Public Accounts Committee in having ongoing schemes as the first charge has been conveyed to all concerned State Governments with relevant extracts of the P.A.C. Report. It has also been impressed upon States that top priority should

be given during the Sixth Plan for schemes undertaken prior to 1969 and their completion ensured without delay and without further cost escalation.

In this connection action taken note for recommendation No. 3 may also be referred to.

During Sixth Plan, out of an outlay of Rs. 8391.36 crores for the various States Rs. 1070.17 crores forming less than 13 per cent of the total outlay was allotted for new schemes while 73 per cent of total outlays were provided for ongoing schemes. During the first three years of the plan, the actual expenditure on the ongoing schemes as a percentage of the total expenditure is shown below :

	1980—83
New Schemes :	
Percentage of total expenditure	6.6
Ongoing Schemes :	
Percentage of total expenditure	82.8
Total expenditure including all other charges	100 per cent

[Ministry of Irrigation O.M. No. 14|1|83-Coord, dated February, 1984]

Recommendation

It has been stated that there is substantial scope for raising the irrigation potential through minor irrigation schemes in areas outside the Punjab-Haryana belt in the North and Tamil Nadu in the South. The Committee consider that both from the point of view of the low cost and the short time lag in the flow of benefits, it is extremely necessary that high priority is accorded to such schemes. The Committee would also like to point out that minor irrigation not only offers greater employment opportunities to the rural population but also promotes the involvement of the farmers in the execution, operation and maintenance of the schemes. The Committee are constrained to note in this connection that the States have not so far agreed to the proposal to group small number of minor irrigation projects so that they could be brought under a Command Area Development Authority to facilitate integrated development. The Committee have no doubt that the Command Area Development approach adopted for major and medium irrigation projects, if extended to minor irrigation projects, would be very beneficial. The Committee, therefore, suggest that the matter may be pursued with the State Governments at high level. The Committee further recommend that a shelf of feasible projects of all types assigning priorities having regard to their benefits, should be drawn up on an emergent basis under the Centrally sponsored programme such as the Integrated Rural Development Programme, the Drought Prone Area Programme, the Desert Development Programme and the National Rural Employment Programme for providing the much needed thrust to minor irrigation schemes. The Committee expect that

constraint of resources would not be permitted to hamper the execution of these schemes and that the target of 8 million hectares laid down in the Sixth Plan would be fully achieved.

[S. No. 6 Appendix III, Para 2.56 of 141st Report of PAC (Seventh Lok Sabha)]

Action Taken

Increasing attention, is in fact, being given to the development of Minor Irrigation. In a period of 30 years from April 1951 to March 1980, potential developed by Minor Irrigation Schemes increased by 17.1 million hectares, from 12.9 million hectares to 30.0 million hectares. In the Sixth Plan Period the target adopted is as high as 8 million hectares. The comparative target for potential to be created by major and medium irrigation projects, during the Sixth Plan, is only 5.74 million hectares. By the end of the Sixth Plan Period, development of potential would have reached the level of 37 million hectares, out of the total assessed ultimate potential of 55 million hectares. The ultimate potential could be achieved around 1995.

The commands of major & medium projects are alone covered under the Command Area Development Programme and only 76 major|medium projects are at present included in the programme, which is a Centrally Sponsored Scheme. The State Governments had only been advised to adopt the Command Area approach even in the areas of projects not included in the Command Area Development Programme. Recommendations of the Committee relating to the inclusion of the commands of Minor Irrigation schemes under the Command Area Development Programme for the Seventh Five Year Plan, constituted by the Planning Commission, during its first meeting held on the 14th September, 1983. The Integrated Rural Development Programme, the Drought Prone Area Programme, the Desert Develoment Programme and the National Rural Employment Programme are being administered by the Ministry of Rural Development. Minor Irrigation schemes are permissible items under the Integrated Rural Development Programme, but the beneficiaries are only those who are below the poverty line. With a view to assist the small and marginal farmers, who cannot be covered under the Integrated Rural Development Programme, the Department of Agriculture and Coop. have taken up a Centrally sponsored scheme involving a total outlay of Rs. 250 crores. Out of the average outlay of Rs. 5 lakhs, available per block under this Special Programme, an amount of Rs. 3.50 lakhs is meant for Minor Irrigation Schemes. Minor Irrigation schemes also constitute an important item of work under the Drought Prone Area Programme. The National Rural Employment Programme has been restructured as the Rural Landless Employment Guarantee Programme and minor irrigation schemes can also be taken up under the programme. The State Governments are being advised to prepare a shelf of feasible projects as recommended by the Committee.

Mainly as a result of financial constraints, it is now anticipated that by the end of the Sixth Plan, under the Minor Irrigation sector, the

potential developed would be only 7 million hectares, as against the target of 8 million hectares. However, the Special Programme of assistance to small and marginal farmers, framed by the Department of Agriculture and Cooperation, will lead to the development of potential, through minor irrigation schemes, over and above the likely achievement of 7 million hectares, mentioned above. Since this special programme has been initiated only during the current financial year, after the Annual Plans of the State Governments had been approved, the capability of the State Governments to provide matching funds under the Special Programme has not yet been confirmed and hence a precise estimate of the additional potential that can be developed under the Special Programme cannot be made at present.

[Ministry of Irrigation O.M. No. 14|1|83-Coord. dated Feb., 1986]

Recommendation

The reasons for large scale delays and huge cost escalation in various irrigation projects as identified by the Naegemwala Committee (1973) and more recently by the Working Group constituted by the Planning Commission in May, 1980 for formulation of the proposals for the Sixth Five Year Plan are stated to be as follows :

(i) proliferation of projects resulting in this spreading of financial managerial and technical resources ;

(ii) large scale rise in cost of labour, materials, equipment, spares, land etc. leading to escalation in costs ;

(iii) lack of thorough investigations before starting work on the project ;

(iv) delays in taking decisions ,

(v) difficulties in land acquisition ;

(iv) non-availability of essential inputs like steel, cement, explosives etc.

(vii) change in scope of projects during implementation due to inadequate planning ;

(viii) lack of construction planning and monitoring organisations in the States ;

(ix) lack of detailed plans and estimates for the distribution system and structures thereon ; and

(x) failure to update the estimates and keep the State Governments informed of the rise in cost of projects.

So far as the question of proliferation of projects is concerned, the Committee find that until 1969 major projects were added at a steady rate, averaging 4-5 projects per year. However, since then there has been a spurt in the number of new projects. As many as 119 major projects and

479 medium projects have been taken up since the commencement of the Fourth Plan (1969-74) till the end of 1979-80. Of these, as many as 73 major schemes and 375 medium schemes were taken up in the Fifth Plan period. The Committee has been given to understand "that with the severe droughts in the late sixties and early seventies there were immense and persistent demands for undertaking new projects. It also became a national policy to exploit our water resources and provide the basic infrastructure of irrigation as early as possible". The Committee need hardly point out that long gestation projects need very thorough and detailed investigations. In any case, drought conditions call for quick result yielding schemes which is possible only through development of minor irrigation facilities. 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 the availability of funds, the technical personnel and essential inputs like steel, coal etc. to enable completion of the projects within the time schedule laid down and within the approved estimates.

[Sl. No. 7, Appendix III, Para 2.57 & 2.58 of the 141st Report of the PAC (7th Lok Sabha)]

Action Taken

The observations of the Committee have been noted. From the point of view of (i) creation of irrigation potential, for long term development, (ii) the need to reduce regional imbalance in the development of irrigation and (iii) special considerations such as benefits to tribal areas, drought prone areas etc. some new major projects may have to be taken up, consistent with the availability of adequate financial resources in the State plans. This would depend on the spill-over commitment on ongoing schemes carried over from the previous Five Year Plan in the State since the bulk of the financial resources would have to be allocated for completion of ongoing schemes, as is being actually done in the Sixth Plan. While according acceptance to new schemes, the availability of funds in the State Plans for implementation of the schemes within a reasonable period will be duly taken into account. The Ministry of Irrigation and Central Water Commission will continue to assist the States in procuring essential key construction materials like steel, cement, coal, etc. The availability of adequate technical personnel for implementing the projects is reviewed at the time of the Annual Plan discussions held in the Planning Commission by the Working Group in major and medium irrigation for recommending annual financial allocations for projects consistent with the implementation capacity.

[Planning Commission U.O. No. G-25015|20|83-IFC dated 9-2-1984]

Recommendation

The Committee are further of the view that no ad-hoc lump sum or token provision should be allowed in the approved Five Year Plan. Specific provision should be made for each project to be taken up during the Plan. However, in the course of finalisation of Annual Plan such changes as may be necessary could be made. While competing demands

of different regions within the States are a reality, it will be necessary for the States to indicate the *inter se* priorities of the projects, so that it is possible to choose the right ones within the constraints of resources.

[Sl. No. 9 Appendix III Para 2.60 of 141st Report of P.A.C. (Seventh Lok Sabha)]

Action Taken

The observations made in para 2.60 of Report of the Committee have been conveyed to all the State|Union Territories in Planning Commission's letter No. 16(74)|83-I&CAD dated 1-7-83. In the context of the formulation of the Seventh Five Year Plan, it has been suggested to the State Governments and Union Territory Administrations to draw up a list of new major and medium irrigation projects indicating (i) the *inter se* priorities and (ii) the specific provision for individual projects to be made in the Seventh Plan. It has also been suggested to the State|Union Territories to have a shelf of approved projects so as to facilitate choosing the right ones within the constraints of resources.

[Planning Commission No. G-25015|5|83-IFC dated 22-12-1983]

Recommendation

So far as the Planning Machinery at the State level is concerned, the Committee note with regret that the recommendation of the Planning Commission to appoint Planning Boards with an assurance of 2|3rd assistance has met with little response. At present there is no timely and adequate feedback to the Planning Commission. The Committee consider this to be a very serious lacuna in the planning process. The Committee desire that this matter should be pursued vigorously with the State Government at the highest level.

[Sl. No. 10, Appendix III Para 2.61 of the 141st Report (Seventh Lok Sabha)]

Action Taken

The Planning Commission is already fully seized of this subject and has taken several steps. Every year, when the States come for Annual Plan discussions, the present position of the State Planning Machinery in each State is discussed both at the official and the Minister's level and the States are asked to effect improvements in their existing machinery. Necessary provisions are also made in the Plan on a year-to-year basis for this purpose. The Planning Commission also convened a Conference of State Planning Ministers, Vice-Chairman and Members of the State Planning Boards in April 1981 and one of the concensus emerging from the Conference was that the Planning Machinery of the State and District levels needed strengthening. In 1982-83, the Planning Commission has also extended the scheme of strengthening of planning machinery to the district level vide letter No. PC(P)35|Distt|82-MLP, dated January 3, 1983. Thus in various ways, efforts are being made by the Planning Commission to improve the Planning Machinery in the States.

The Secretary, Planning Commission has recently reiterated in his demi-official letter of 18th July, 1983 to the State Chief Secretaries that the Planning Commission has been taking a keen interest in seeing that the Planning Machinery in all States is adequately strengthened and fully geared up to meet the planning needs at the State level and to provide adequate feedback to the Planning Commission on vital matters relating to planning and its implementation. He has also drawn their attention to the comments made by the Committee on the poor response to the scheme of strengthening of Planning Machinery and also the recommendation with regard to the need of setting up of monitoring cells at State and project levels by the State Governments, and requested the State Governments to take necessary steps to strengthen the Planning Machinery in their States. A copy of aforesaid D.O. letter from Secretary, Planning Commission to the State Chief Secretaries is attached.

[Planning Commission O.M. No. G-25015|9|83-IFC]

Recommendation

So far as big projects are concerned, the Naegamwala Committee had recommended that detailed investigation and preparation of projects reports on projects costing over Rs. 30 crores should be given a more strict treatment and that the outlay thereon could be as much as 5 per cent of the anticiapted total cost of the project to set up a well-manned organisation at the project site for carrying out thorough investigations and preparing detailed estimates. The Committee would like this suggestion to be pursued vigorously with the State Governments. In this connection, the Committee note with regret that the State Governments have not responded favourably to the suggestion to associate the Central Water Commission in major projects costing more than Rs. 30 crores right from the State of preliminary investigation, site selection and preparation of feasibility report, even though this was accepted at the First Conference of State Ministers for Irrigation held in July, 1975. The Committee would urge the Planning Commission to take up this matter once again with the State Governments at the highest level. The Committee have no doubt that this will go a long way in strengthening the investigation machinery at the State level.

[Sl. No. 11, Appendix III para 2.62 of the 141st Report of the PAC (Seventh Lok Sabha)]

Action Taken

The observation of the Committee was conveyed in Central Water Commission letter No. 20|42|83-P&P|939 dated 25-11-1983 addressed to all State Governments (copy enclosed). As desired by the Committee, the Planning Commission vide letter No. 16(74)|83-I&CAD dated 20-12-1983 (copy enclosed) addressed to the Chief Secretaries of all State Governments, UTs. have also suggested that the State Governments may consider the observation of the PAC for immediate necessary action and keep Planning Commission informed of the action taken.

[Planning Commission No. G-25015|19|83-IFC]

Recommendation

A study of 36 projects cleared by the Central Water Commission during 1978-81 shows that the average time taken by the Central Water Commission was 42 months in 1978-79, 34 months in 1979-80 and 28 months in 1980-81. Lack of adequate field investigations and data, lack of detailed analysis of rates adopted for estimates, lack of hydrological studies required for realistic estimates of water yield and flood, ecological and environmental aspects not having been adequately dealt with and inadequate details regarding norms for rehabilitation are stated to be the main reasons for delay in clearing the projects by the Central Water Commission. Although the guidelines are stated to have been issued by the Ministry of Irrigation so as to help the States in this regard, the position does not appear to have improved in any measure. On the other hand with the increasing volume of work consequent upon the starting of large number of projects by the States and the complexity of the task, the investigating machinery at the State level does not appear to have been strengthened to the extent the situation demands. The Committee desire that steps should be taken to improve the position so that the projects could be cleared within a period of one year by the Central Water Commission in future.

[S. No. 15 Appendix III para 2.75 of the 141st Report of PAC (Seventh Lok Sabha)]

Action Taken

The recommendation of the Public Accounts Committee has been carefully noted. The PAC's views have been brought to the attention of the State Governments urging them that steps may be taken to improve the position while formulating the next Annual Plan. The States have also been asked to strengthen their investigation organisations like creation of investigation Wings and providing competent personnel for these Works and given some incentive.

[Ministry of Irrigation O.M. No. 14|1|83-Coord, dt. February, 1984]

Recommendation

Among the several strategies of development of Irrigation in the Sixth Plan is the strengthening of Command Area Development Organisation—a Centrally sponsored Scheme covering at present 76 major|medium irrigation projects with at total of 15 million hectares of cultivable command area spread over 16 States and the Union Territory of Goa. Central assistance in the shape of grants and loans is given for various activities undertaken by the Command Area Development Authorities. Between 1961-62 when the scheme was launched and 1981-82 the Central Government released a total amount of Rs. 97.96 crores for development of Command Area and soil conservation in the catchment areas of projects. Of this, an amount of Rs. 57.47 crores was by way of grant and the balance Rs. 40.49 crores as loans. The Committee observe that a number of deficiencies such as slow pace of programme implementation, lack of adequate financial and organisational support for maintenance of the works, motivational

problems, lack of extension support, inadequate system for collecting collateral data and storing the same and inadequate multidisciplinary capability of organisations for planning, implementing and monitoring the integrated plan have come to notice during the course of execution of these programmes.

The Committee need hardly point out that the Command Area Projects have to provide the lead in the matter of proper husbanding of the land and water resources and be a model of development in this sector. It is, therefore, necessary that a comprehensive re-appraisal/evaluation of working of the programme is carried out so as to ascertain to what extent the deficiencies referred to above have hampered realisation of the objectives behind this programme and what remedial steps need to be taken. The Committee suggest that this task may be entrusted to a prominent institute of management for an objective study.

[Serial Nos. 19 and 20, Appendix III, paras 2.88 and 2.89 of the 141st Report of the Public Accounts Commitee, (7th Lok Sabha)

Action Taken

The Command Area Development programme was initiated as a Centrally Sponsored scheme in 1974-75 (and not in 1961-62) and upto 1981-82, the central expenditure has been Rs. 114.57 crores by way of grants and Rs. 59.50 crores by way of loans.

The programme, initially administered by the Ministry of Agriculture, was transferred to the Ministry of Irrigation in 1980. The Centrally Sponsored Scheme of Soil Conservation in catchment areas is administered by the Ministry of Agriculture (Department of Agriculture and Cooperation). The reply of the Planning Commission, quoted in paras 2.86 and 2.87 of the Report, relates largely to dificiencies in the implementation of the programme of Soil conservation in catchment areas and the measures necessary to overcome those deficiencies.

The Ministry of Irrigation accepts the recommendation that a comprehensive evaluation of the CAD programme should be entrusted to a premier institute of management for an objective study. This is being further pursued with appropriate institute/s. However, such a study is expected to take some time.

[Ministry of Irrigation O.M. No. 14/1/83-Coord. Dated 9-2-21984]

Recommendation

The availability of essential inputs such as cement, steel and coal, to match the Plan targets of output in the irrigation sector has been in quite a large measure responsible for the delays in execution of various projects. Even when these commodities have been allocated, their movement has been seriously affected due to non-availability of the requisite

number of wagons at the time required. With regard to cement, the Committee find that despite a Cabinet decision to give priority to irrigation and power projects, the quantities made available have not exceeded 60 to 65 per cent of the allocation. Likewise, the requirements of coal for burning bricks needed for lining the canals has been only to the extent of 60 to 70 per cent of the requirements. The data given in para 2.90 shows that during the period March, 1981 to June, 1982, the position has been even worse. The position with regard to demand and actual allocation of steel to major and medium irrigation projects has also been quite unsatisfactory. During the year 1980-81, 1981-82, and 1982-83, the allocations on the main producers were only to the extent of 1.79 lakh metric tonnes, Rs. 24 lakh metric tonnes and 1.94 lakh metric tonnes as against the demand of 5.64, 6.41 and 3.65 lakh metric tonnes in the respective years.

The Committee consider that this situation needs to be remedied on an emergent basis. While it is necessary in the first insance for the project authorities|State Governments concerned to draw up detailed schedule of the construction programme and the procurement of materials, a high degree of coordination between the Central and the State Agencies is necessary for ensuring that the flow of essential inputs is maintained to keep up the tempo of development. Irrigation and power happen to be the priority areas for supply of scarce materials. The Committee can, therefore see no reason why the Central agencies cannot ensure adequate and timely allocations to these sectors. The Committee consider that the Cenral Water Commission which is entrusted with the responsibility of monitoring the progress of 66 major irrigation projects must act as the local agency for coordinating the supplies and ensuring their smooth flow to the respective project areas.

[Serial No. 21, Appendix-III, Paras 2.99 and 2.100 of 141st Report of the Public Accounts Committee, 7th Lok Sabha)

Action Taken

The position in regard to supply of cement to the Irrigation and Power Projects during the year 1982 and first half of 1983 is as under :—

(in lakh tonnes)

Period	Total allocation to irrigation and power projects	Total despatches to irrigation projects	Percentage
1982	64.98	46.30	71
1983 (Jan-June)	30.00	16.11 (provisional)	54

The shortall in despatches of cement to Irrigation and Power Projects during this period has been mainly due to the following reasons:—

(i) Shortfall in production during the year 1982 and first half of 1983;

(ii) During the year 1982 there was considerable shortfall in production in some of the cement producing States such as Rajasthan, Karnataka, M.P., Gujarat, U.P., Bihar etc. The capacity utilisation of cement factories in these States had varied from 47-79 per cent only. During the period January-June, 1983 the shortfall in production was steep in the States of U.P., Bihar, Tamil Nadu, Rajasthan and Gujarat. Shortfall in production in these States was mainly on account of power cuts imposed by various States Electricity Boards and due to frequent trippings apart from mechanical breakdown. The total loss of cement production in the country on account of power cuts|restrictions and tripping as reported by the cement factories has been of the order of about 38.18 lakh tonnes during 1982 and 27.90 lakh tonnes during first half of 1983.

(iii) While the production of cement has not been adequate there are other circumstances, e.g. difficulties of movement of cement either by road or by rail. The demand for supply of ordinary cement, in respect of which there is substantially less production etc. have caused shortage of cement.

The Ministry of Irrigation in coordination with the Central Water Commission, is coordinating the monitoring of allocation of cement and other scarce construction materials, e.g., steel, Coal and also explosives. Of the above, allocation of cement is presently controlled. The various actions taken by the Central Water Commission in respect of supply of cement is given below :

CEMENT : Allocation of cement for the Irrigation and Power projects was being made by the Ministry of Industry till June, 1973. CWPC used to sub-allocate to the different States|Projects. Subsequently, State Governments were empowered to allocate cement for the Irrigation and Power Projects from their quota. However, for the Central Projects, sub-allocation was being made by CWPC. This procedure was revised from 1st January, 1979 wherein the quota for Irrigation and Power projects was being ear-marked out of the State quota. With the introduction of the levy system in 1982, quote for the irrigation and power sectors is being separately allocated from the levy category apart from the States quota. This allocation is made on quarterly basis and sub-allocated by CWC and CEA.

Ministry of Irrigation has set up a Coordination Committee which reviews quarterly supply position of cement to the various allottees and decides further allocation for the subsequent quarters. This Committee also monitors the supply for which necessary proformae are prescribed. For effective coordination and to render assistance regarding supplies of cement, quarterly meetings are held by Central Water Commission with the States and Project authorities for which representatives of the Cement Controller's Organisation are also present. In these meetings the bottlenecks

in supplies are identified and efforts made to remove them. On the recommendations of the Ministry of Irrigation, Cement Controller have also posted two inspectors for each of the regions to monitor the supply of cement to various projects. If any specific difficulty in respect of inadequate or non-availability of supply of cement is brought to the notice of Central Water Commission action is also taken in consultation with Cement Controller's Organisation to ensure smooth flow of the cement as far as practicable.

In respect of supplies of steel also, Central Water Commission act as a coordinating agency. However, since July 1983, the Joint Plants Committee allocates steel only for certain structurals and plates for irrigation sector which is sub-allocated further by Central Water Commission to the various projects every quarter. Position of availability of steel at present is satisfactory and States|Projects are able to get their requirements of steel for other categories directly from the producers|stockyards. However, if the State|Project authorities bring any difficulty to the notice of the Central Water Commission necessary assistance is rendered to the State|Project to resolve difficulties.

In respect of explosives there is no system of quota allocation and States|Project authorities place their orders directly with the producers. Even then, at times, some difficulties are experienced by the State|Project authorities. On receipt of such intimation, Cenral Water Commission tried to resolve the difficulties by contacting the necessary authorities as required.

In respect of coal, State|Project authorities place their orders directly with the suppliers. When complaints were received from the States of Haryana, Gujarat, Punjab, Rajasthan and U.P. that they have not been supplied coal due to non-availability of supply of wagons, the Ministry of Irrigation took up the question with appropriate authorities to assist the States in order to enable them to get supply of wagons. There was also question of supply of coal which had low calorific value from some coal mines. When this difficulty was brought to the notice, Ministry of Irrigation took up the matter with the appropriate authorities and persuaded the coal authority to agree to arrange for part supplies of coal of superior grade.

The above will indicate actions that have been consistently and continually being taken by the Ministry of Irrigation in consultation with the various authorities to ensure that the supplies of scarce materials is available to the projects as per their requirements as far as practicable. There exists an organisational unit in the Central Water Commission which has been assigned the task of coordinating and monitoring of the steps of scarce material and that this is being also coordinated and monitored at a high level by the Ministry of Irrigation.

[Ministry of Irrigation O.M. No. 14|1|83-Coord. dated Feb. 84]

Recommendation

As per the Sixth Plan document, the irrigation potential created till the end of 1979-80 was 26.61 million ha. under major and medium irrigation and the actual utilisation of the potential was 22.64 million ha. Thus the total

shortfall in utilisation was nearly 4 million ha. vis-a-vis the potential created. As regards the potential under minor irrigation, it has been claimed that the potential of 30 m.ha. has been fully utilised. The State-wise figures of creation and utilisation of irrigation potential furnished by the Ministries of Irrigation and Agriculture indicate wide variations in respect of all the States—the variation being very pronounced in the case of Assam, Bihar, Himachal Pradesh, Karnataka, Kerala, M.P., Manipur, Meghalaya, Nagaland, Orissa, Punjab, Rajasthan, Tamilnadu and Uttar Pradesh. The representative of the Planning Commission clarified in evidence that the estimate of the Ministry of Irrigation, as accepted by the Planning Commission was higher compared to that given by the Ministry of Agriculture because of the different methodology followed by the latter in calculating the data. While the land use statistics relied upon by the Directorate of Economic & Statistics, Ministry of Agriculture indicate the pattern of utilization of available irrigated land area based on land records, the Ministry of Water Resources base their data on the best performance during the preceding three years. In a written note on the subject, the Planning Commission have stated that the land use utilisation statistics are higher in some States than the figures of the Ministry of Water Resources|Planning Commission and lower in few other States. This is on account of the fact that the States had not been following a uniform procedure in reporting the area irrigated by major and medium irrigation schemes and also the area irrigated by minor irrigation schemes. The Planning Commission are of the view that the entire question need to be thoroughly examined Statewise by the concerned State Governments to arrive at a common acceptable basis for reporting.

Whatever be the basis for compilation of statistics of utilisation of irrigation potential the Committee cannot accept the claim that there was cent-percent utilisation of the potential under minor irrigation. In fact, during the year 1979-80, to which these figures pertain, the country faced the worst drought of the century. It is indeed amazing that the Ministry of Water Resources|Planning Commission should have claimed 100 per cent utilisation of the minor irrigation potential during the year. The explanation given in evidence that best performance over the preceding three years is taken as the basis for indicating the utilisation of irrigation potential (including minor irrigation) and the further revelation contained in a written reply that the utilisation reported may not be for the year for which it is reported but the maximum utilisation in any one year upto that date, totally confound the issue with the result that it is impossible to place any reliance on these figures.

It was also admitted in evidence that in the command areas with the supplemental irrigation particularly through private tubewells, there was possiblity of duplication while calculating the area under irrigation. As the command area projects cover a total of 15 million ha. the inflation in the figures of utilisation of irrigation potential could be very substantial. The Committee consider this situation to be highly unsatisfactory as it gives a totally distorted picture of the actual state of things. (S. No. 24 Appendix III).

Another aspect of the utilisation of the minor irrigation potential is with regard to irrigation by tubewells. It was admitted in evidence that no information was available as to the actual area irrigated by tubewells, both

by State tubewells and by private tubewells, because of frequent power cuts and poor maintenance. Further, no data is available as to how many tubewells have been working during a particular year, how many have been partially working and how many have not been working at all. The report of the C&AG for the year 1980-81, Government of Uttar Pradesh, has pointed out that during the period 1974-75 to 1980-81 the tubewells ran for only 17.8 per cent of the total number of hours due to closure on account of hydel defects, other mechanical and civil defects and also on account of no demand for water.

[S. Nos. 24 and 25 Appendix III Paras 3.22 to 3.25 of 141st Report of Public Accounts Committee (7th Lok Sabha)]

Action Taken

On recommendation No. 25 of the Committee, the Planning Commission has constituted a group headed by the Secretary, Ministry of Water Resources to go into all the aspects relating to the methodology of collection of data with regard to the utilisation of irrigation potential created by major, medium and minor irrigation projects. The group has collected information from various States which is being analysed for finalisation of its report.

Regarding carrying out survey work to determine the area actually irrigated by Minor Irrigation schemes and also the yardstick norm to be adopted in respect of area irrigated by private minor irrigation structures like dugwells, shallow tubewells, etc. and to conduct revisional surveys—all the State Governments were requested to take up follow-up action. The reports so far received on the action taken by some of the State Governments in this regard is indicated below :

1. *Uttar Pradesh*

The State has reported to have carried out census of all private minor irrigation schemes in the State and fixed the following norms :

Name of Unit	Norm fixed in ha. (gross)
Well with pumpset	5.96
Well with persian wheel	2.11
Borewell with pumpset	5.96
Boring (without pump)	2.50
Pumpset	4.62

2. *Orissa*

Orissa has intimated that Orissa Lift Irrigation Corporation monitors the irrigation potential created and utilisation separately. C.D.R.D. Depart-

ment has reported that the survey for determining the actual area irrigated is being conducted and fixed the following norms :

Name of Unit	Norms fixed (in ha. gross)
Dugwell without pumpset	0.4
Filter point tubewell	3.0
Energised dugwell	1.25

3. *Kerala*

Kerala has intimated that 100 per cent of the potential is utilised as soon as schemes are commissioned in respect of minor irrigation schemes. For wells and other private irrigation works, Statistics Department has to adopt the method suggested by Ministry of Water Resources. The State Government has envisaged to set up a Statistics Cell in the State Groundwater Department to collect the statistics of groundwater structre, irrigation potential actually created|utilised.

4. *Punjab*

The Director of Agriculture of the State has reported that field staff of Agriculture Department has been asked to carry out survey regarding area actually irrigated by Minor Irrigation schemes. It has also been reported that a shallow tubewell covers approximately 3.2 ha. as PAU guidelines. Point regarding 20 per cent revisional survey has been noted for implementation. Irrigation Deptt. of the State has reported that the area irrigated by Minor Irrigation groundwater structure vary from area to area and year to year. These are evaluated by field surveys by Agriculture Department and P.S.T.C. Average utilisation under various structures during 1983-84 was as follows :

Dugwell	9.61 HM/year
Diesel shallow tubewell	1.48 to 3.7 HM/year
Electric shallow tubewell	1.64 to 4.25 HM/year
Deep tubewell	10 49 to 30 86 HM/year
Augmentation tubewell	19.29 to 24.38 HM/year

5. *Karnataka*

Karnataka has intimated that a beginning has been made to collect data on area irrigated along with potential created.

6. *Haryana*

Haryana has stated that instruction is being issued for carrying out the utilisation survey of irrigation potential created.

7. *Maharashtra*

Maharashtra has stated that the figures of area irrigated are reported after measuring actual area under irrigation during each year. Figures relating to the creation of potential due to Minor Irrigation schemes are reported separately.

8. *Andaman and Nicobar Islands*

The Union Territory of Andaman and Nicobar Island has reported that irrigation is mostly done by constructing ponds and distribution of pumpsets. Each pond irrigates 0.6 ha. of land and each pumpset irrigates 2 ha. of land.

9. *Arunachal Pradesh*

The Union Territory has reported that no survey could be conducted about actual area irrigated due to constraint of manpower.

10. *Delhi*

The U.T. of Delhi has furnished the information about actual area irrigated as 4511 ha. for the year 1983-84 and 4997 ha. for the year 1984-85. Information about yardstick norms adopted in respect of area irrigated by ground water structures like dugwell|private shallow tubewells etc. is yet to be furnished.

The matter is being pursued vigorously with all the State Governments for complete report.

[Ministry of Water Resources O.M. No. 16|1|85-Coord. dt. Feb. 1986]

Recommendation

The Committee recommended that the Planning Commission should set up a group of experts in agricultural economics and statistics drawn from the Ministry of Irrigation, Ministry of Agriculture, the ICAR etc. to study the question and to frame suitable guidelines so that the methodology of collection of data with regard to utilisation of irrigation potential is put on a uniform basis. If necessary, the representatives of some of the State Governments may also be associated with this study. The Committee would like this matter to be finalised as expeditiously as possible so that the projections for the Seventh Five Year Plan may be put on a realistic basis.

[Sl. No. 26, Appendix III, para 3.26 of 141st Teport of PAC (Seventh Lok Sabha)]

Action Taken

As stipulated in the Planning Commission O.M. No. 16(74)|83-I&CAD dated 24th September, 1983, a Working Group headed by the Secretary (Irrigation) in the Ministry of Irrigation and Power was constituted to study the process of collection and reporting of data on potential created and area irrigated from major, medium and minor irrigation schemes and to suggest guidelines and methodology for collection and reporting of such data on a uniform basis. The Constitution of the Working Group includes experts from the Ministry of Agriculture, I.C.A.R. and some States. Three meetings of the Working Group were convened, by the Ministry so far. The

Ministry of Irrigation & Power (Department of Irrigation) circulated a questionnaire to various states and Union Territories on 5-10-1984 to collect information on the terms of references of the Working Group. A Sub-Committee was constituted by the Working Group on 2-4-85 to analyse the information received from the States and Union Territories on which representatives of states also participated. The Sub-Committee met three times and the last meeting was on 1-8-85. The report of the Sub-Committee is under finalisation.

[Planning Commission U.O. No. 16(74)|84-I&CAD dated 23-1-1986]

Recommendation

The Planning Commission is stated to have advised the State Governments to provide atleast Rs. 75 per hectare (excluding establishment) for proper maintenance of irrigation projects. State Governments have been further authorised to construct field channels at project cost upto 5|8 hectares blocks. Central assistance is also available in the Command Area Projects for construction of field channels. State Govts. have also been requested to introduce the system of rotational supply of water (warabandi) for timely and assured supply of water to the farmers according to a predetermined schedule. These should be ensured.

[Sl. No. 28, Appendix III, Para 3.28 of the 141st Report of the Public Accounts Committee (7th Lok Sabha)]

Action Taken

As regards the provision of adequate outlays for proper maintenance of irrigation projects, by the State Govts. the action taken note on recommendation No. 29 may kindly be seen.

A Group of Secretaries, headed by the Secretary, Planning Commission, has been set up to formulate programmes for better utilisation of created irrigation potential and review their implementation. In its meeting held on the 13th September, 1983, this Group has decided that the State Govts. should be advised to include the construction of water resources from the present Government outlets serving each block of 40 hectares or larger areas, to the outlets to be provided for serving each block of 5-8 hectares, in the Annual Plan 1984-85. Specific outlays are intended to be included in the State Government Plans and instructions in this regard will be issued by the Planning Commission.

State Governments have been advised, from time to time, to give adequate attention to the construction of field channels and the enforcement of warabandi. Progress in the construction of field channels has been fairly satisfactory and the Sixth Plan target of covering 40 lakh hectares in CAD Programme areas, will be achieved by the end of 1983-84 itself. Having regard to the importance of this item of work, an amount of 25 crores has been provided in 1983-84 as central grants to State Governments, by way of incentive to reimburse the cost of construction field channels over and

above the physical target fixed under the Annual Plan. The progress in the case of warabandi, however, is not equally satisfactory, the achievement upto 1982-83 having been only 6.64 lakh hactares in CAD programme areas. In the Conference of State Secretaries-incharge of CAD programme, held on the 18th June, 1983, the need for more vigorous implementation of warabandi has again been stressed.

[Ministry of Irrigation O.M. No. 14|1|83-Coord. dated 9-2-1984]

Recommendation

The Economic Survey (1982-83) has pointed out that the capital cost per hectare of major|medium irrigation schemes at constant (1970-71) prices increased from Rs. 2,770 in the First Plan to Rs. 5,880 in 1979-80 and further to Rs. 6,969 as per the Sixth Plan projections. The idle capital attributable to unutilized irrigation potential, therefore, works out to a staggering figure of about Rs. 2,800 crores at constant prices. The Committee cannot therefore, emphasize too strongly the need for ensuring optimum utilisation of irrigation potential created at enormous cost. The Committee consider that a determined and sustained effort needs to be put in for large scale modernisation and for efficient management of water resources, both by the Centre and the States. Moreover, in view of acute paucity of resources for undertaking new schemes, it is extremely necessary to ensure that maintenance of the existing assets receives highest priority. The Committee would, therefore, urge that the consolidation of gains and removal of constraints in the optimum utilization of the irrigation potential must get overriding priority. An integraed plan of acton in this regard should, therefore, be drawn up without delay in consultation with the State Governments.

The Supplementary Report of the C&AG for the year 1975-76 had drawn attention to the excessive loss of water during transmission and distribution. The data furnished by the Ministry in this regard indicates that in the case of the unlined canals, losses are shown and assumed in the designs of 8 cusecs per million sq. ft. It while in the case of lined canals the figure is taken as 2 cusecs per million sq. ft. based on the previous experience in the country. Actual measurements have, however, shown that the losses have been much more than estimated. For example, the losses observed in the Mahanadi Canal System have been as high as 39.7 cusecs. million sq.ft. and in the case of Mula Right Bank Canal these are of the order of 24-25 cusecs|million sq.ft. and in the case of Tawa Project 22.8 cusecs|million sq.ft. losses in the case of 10 other projects for which figures have been made available to the Committee, range between 2.7 cusecs| million sq.ft. in the case of Periyar Vaigai Distributaries and 21.2 cusecs| million sq.ft. in the case of Nagarjuna Sagar Left Bank Canal. The Economic Survey, 1982-83 has also pointed out that conveyance losses, in the canal systems are very high. According to an estimate made in 1960, over 6 million hectares of additional land could be irrigated by lining the canal systems. The colossal loss to the country involved in such large scale wastage of the previous water resources can be easily imagined. The Committee would like to express their deep sense of concern over this situa-

tion. The Committee desire that this aspect should be given utmost attention is the action plan suggested elsewhere in this report.

[Sl. Nos. 29 and 30 Appendix III (Paras 3.29 and 3.32) of 141st Report of PAC (Seventh Lok Sabha)].

Action Taken

With a view to improving the lag in utilisation and water use efficiency in irrigated commands, the State Governments were addressed by the Planning Commission on 6-4-1976 to organise a comprehensive review of selected irrigation projects and formulate specific programme for time bound implementation of modernising such irrigation projects. The Central Water Commission prepared guidelines for modernisation of irrigation systems and circulated them to all the State Governments in March, 1980. These guidelines have also been included in the Chapter in "The Guidelines for preparation of detailed project reports", circulated subsequently in January, 1981 to all State Governments. The State Governments have again been addressed on 30-8-1983 drawing attention to the need for full utilisation of created irrigation potential and proper maintenance of irrigation projects, as brought out in the recommendations. The need for efficient utilisation of the facilities created is also being brought to notice of the State during the discussions at various levels through seminars etc.

The need to maintain the existing irrigation system in good order is recognised. This is being impressed upon the State from time to time identifying the inadequacy of maintenance grants as the major constraints; it was recommended in the Sixth Irrigation Ministers' Conference that the maintenance allocation for the irrigation system be provided at the rate of Rs. 75 per ha. of the potential created excluding energy charges for lift irrigation and regular establishment charges.

It may be stated here that the Seventh Finance Commission had recommended an average of Rs. 50 per ha. per annum of irrigation potential created|culturable command area, for operation and maintenance of irrigation systems plus additional 20% for special repairs. It has been reckoned that an average of Rs. 100 per ha. per annum exclusive of regular establishment plus 20 per cent extra for special repairs would be required for operation and maintenance. This has been recommended to the Eighth Finance Commission for consideration.

In order to reduce the conveyance losses in the canal system, lining of main canals and branches is being provided for in almost all the new project estimates. In the case of some of the projects, lining is being resorted upto the last Government outlet. In some of the projects even the field channels which are being constructed at the cost of the cultivators are being lined.

[Ministry of Irrigation O.M. No. 14|1|83-Coord, dated the February, 1984.]

Audit Observation

The facts and figures given by the Ministry could not be vetted for want of the files|documents from which these were taken.

Recommendation

The data called for by the Committee with regard to the rate of sedimentation of major reservoirs confirms that the rate of sedimentation has really been much more than anticipated in the project reports. For example, the life of Hirakud. Bhakkra and Ghandisagar dams which was originally assessed as 386, 408 and 930 years respectively is now assessed as 147, 291 and 348 years only. Similar is the case with many other major projects. According to a very knowledgeable source the country is "loosing a staggering 2 MAF of live storage capacity annually in our major and medium dams corresponding to a loss of 7 lakh acres of irrigation potential every year. We are losing over Rs. 400 crores in the form of capital assets annually."

Recognising the fact that the sedimentation rates in the reservoirs of major projects were generally higher than assumed, the Ministry of Irrigation appointed a Reservoir Sedimentation Committee in 1978 to go into the question in depth. The Committee analysed the reasons for the substantial difference between the estimated and actual rate of siltation and has given a number of suggestions. The Committee expect that considering the gravity of the problem, the recommendations of the Reservoir Sedimentation Committee would be examined expeditiously and indepth with a view to taken urgent remedial measures.

[S. No. 31 Appendix III paras 3.37 and 3.38 of 141st Report of PAC (Seventh Lok Sabha)]

Action Taken

The Ministry of Water Resources had carried out an indepth examination of the recommendations of the Reservoir Sedimentation Committee in consultation with the Department of Environment and the Department of Agriculture and decisions of Government have been conveyed to all State Governments by Central Water Commission in January, 1985, requesting them to initiate action for implementation of the recommendations.

[Ministry of Water Resources O.M. No. 14|1|83-Coord. dated December 1986]

Recommendation

The Second Irrigation Commission (1972) had expressed the view that while domestic requirements should have the highest priority for allocation of water followed by industry and then by irrigation. The Commission, however, felt that between irrigation and power generation, priority should be given to irrigation. It has been represented to the Committee that "hydel power generation often leads to wastage of water. Needs of cultivaotors for water and those of industries for power never match. In a single year Chambal

Power House released water as much as one MAF(1|3rd of the normally stored water), carrying with it an irrigation potential of 3 to 4 lakh acres. Many reservoirs like Rihand are meant only for power generation and their releases even do not match with the irrigation needs down stream.... In hydel projects we lose precious water that would otherwise have irrigated large areas of land." The Committee have been informed that though irrigation is accorded priority for use of available water, hydel power generation is equally important to meet the peak load demand of power system. "A happy blending of meeting the conflicting requirements of water for irrigation and power has to be evolved through system studies and the overall regulation plan so as to ultimately meet the needs of irrigation without undue wastage".

While agreeing with the above approach enunciated by the Ministry of Irrigation, the Committee consider it exeremely essential that a well defined national water policy is enunciated so as to provide for a balanced development of the water resources and their utilisation in the larger national interest. The Committee trust that the National Water Resources Council proposed to be set up in pursuance of the recommendation of the National Development Council would address itself to this task as a first priority.

[S. No. 32, Appendix III (Paras 3.49 to 3.50) of 141st Report of PAC (Seventh Lok Sabha)]

Action Taken

Ministry of Irrigation have constituted the National Water Resources Council on 26th March, 1983, under the Chairmanship of the Prime Minister. One of the functions of the Council is to lay-down the National Water Policy and to review it from time to time. Action has been initiated to set up a Group headed by Secretary (Irrigation) and consisting of Law Secretary, other Jurists, Administrators, Chairman, Central Water Commission and Engineers to formulate a detailed paper on National Water Policy for submission to the National Water Resources Council for their consideration. The recommendation of the Irrigation Commission will be kept in view by the Group while drafting the Policy Paper.

[Ministry of Irrigation O.M. No. 14|1|83-Coord. dated February, 1984]

Recommendation

The Committee are amazed to find that Government have not so far issued any formal orders accepting or rejecting the recommendations of the Irrigation Commission which was constituted by a Government resolution in 1969 and whose report became available in 1972. The Committee are totally dissatisfied with the reply that the Report was "Circulated to the States for adoption. By implication the recommendations were accepted". The Committee consider that having appointed a high powered Commission to go into all aspects of the problem, Government should have followed up the recommendations contained in its Report seriously and taken specific decisions on each recommendation. All that appears to

have emerged after 10 years is the decision to constitute a National Water Resources Council. The Committee consider that in such matters of vital importance affecting the lives of millions of poor farmers, the Planning Commission and the Central Ministries concerned should have delineated a well thought out plan of action for consideration of the States. The Committee consider that it is even now not too late to examine the import of various recommendations in depth and come to some definite conclusions. The Committee have no doubt that the Report would be found very useful in the formulation of the National Water Policy referred to above.

[S. No. 3[3] Appendix III of 141st Report of PAC (Seventh Lok Sabha).]

Action Taken

The recommendations of the Irrigation Commission have been studied in detail and the views|action taken on each of the recommendation is indicated in the notes enclosed. (Annexure).

[Ministry of Irrigation O.M. No. 14|1|83-Coord,

dated the February, 1984]

Recommendations of Irrigation commission	Views/Action taken
Physiography	
The sub-continent of India covers an area of 328 million hectares and supports a population of 547 millions. It has a land frontier of 15,200 km. and a coastline of 5,700 km.	These are only Statements of fact mentioned in the Report and do not call for any action as such.
19.2 The perinnial rivers of the Himalayan region and the rivers of peninsular India constitute the main river systems. The Himalayan rivers are fed by the melting snows and glaciers of the Great Himalayan ranges. They are often uncertain and capricious in their behaviour and sometimes subject to drastic changes of course. In the dry weather, the flow in these rivers is significantly enhanced by water from the melting snows and glaciers. The flow is considerably reduced in the winter, but never to the same extent as in the peninsular rivers. The peninsular rivers originate at much lower altitutes and flow through areas which are geologically more stable, so that they are more predictably in their behaviour. Their flow is characterised by heavy discharges during the monsoons, followed by low discharges during the dry months.	
Climate	
19.3 The great mountain mass formed by the Himalayas and its spurs on the north. and the ocean on the south are the two major influences affecting the climate of India. The first forms an impenetrable barrier to the incluence of cold winds from Central Asia, and gives the sub-continent the element, of the tropical type of climate. The second is the source of cool moisture laden winds which reach India and give it the elements of the oceanic type of climate.	These are only Statements of fact mentioned in the Report and do not call for any action as such.
India has a very great diversity and variety of climate and weather conditions. The climate ranges from continental to oceanic, from extremes of heat to extremes of cold, from extreme aridity and negligible rainfall to excessive humidity and torrential rainfall.	
19.4 The south-west monsoon is responsible for 80 per cent or more of the total annual precipitation outside Assam, Bengal, coastal Orissa and parts of the peninsula. In Gujarat Saurashtra, Kutch and adjoining Rajasthan and Madhya Pradesh, it accounts for more than 90 per cent. The States of Orissa, Bihar, West Bengal, Assam and eastern Madhya	These are only Statements of fact mentioned in the Report and do not call for any action as such.

Recommendations of irrigation commission	Views/Action taken
Pradesh, the west Coast and the Ghats as also the sub-montane belt which extends from north Bihar to Jammu receive more than 100 cm. of rain during this season. Southern Punjab, north-west India from Veraval in Saurashtra through Delhi to Jammu receive 50 cm. of rain or less. The rainfall decreases rapidly towards the western and on the western border of Rajasthan it is less than 10 cm. The lowest rainfall is in the extreme south-east peninsula where districts such as Kanyakumari and Tirunelvely get less than 2.5 cm. In the rain-shadow of the western Ghats, the rainfall is only 40 to 50 cm. during this season. In some patches, it is 30 cm. or less.	
19.5 The four major soil groups in India are (i) Alluvial soils, (ii) black soils (regur), (iii) red soils and (iv) laterite soils. Of less importance are forest soils, desert soils, saline and alkaline soils. The behaviour of soil under irrigation is of primary importance. The capacity of the soil to take in water and hold it and its effective rooting depths are important criteria for determining irrigability. The depth and frequency of irrigation is a function of soil properties. The greater the water-holding capacity, the greater will be the irrigation depth, and in consequence, the lower the irrigation frequency. From the point of view of drainage, the main criterion is the hydraulic conductivity of the subsoil or the sub-stream.	These are only Statements of fact mentioned in the Report and do not call for any actionas such.
19.6 The total a utilisable water resources of the country have not been system etically studied or analysed except for the Indus River System. Preliminary studies relating to the Godavary, the Krishna, the Narmada and the Tapi indicate that the entire water resources of these rivers can be utilised. The waters of the Cauvery have already been almost fully utilised. Of the 493 T.M.CU.M. (400 MAF) of water in the Ganga, it should be possible to utilise about 185 T.M.CU.M. (150 MAF) for irrigation. A higher utilisation is precluded for reasons of topography and the shortage of storage sites so that most of the water will still continue to flow into the Bay of Bengal. There is very little possibility of utilising the waters of the Brahmaputra except through a few medium and minor lift irrigation schemes in Assam. Nearly 370 T.M.CU.M. (300 MAF) of the Brahmaputra is likely to continue to flow annually into the Bay of Bengal. The west flowing rivers of India (excluding the Tapi and the Narmada are also important sources of water. They carry, on an average, nearly	These are only Statements of fact mentioned in the Report and not call for any action as such.

Recommendations of Irrigation Commission	*Views/Action Taken*
247 T.M.CU.M. (200 MAF) but due to the narrowness of the coastal plains through which they flow, the possibilities of using these waters for irrigation are very limited. Some water may, however, be diverted eastwards for irrigation.	
The Mahanadi and other east flowing rivers have a sizeable water potential but not all of it can be utilised. About 74 T.M.CU.M. (60 MAF) of these rivers. Would continue to flow into the Bay of Bengal.	
19.7 The utilisable water resources of the country are roughly as indicated below:—	These are only Statements of fact mentioned in the Report and do not call for any action as such.

1. Narmada, Tapi, Godavari, Krishna, Cauvery and other Southern rivers	246,700 m.cu. m. (200 MAF)
2. The Indus System	49, 300 m.cu.m. (40 MAF)
3. The Ganga System	185. 000 m.cu. m. (150 MAF)
4. The Brahmaputra System	12, 300 m.cu.m. (10 MAF)
5. The Mahanadi and other east-flowing rivers	123, 400 m.cu.m. (100 MAF)
6. West flowing rivers, excluding the Tapi and Narmada	49,300 m.cu.m. (40 MAF)
Total :	666, 000 m.cu m. (540 MAF)

19.8 On the eve of Partition, the net irrigated area in the Indian sub-continent was about 28.2 million hectares amounting to about one-fourth of the total cultivated area. 54 per cent of the area was irrigated by canals, 23 per cent by wells, 12 per cent by tanks and 11 per cent by other miscellaneous sources. The partition of India brought about sudden and drastic changes. It greatly depleted the irrigation potential of India as shown in the table below:—

These are only Statements of fact mentioned in the Report and do not call for any action as such.

Country	Net sown area	Net Irrigated area.	Col. 3 as per cent of Col. 2
Undivided India	116.8	28.2	24.1
India	98.5	19.4	19.7
Pakistan	18.3	8.8	48.1

Recommendations of Irrigation Commission	*Views/Action Taken*
19.9 Since Independence, the gross irrigated area from major, medium and minor works has risen steadily to 28.0 million hectares in 1960-61 and to 33.13 million hectares in 1967-68. A sum of over 30 billion rupees has been spent up to the beginning of the Fourth Plan on irrigation schemes.	These are only Statements of fact mentioned in the Report and do not call for any action as such.
19.10 A comprehensive strategy to ensure the success of agriculture should aim at meeting the water requirements of crops through the economic and judicious use of water. A river basin and, in the case of large rivers, a sub-basin is the natural unit for planning water resources. This planning should be based on an assessment of the surface and sub-surface water resources of the basin, and their utilisation.	These observations of the Commission are noted. Separate recommendations regarding the conjunctive use of surface and ground water and also the preparation of basin / plans are contained elsewhere in the report. Action taken against these are indicated against the relevant recommendations.
19.11 The Commission recommends the following policy for formulating river basin plans, on the basis of the feasibility stauts of individual projects :—	The recommendation is accepted. In Recommendation No. 19.52 the Irrigation Commission have recommended the setting up of River Basin Commissions and the action taken has been specified against that recommendation.
(a) The basin plan should present a comprehensive outline of development possibilities of land and water resources to meet the anticipated regional and local needs.	
(b) The Plan should.	Primarily, the River Basin Commissions will have to take into account the policy recommendations of the Irrigation Commission while formulating River Basin Plans.
(i) indicate a broad frame-work of various engineering works to be taken up in the basin giving reasons for their choice from the alternatives considered and inter-relationship between those works.	
(ii) establish priorities in respect of water use for various purposes	
(iii) indicate inter-se priority of projects and	
(iv) indicate the need for earmarking water for any specific future purposes.	
(c) The basin plan should be periodically reviewed and revised to take into account changes in storage capacity and the extent and pattern of water use.	
19.12 Domestic requirements should have the highest priority in the allocation of water, followed by industry and then by irrigation. As between irrigation and power generation, the Commission recommends that priority be given to irrigation.	While broadly, the order of priorities would seem acceptable, situations could arise where, on Techno-economic examination, the alternatives available require that the priorities may change. Such situation would occur when requirements of Industry could be met by long distance transfer of water or even relocation of industries

Preference may have to be given to power over irrigation, if the existing power would be required to be curtailed thereby disturbing the economy of the region, based on available power for giving priority for irrigation. A rigorous determination of priorities would, therefore, be difficult.

The National Water Resources Council has been set up in March 1983 under the Chairmanship of the Prime Minister. One of its main functions is to lay down the National Water Policy. A high level committee under the Chairmanship of Secretary, Irrigation and consisting of Secretary (Law), other Jurists, Administrators, Chairman, Central Water Commission/Central Electricity Authority and Engineers is being set up to draft a policy paper for the consideration of the National Water Resources Council. This recommendation will be kept in view by the high level Committee while drafting the policy paper.

19.13 (i) The Commission recommends that instead of the Irrigation Department determining the cropping pattern in consultation with the Agriculture Department, as is done at present, the latter Department should determine the pattern in consultation with the Irrigation Department.

(ii) While designing future canals, the results of research on soil-plant-water relationships, the contribution of rainfall in the growth period of crops and the interaction of other inputs like fertilizers, should be taken into account, and duties, deltas and water allowances fixed accordingly.

(i) The Project preparation is the responsibility of State Irrigation Department. Thus, based on the needs of the region, they would evaluate the availability of water, possibility of storage, the extent of Command available, etc. The determination of the crop pattern comes after the above stages have been gone through. It is at this stage, that consultation with State Department of Agriculture is required. It has to be realised that fixation of crop pattern for a project at this stage is at best an informed judgement as actual crop pattern on completion of the project gets decided on many other diverse considerations. The Department of Agriculture are being consulted by the State Irrigation Department at this stage and their concurrence is obtained. This concurrence is usually being insisted upon. Keeping in view the dynamic nature of crop pattern this is considered adequate.

(ii) The recommendation is acceptable. Action is being taken to amplify the guidelines already issued to State Governments for the preparation of project reports.

No. 2|11|82-P. II
GOVERNMENT OF INDIA
MINISTRY OF IRRIGATION

New Delhi, the 30th October, 1983

To

The Secretary,
Government of India,
Department of Agriculture & Cooperation,
Krishi Bhavan, New Delhi.

SUBJECT :—*Recommendation of the Second Irrigation Commission*

Sir,

The 2nd Irrigation Commission has recommended that—

"Instead of the Irrigation Department determining the cropping pattern in consultation with the Central Department, as is done at present, the latter Department should determine the pattern in consultation with the Irrigation Department".

"While designing future canals, the results of research on soil-plant-water relationship, the contribution of rainfall in the growth period of crops and the inter-action of other inputs like fertilisers should be taken into account, and duties, deltas and water allowances fixed accordingly."

An extract of paras 5.25 to 5.37 from Vol. I of the Report of the Commission is enclosed. It is requested that the views of your Department on this recommendation may kindly be communicated to us at an early date.

Yours faithfully,
Sd|-
(A. R. S. MURTHY)
DEPUTY SECRETARY TO THE GOVT. OF INDIA
(TEL. No. 386928)

Encl : as above.

Extracts from Vol. I of the Report of the Second Irrigation Commission

Cropping Pattern

5.25 The cropping pattern in a commanded area is generally worked out on the basis of a study of soils, climate, rainfall, existing cropping patterns and the marketability of produce. So far, it has been the practice with the Agriculture Department before they finally obtain the latter's formal approval. We are of the view that in future the Agriculture Depart- for irrigation engineers to determine the cropping pattern in consultation ment should be made responsible for conducting research, and evolving the cropping pattern in consultation with irrigation engineers. In States

where there is a large irrigation programme, it would be a good arrangement to have a separate wing in the Agriculture Department, headed by a senior officer, to deal exclusively with these matters, as in Maharashtra.

Fixing Channel Capacities

5.26 Different methods and norms are in use for fixing capacities of irrigation channels in different States. These are generally based on past experiments and experience and do not take into account the systematic research work now being done on the water requirements of crops.

5.27 In Haryana, channel capacities are generally based on a water allowance or outlets of 2.75 cusecs per 1000 acres of culturable command area, to which channel losses are added. Punjab and Rajasthan follow a similar procedure.

In Uttar Pradesh, the channel capacities are fixed on the basis of outlet factors of 32 acres per cusec for rabi crops and 22 acres per cusec for rice, and so on. For rabi channels, allowing 25 per cent loss in channels and assuming that watering is done at intervals of 3 weeks, the discharge at the distributary head is worked out by dividing the area by 72. A similar procedure is followed for kharif channels as also in making allowance for irrigating sugarcane.

In Bihar, the water requirement on a channel during any month is worked out on the basis of duties for various crops from past experience. The distributary is designed for the maximum water requirement during any month of the year, making allowance for channel losses.

In Maharashtra, the irrigation requirement in a crop season, in terms of cusec days, is arrived at by dividing the irrigated area by four. The rotation period is taken as 12 days. The discharge requirement as outlets is thus arrived at by dividing the irrigated area by 48. The channel capacity is fixed for the highest of the discharges in the three seasons viz. kharif, rabi and hot weather.

In Gujarat, duties for each crop are fixed in consultation with the Agriculture Department. The water requirement is worked out fortnight by fortnight for all the crops during a crop season. The channel is designed for the maximum requirement during any fortnight in the year, after making due allowance for transmission losses.

In Andhra Pradesh, Mysore and Tamil Nadu, duties are based on past experience and the characteristics of the command area separately for wet and dry (light irrigated) crops. Channels are designed on the basis of these duties.

Other States follow more or less a similar pattern, based on their past experience of water use by different crops.

5.28 The best period for sowing wheat in most parts of northern India is the fortnight from the 8th November to the 22nd November for all varieties of seeds, though it may be stretched by another week. If the sowing is delayed beyond 3 weeks after the 8th November, the yield may

drop by even as much as 3 quintals per hectare per week's delay. The presowing watering for wheat is generally required 8—10 days before sowing. The first watering of this crop, known as kor watering is crucial. It is required three weeks after sowing at crown root initiation stage. A delay in this watering results in serious reduction in yield which may be even as much as 5 quintals per hectare per week's delay, in the case of high yielding varieties. If channel capacity is adequate for the kor watering, it would be sufficient for subsequent waterings.

5.29 The considerations for fixing the capacity of channels for the irrigation of rice are different. The rice crop requires standing water in the field and the daily requirement is determined by the aggregate loss through evapo-transpiration and percolation from the field. The percolation loss in most rice areas is more than double that of evapo-transpiration. The permeability of the oil is thus a major factor to be considered in fixing the capacity of a rice channel. As soils vary from place to place, there can be no uniform norm of water requirements for rice. The water requirement for puddling operations for transplantation is generally sustaintially higher than for subsequent waterings. The best period for transplanting rice in most parts of the country is the month of July. A delay of 15 days in this operation beyond the end of July, we were told, may reduce yields by 15 to 20 per cent and a delay of one months by 40 per cent, particularly in season-bound varieties and where climatic conditions play a vital role in controlling the yield or rice. Irrigation channels for rice areas have thus to be designed to meet the irrigation requirements of puddling and transplantation in the appropriate period under adverse rainfall conditions. The channel-capacity thus determined would be more than adequate for subsequent irrigation requirements.

5.30 Irrigation channels which have to serve concentrated sugarcane areas have to have adequate capacity to ensure irrigation of sugarcane fields, preferably at intervals of 10 days and not more than 15 days. During the months of May and June, because of the high rate of evapo-transpiration, the water requirement of the crop is highest.

5.31 Cotton in Rajasthan is generally sown in the month of April while in Gujarat the best period for sowing this crop is between 15th and 30th may. The channel capacities in cotton areas should be adequate to meet the requirements of sowing cotton, as also for irrigating other crops that may be on the ground during that period. Being a deep-rooted crop, cotton can stand a longer interval, upto about a month, between two waterings, except where the soil is very sandy.

5.32 Research on crop-water requirement is being carried out at a number of places, notably at the Indian Council of Agricultural Research (ICAR), Delhi, Rice Research Institute, Cuttack, Hoshangabad, Ludhiana, Coimbatore and many other Agricultural Universities, Colleges and Research Stations. These experiments take into account the soil-plant-water relationship, the useful contribution of rainfall in the crop growth period and the interaction of other inputs like fertilizers etc. In designing future

canals, or while remodelling existing canals, the irrigation engineer should take note of these developments, work out the 'duties' and 'deltas' and 'water allowances' afresh and then design the canal systems. There is urgent need for good monographs on the subject so that the results of the research work is available to the practising engineer. We suggest that the CW&PC and the ICAR should make joint efforts to bring out these monographs or 'Design Manuals' and also update them as the research on the subject develops further.

Intensities of Irrigation

5.33 In formulating irrigation schemes it is very important to adopt a correct intensity i.e., the sum total of the area irrigated under different crops in a year, expressed as a percentage of the culturable commanded area. The earlier irrigation works in north India such as the Upper Ganga Canal and the Eastern and Western Yamuna Canals, utilised the run-of-the river flows and were designed for low intensities in order to irrigate as large an area as possible. These canal systems have been remodelled from time to time, and the intensities obtaining on them at present are ; Upper Ganga Canal about 77 per cent, Eastern Yamuna Canal about 47 per cent and Western Yamuna Canal about 57 per cent. The irrigation schemes in the deltas were designed to irrigate rice throughout the ayacut in the kharif season. During the post-monsoon period, the available river flows were utilised to irrigate part of the ayacut and thus intensive of over 100 per cent were obtained.

The determination of a suitable intensity involves a careful consideration of various factors such as the amount and the nature of available water supply, soil, climate, depth of groundwater-table, natural drainage and socio-economic consideration. Where availability of water is not a limiting factor, the adoption of high intensities is obviously called for. High intensities help the farmer to derive the maximum economic benefit from the land and provide continuous gainfull agricultural employment, provided the soils are suitable and the groundwater-table is low enough to preclude the risk of waterlogging. The raising of more then one irrigated crop in any area leads to the better use of inputs like fertilisers and improved implements and also the residual soil moisture from the previous crop.

Intensities in the alluvial plains have to be considered in the light of their drainage conditions. Where the natural drainage is sluggish because of flat slopes, the groundwater-table is likely to be already high. Adoption of high intensities with surface waters in such areas is fraught with the risk of waterlogging. We are of the view that the best way of attaining high intensities of, say, more than 100 per cent in such areas is by making conjunctive use of surface and groundwater, accompanied by an efficient system of surface drainage. Where natural drainage is good, the risk of waterlogging is less. We feel that intensities of the order of 150 per cent or even more, can safely be adopted in alluvial tracts such as the Indo-Gangetic Plain, through the conjunction use of surface and groundwater. We would like to emphasise that high intensities must be accompanied by efficient drainage.

In areas where the total water resources are limited, the alternatives are high intensity in a part of the area or a low intensity over the whole area. We recommend that in such areas, irrigation should be provided in compact blocks, with intensities which give the maximum economic benefit per unit of water and extend the benefit or irrigation to as large a number of people as possible. This matter is dealt with further in the next chapter.

5.34 Surface water is capable of being conveyed over fairly long distances; but apart from heavy conveyance losses, it may lead to serious problems connected with regulation of supplies, particularly during periods of keen and competing demand. The Sarda Canal Extension, designed to irrigate areas about 500 kilometres away from the souce, is a case in points. In order to overcome them it became necessary to formulate the Dalamu Lift Irrigation Scheme. The shortage of water during periods of keen demand in the lower reaches of long distributaries is a common experience on many irrigation systems. More attention should be paid to the problems of regulation while schemes are being formulated.

5.35 In order to present the water table from rising to an undesirable level as a result of canal irrigation, we suggest that groundwater should be lifted by tubewells, even though irrigation from surface sources is cheaper. In the Kosi project of Bihar, the groundwater table has risen in certain areas to a detrimental level and large scale counter-measures are needed to remedy the situation. A similar problem has arisen in parts of Punjab, Haryana and Uttar Pradesh. A combination of surface and ground water irrigation often gives the best results.

5.36 In irrigation projects, due attention should be paid to the drainage problems of the command area, to avoid waterlogging and its attendant evil, salt offlorescence. In some of our earlier irrigation projects, the aspect had been negected with the resutt that hundreds of thousands of hectares of irrigated land have been damaged or rendered completely unfit for cultivation. The States most affected are Punjab, Haryana and Uttar Pradesh. closely followed by Maharashtra.

5.37 In 1959* the Union Government had advised the States to ensure that drains in all command areas formed part of the irrigation project itself. But only a few irirgation projects formulated in recent years have made adequate provision for drains. Drains by themselves do not yield any direct revenue and are consequently apt to be accorded a lower priority than the irrigation part of the project. An area once damaged by waterlogging and salt efflorescence is difficult and costly to reclaim. We therefore urge that in formulating irrigation schemes, the instructions already issued in respect of making adequate provision for drainage should be strictly enforced.

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*Ministry of Irrigation & Power letter No. DW. II-28 (41)|59 dated 21-7-59 and Planning Commission letter No. NR-10 (3)|59, dated 29-10-1959.

G. S. JAKHADE
ADVISER

D. O. No. 2|11|82-P. II
Government of India
Ministry of Irrigation

New Delhi, the 31st October, 1983

Dear Shri Gokhul Prasad,

One of the recommendations made by the 2nd Irrigation Commission is that :—

> "While designing future canals, the results of research of soil-plants water relationships the contribution of rainfall in the growth period of crops and inter-action of other inputs like fertilisers, should be taken into account, and duties, deltas and water allowances fixed accordingly."

While these factors are already being taken into account in the design of canal systems, it is felt that these points should be suitably amplified to the State Governments, in continuation of the guidelines issued in 1980 *vide* Ministry of Irrigation letter No. 4|6|77-P, II dated the 28th January, 1981. I shall be grateful if a suitable draft can be sent across by you as early as possible.

Yours sincerely,
Sd|-
(G. S. JAKHADE)

Shri Gokhul Prasad,
Member (P&P)
Central Water Commission,
New Delhi.

Recommendation of Irrigation Commission
Views|Action Taken

19.14 There is large scope for the conjunctive use of surface and sub-surface water, particularly in the Indo-Gangetic Plain, the coastal area of Orissa and Andhra Pradesh, the Cauvery delta and part of the Narmada basin. It can also be applied to a lesser extent elsewhere in the country, where canal supplies can be supplemented by open wells or tubewells. The Commission recommends that areas where conunctive use is feasible, should be identified, particularly in the commands of existing canal systems.	The recommendation is accepted. In the guidelines issued by the Ministry of Irrigation to the State Governments in 1981 for preparation of project reports, information on the ground water support available in the command area as well as proposals for conjunctive use of Surface and ground water in the project is required to be examined and result of examination should form a part of the project report.

Extract from the Working Group Report Guidelines for preparation of detailed project Report of irrigation and multi-purpose projects, 1980....

3.8 *Irrigation Planning*
3.8.6.2 Ground Water (Support)

(a) Location (shallow or deep) and extent of potential water bearing, strata|aquifer based on the field observation|test conducted to prove availability-Brief.

(b) Quantum assessed, status of present utilisation and possibility with proposals for future utilisation.

(c) Anticipated behaviour of ground water on downstream after creation of the reservoir based on the experience in the similar project(s) |area(s).

(d) Quality of ground water (Salinity, PH, SAR, Baron, flourine etc.).

(e) Proposals of conjunctive use of surface and ground water.

Recommendations of irrigation Commission	Views/Actior taken
Para 19.15 of ICR 1972	**Action Taken**
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. The investigation of irrigation projects and their ayacut development should be undertaken simultaneously. Also, studies of soil conservation measures, particularly for the more critcal areas in the catchment should be taken in hand at the same time.	The recommendation regrading the need for a shelf of well investigated projects is accepted. State Governments who have the primary responsibility for identification and investigation of irrigation projects, were accordingly addressed vide No. 102/72-IC dated 23-11-1972. commending the recommendation. Emphasising the need for expeditious preparation of Master Plans, the second Conference of State Ministers for Irrigation held in September, 1976 adopted a resolution in this behalf. A copy of Resolution No. 5—"Perspective Plan for Irrigation Development." is enclosed. The Sixth Five Year Plan document has included this as one of the strategies of development. A copy of strategy No. K included in para 10.1 of the Sixth Five Year Plan document is enclosed. The working Group constituted by the Planning Commission for the formulation of a major and medium irrigation programme for Seventh Five Year Plan also includes this as one of the terms of reference. An extract of the term of reference No. iv of the Working Group is enclosed. Although the recommendation regarding investigations for ayacut development is in principle acceptable, there are practical difficulties in its implementation. Before on farm development works are undertaken in the ayacut, topographical surveys are needed to decide about land levelling and shaping as well as the alignment of field channels. This work can be taken up only after the alignment of the canal distribution system has been decided upon and there are no possibilities of a change in their alignments. Hence surveys of ayacut development cannot usefully be taken up simul-

Recommendation of Irrigation Commission	Views/Action Taken
	taneously with the investigation for the irrigation projects. In the absence of these, a large portion of the cost of the project pertaining to construction of field channels and other on farm development works will heve to be estimated on the basis of cost per hectare. The recommendation that the studies of soil conservation mense urs particularly for more critical areas in the eatchment should be taken in hands at the same time is accepted.

Respective Plan for Irrigation Development

The Conference notes that there is need to prepare a perspective plan for development of irrigation facilities keeping in view the surface and ground water available and the needs of various regions. The plan should aim at the optimum development of the available water resources taking into consideration the reasonable needs of drought-prone and tribal and backward areas and the need to reduce regional imbalances to the extent feasible with regard to irrigation facilities. The Plan should also take into consideration social and environmental factors. The Conference, therefore resolve that each State should prepare a perspective Plan of irrigation development both through major and medium schemes as well as through minor schemes and lay down priorities inter se for implementation of the various projects in the foreseeable period.

The Conference further notes that irrigation development is a continuing process and sufficient number of well-investigated projects should be kept in the pipelines so that, keeping in view the resources available, the tempo of irrigation programme is kept up.

The Conference also resolves that investigation and preparation of project reports should be intensified keeping in view the immediate need viz., new projects to be taken up during the Sixth Plan.

An extract of terms of reference No. iv to the Working Group constituted for formulation of the major, medium irrigation programme for the Seventh Five Year Plan *vide* O.M. No. 24(1)|83-I&CAD dated 16-7-1983.

Terms of reference of the Working Group will be as follows :—

* * * * * * * * *

(iv) "to suggest measures for ensuring that State Governments draw up Master Plans for Irrigation in respect of their territories before the end of the Seventh Plan."

Extract of sub-para(k) of para 1 of Chapter 10 of the Sixth Five Year Plan Document, 1980-85.

(k) Carrying out detailed surveys and investigations for preparation of new projects to be taken up with priority being given to projects benefiting tribal area, drought prone area and area having large percentage of scheduled castes, with a view to completing investigation and preparation of project report of all projects and in a phased manner by end of 1989-90.

Recommendations of Irrigation Commission	Views/Action Taken
19.16 For judicious use of limited irrigation supplies, it is important to determine critical periods during which deficiency of moisture in the soil can seriously reduce the yield of crops. Irrigation systems should provide water not only in the required quantity but at the required time.	The recommendation is acceptable in principle. There are, however, some practical limitations to this method of operation of a canal system, more specially in the case of diversion systems where water availability at the headworks is likely to be low during a long period of dry spell, or where the cropping pattern is mixed subjecting the crops in the command to moisture stress. The Ministry of Irrigation have initiated a programme of Warabandi in Command Area Development project. This is expected to partially meet with the requirement. Efforts at popularising Warabandi System are also continuing through seminars, Workshops, official level discussions, etc.
19.17 Rice requires much more water than other cereals, but its productivity per unit of water is much lower than that of others. The Commission, therefore, suggests that the need for adequate support from rainfall should be kept in view while planning for rice production. It further recommends that a second rice crops, particularly in the non-rainy season, should be grown in an area only if the irrigation supplies cannot be put to better use.	The recommendation is acceptable in principle. Moisture availability from effective rainfall during a crop season is taken into account while deciding the irrigation water requirement. Where practicable, efforts are being made to ensure that where sufficient irrigation supplies are not available during the non-rainy season, a second rice crop is not included in the cropping pattern.
19.18 Broadly, the goals for irrigation policy may be classified under three heads, viz., :— (i) maximum production per unit of area, as in the Brahmaputra Valley, Kerala and the Indo-Gangetic Plain; (ii) maximum production per unit of water, as in regions of medium and low rainfall, in which about 70 per cent of the cultivated area of India lies; and	The recommendation is accepted. In effect, this policy is being adopted. The strategy enunciated in the Sixth Plan document is : "In area where water resources are in excess of land resources, irrigation will be supplied on optimum level in order to obtain maximum yield per unit of land.

Recommendations of Irrigation Commission	Views/Action Taken
(iii) maximum area served, as in drought affected areas.	In areas where water resources are deficient compared to land resources, irrigation scheduling shall be done to obtain maximum production per unit of water." With the adoption of more liberal yard stick for B.C. ratio upto unity in irrespect of irrigation projects in drought prone areas (as recommended by the Commission in Para 19.32) and water availability at 50 percent dependability this recommendation is already being implemented.
19.19 In the southern States, the heavier black cotton soils are generally located in the valleys, and the lighter red soils higher up. Growing paddy in the higher light soils leads to a comparatively larger consumption of water and the problem of water-logging. Paddy should, therefore, be localised, as far as practicable, on the heavier soils at lower levels and the lighter red soils reserved for light irrigated crops.	It may not be possible to encourage localisation of paddy cultivation in black cotton soils as once the black cotton soil is watered heavily as required for paddy, ploughing and transplanting operations are beset with serious problems. However, the recommendation that light irrigated crop should be grown in light soil areas, is accepted.
19.20 Lining must be resorted to where water resources are inadequate and particularly where the percolated water cannot be retrieved or when retrieved, is unfit for use. The Commission recommends that in all future projects, the main canals and branches should, in general, be lined and the lining of distributaries undertaken as and when resources become available. As an alternative to lining small water courses, pipelines may be worth considering.	The cost of lining of main canals and branches, particualarly in critical reaches, is being provided in the new project estimates. In the case of some of the projects lining is being resorted, to upto the last Government outlet. As an alternative to lining of small water courses, pipelines are being adopted where they are justified on techno-economic consideration.
19.21 There are many areas in the country where the use of sprinkler or drip irrigation would be more useful. There is, however, need for research, experimentation and demonstration to identify the areas, conditions and crops which are most suitable for this mode or irrigation.	The recommendation is acceptable in principle. A Centrally sponsored scheme is in operation for encouraging the use of sprinkler and drip irrigation. The recommendation regarding the need for research, experimentation and demonstration etc. has been referred to the State Governments for initiating action.

No. 2|11|82-P. II
Government of India
Ministry of Irrigation
New Delhi, the 29th October, 1983

To

All Irrigation Secretaries.

SUBJECT :—Second Irrigation Commission-Recommendation of

Sir,

The Second Irrigation Commission in its report has observed that :—

"There are many areas in the country where the use of sprinkler or drip irrigation would be more useful. There is, however, need for research, experimentation and demonstration to identify the areas, conditions and crops which are most suitable for this mode of irrigation."

While a few States have made some headway in the direction of use of sprinkler or drip irrigation, for which a Centrally Sponsored Scheme is in operation, no effort seems to have been made in the field of research, experimentation and demonstration to identify the areas, conditions and crops which are most suitable for this mode of irrigation. The extract of paras 6.41 to 6.43 of the report is enclosed. It is requested that action may kindly be initiated in this direction and this Ministry kept informed of the action taken.

Yours faithfully,

Sd|-
(A. R. S. MURTHY)
Deputy Secretary to the Govt. of India

Copy to the Chief Engineer (Minor Irrigation) Division, with the request that he may kindly taken follow up action in the matter.

Extracts of Paras 6.41 to 6.43 from the Report of the Irrigation Commission (Vol. I), 1972

SPRINKLER AND DRIP IRRIGATION

Sprinkler Irrigation

6.41 Several countries have recently taken to sprinkler irrigation on a large scale. In the United States and Russia, about 10 per cent of the irrigated area is sprinkled, while in Israel about 90 per cent is irrigated by this method. In India, sprinkler irrigation was taken up in the early fifties, but, so far, it has not caught on. Sprinkler irrigation requires an initial investment, estimated to be around Rs. 1,750 per hectare, on pumps, pipelines and devices like nozzles or perforated pipes, and in the absence of adequate experimentation and convincing demonstration of its advantages, farmers remain hesitant to adopt it, even in areas where it would be ideal.

Ordinarily, with a limited quantity of water, a substantially larger area can be irrigated by sprinklers than by surface irrigation. This is because percolation losses, both in the water courses and the field, are eliminated, and there is no wastage through run-off. The extent to which sprinkler irrigation saves water is influenced to a large extent by climatic conditions. Under high temperatures and strong winds, the heavy evaporation losses from the sprinkler sprays substantially reduce the saving in water. Gusty winds also make it difficult to apply water uniformly. In these conditions, sprinkler irrigation is more efficient during the night, when it is cooler and calmer.

Sprinkler irrigation is particularly suited to coarse, sandy and gravelly soils, where percolation losses from surface irrigation are high, and, also, where frequent light irrigation is required because of the poor water-holding capacity of the soil. Sprinkler irrigation is most suitable where the land is undulating or sloping, and the cost of land shaping is high, or where land shaping is not feasible, because of the shallow depth of soils, as in some parts of Maharashtra and peninsular India. In the hills, small streams can be tapped at high levels for irrigating farms lower down with sprinklers, thus doing away with the need for pumping sets to create a head.

Theoretically, sprinkler irrigation can be applied to any crop other than paddy and jute, both of which require copious watering. But its advantages to all other crops are not uniform. Experiments conducted at Anakapalli with sugarcane grown on level and well-prepared fields, showed no special advantage with sprinkler irrigation. At Delhi, the IARI, in experimenting on a potato crop, could irrigate 50 per cent more area with sprinklers than by the furrow method of irrigation. Most coffee and tea gardens are ideally suited for sprinkler irrigation, as they cannot be suitably terraced or shaped for surface irrigation. For coffee it is necessary to have a shower at the flowering stage. If rain fails at the crucial time, a sprinkler is said to be a good substitute. The installation of sprinklers in some coffee plantations is reported to have paid for itself even within a single year, when drought conditions prevailed. Some of the tea gardens have reported a 50 per cent increase in yield, and an improvement in the quality of tea, with the use of sprinklers.

Fertilizers give higher yields when applied in split doses at frequent intervals. Injection of fertilizers in the sprinkler system is a simple and effective way of achieving higher yields at small extra cost. It also permits a better regulation of the dose. Similarly, sprinklers can be used to apply fungicides and weed killers. Sprinklers have yet another use in a subtropical climate, where they can be used to protect crops against frost, by spraying water on the plants when the temperature drops below freezing point.

We are of the opinion that there are many areas in the country where the use of sprinkler irrigation would be more useful. A mention has already been made of its suitability for coffee and tea plantations. In areas where the surface water is scarce, and there is a limit to the quantity of ground water that can be tapped economically, either through tube-wells, or open wells , we suggest that the feasibility of sprinkler systems

should be earnestly studied. For example, in the Gaya district of south Bihar, where there is a scarcity of water, and most of the wells have already been fitted with electric pumpsets, sprinkler irrigation may be of considerable advantage in raising two potato crops in a year. Similarly, for cotton and ground-nut crops in Coimbatore district, sprinkler irrigation may be profitable. Even or canal systems, where the capital cost of irrigation per acre is high, the use of sprinklers may, under suitable conditions help to extend irrigation and improve, the economics of a project. The lift irrigation areas on the Rajasthan Canal, particularly the Lunkaransar area, need to be examined for the feasibility of sprinkler irrigation. Some trials are being made with sprinkler irrigation in the coastal areas of Andhra Pradesh, which, if successful, would prove the usefulness of sprinkler irrigation for the sandy coastal tracts.

Where conditions for the use of sprinkler irrigation are favourable, its adoption on the larger farms should present little difficulty. However as most of our land-holdings are small, it may be argued that this factor would make it difficult to introduce the system on a large scale. If the source of supply is a tubewell, or an open well fitted with a pumpingset, the pipelines of the sprinkler system merely replace the water courses, and the arrangement for the distribution of water to individual farmers remains the same. Sprinkler devices, like nozzles or perforated pipes, can be individually owned or community-owned. We are of the view that small holdings do not necessarily stand in the way of introducing sprinkler irrigation where it is otherwise suitable.

Drip (Trickler) Irrigation

6.42 Under this method, irrigation water is conveyed along furrows in 12 to 16 mm diameter tubings, fed from larger feeder lines, and allowed to drip slowly through nozzles or orifices, at practically zero pressure, to keep the soil surface around the plants constantly wet. This method eliminates the evaporation loss which occurs in sprinkler sprays, and provides steadier wetting of soil. Though more expensive than the sprinkler system is the best method of irrigation with ground water, in arid areas, where soils generally have a high salt content and a poor structure. In drip irrigation, water deficit in the soil hardly occurs because of steady replenishment, and, a poor soil structure therefore ceases to be a major disadvantage. The common assumption in conventional irrigation is, that during the interval between two irrigations, not only do the plant, and climate reduce the soil moisture to a point when further application of water becomes necessary, but, due to this loss the salts in the remaining water become concentrated until the next irrigation is given. In drip irrigation there is constant wetting, and a high degree of salt concentration is not reached in the root zone.

The drip method of irrigation has been found to be very useful in reclaiming and developing the Arava desert area in Israel. The soil cover, there, consists of wind-blown sand resembling the dune sand typical of desert conditions, with salinity averaging 30 millions per cm. The ground water is saline, with an electrical conductivity of 3,000 micromhos per cm. The soil is leached with the saline ground water to reduce its salinity level to about 7 millimhos per cm., a level considered satisfactory for agricultural production under the Arava conditions.

Experiments on a number of crops like tomato, cucumber, musk-melon, pepper, sweet corn etc. showed that in all cases, the yields under drip irrigation for exceeded those under sprinkler or furrow irrigation, and in some cases the yields were more than double, even though the quantity of water applied to any particular crop was, more or less, the same for all the irrigation methods. We have large areas in our country which are arid or semi-arid, with problems similar to those in Israel. In north Gujarat, Saurashtra and Kutch, there are vast stretches of sandy soils which are saline. The tubewell water in north Gujarat and the Little Rann is highly saline. Similar conditions are also met in parts of Rajasthan.

6.43 We are of the opinion that there is need for research, experimentation, and demonstration to identify areas, conditions and crops which are most suitable for sprinkler and drip irrigation; but it should be kept in mind that the location of not all the agricultural universities and research stations is suited for the purpose. It is important that, to begin with, these experiments should be carried out in suitable locations, and on the more promising crops, as otherwise, poór result may dampen further research efforts, and discourage the adoption of these methods.

Recommendations of Irrigation Commission	Views/Action Taken
19.22 Farmers should be encouraged to lift water for irrigating areas in canal commands which cannot be served by flow. Drain water should be utilised for irrigation in an authorised manner and the farmers be charged lift irrigation rates for it. Some major rivers, particularly the Ganga and the Brahmaputra offer considerable scope for Floating Pump Irrigation Schemes. The Commission recommends that these possibilities should be fully explored in Assam, Bihar, Uttar Pradesh and West Bengal and on some major rivers in other States.	The recommendation is acceptable in principle and is being adopted where feasible on techno-economic consideration. Many lift Irrigation Schemes on nallas, rivers, drains etc. owned by individuals, cooperatives and even by Government are planned/under implementation/under operation in the country. Whereas in the case of water lifted with their own lifting arrangements, from canals by individuals/cooperatives etc. they are charged, as for canal of flow rate, the case of lifting of water from drains with their own efforts, there could be a case for charging them at half the normal canal flow rate, as the water in the drain would otherwise go to waste.

No. 2|11|82-P.II
Government of India
Ministry of Irrigation
New Delhi, the 29th October, 1983

To

All Irrigation Secretaries.

SUBJECT :—*Second Irrigation Commission—Recommendation of*

Sir,

The Second Irrigation Commission has observed that :

"Farmers should be encouraged to lift water for irrigation areas in canal commands which cannot be served by flow.

Drain water should be utilised for irrigation in an authorised manner and the farmers be charged lift irrigation rates for it. Some major rivers, particularly the Ganga and the Brahmaputra offer considerable scope for Floating Pump Irrigation Schemes. The Commission recommends that these possibilities should be fully explored in Assam, Bihar, Uttar Pradesh and West Bengal and on some major rivers in other states."

It is requested that a list of the floating pump irrigation schemes under execution|operation in your State together with broad details of the same may kindly be sent to this Ministry and to the Central Water Commission. Further the scope available for floating pump schemes may kindly be examined and schemes identified for implementation.

Yours faithfully,

Sd|-
(A. R. S. MURTHY)
Deputy Secretary to the Govt. of India.

Copy to Member (P&P), Central Water Commission for favour of follow up action.

Recommendations of Irrigation Commission	Views/Action Taken
19.23 At present, irrigation projects are designed on the basis of a 15 per cent dependability. Availability can be improved by providing a carry-over capacity in storage reservoirs at an additional cost. The economics of this device needs consideration. The more precious the water in an area, as in drought areas, the greater is the justification for providing a carry-over.	The recommendation is accepted in principle and can be implemented whenever feasible from techno-economic considerations. The recommendation of the Commission to consider such carry over storage in the case of all the projects benefitting drought prone areas has been brought to the notice of the State Governments.

No. 2|11|82-P.II
Government of India
Ministry of Irrigation
New Delhi, the 29th October, 1983

To

All Irrigation Secretaries.

SUBJECT :—*Second Irrigation Commission—Storage capacity of irrigation reservoirs*

Sir,

The Second Irrigation Commission has stated that "at present irrigation projects are designed on the basis of a 75% of dependability. Availability can be improved by providing a carry over capacity in storage reservoirs at an additional cost. The economics of this device needs consideration. The more precious the water in the area as in drought areas, the greater is the justification for providing a carry over."

According to a decision taken in November, 1975, the criterion of 75% dependability for irrigation reservoirs is being relaxed to about 50% dependability in the case of medium irrigation schemes in drought areas. This indirectly means provision of a higher storage than is possible with 75% depandability. In the context of the recommendation of the Irrigation Commission, it is considered desirable that both in the case of major and medium reservoirs in drought prone areas, a suitable carry over storage, may be provided taking into account permissible dependability factor and subject to the normally adopted cost—benefit considerations. It is suggested that in all future projects, this aspect may be kept in view while formulating the proposals.

Yours faithfully,

sd|-

(A. R. S. MURTHY)

Deputy Secretary to the Govt. of India

Recommendations of Irrigation Commission	Views/Action Taken
Ayacut Development	19.24 to 19.28
19.24 Systematic ayacut development in India has taken shape because of delay in the utilisation of water in some command areas. Its aim is to ensure rapid utilisation of the irrigation potential of new irrigation projects. This calls for a series of co-ordinated measures. The command areas of projects should be fixed in advance. Soil surveys should be undertaken, and only those crops which are suited to local soil and climatic conditions should be encouraged. Scattered holdings should be consolidated. Farmers' fields should be properly levelled, shaped and kept ready with field channels, so that the water can be utilised without delay. The supply of inputs needs to be streamlined, and research and extension efforts geared to support a forward looking agriculture. Attention should also be paid to the need for additional roads, markets and storage and other infrastructure facilities.	The Command Area Development Programme has been introduced from 1974-75 as a Centrally sponsored scheme. Under the Programme, the Centre gives a matching grant to the States, thus meeting 50% of the total expenditure on the cost of establishment of the Command Area Development Authorities, expenditure on topographical survey, soil survey, implementation of warabandi and adaptive trials. For the construction of field channels, the beneficiary farmers are given a subsidy of 50% of the total cost, shared equally between the Centre and the State. The balance of 50% of the cost it expected to be raised by the beneficiaries as loans. To assist the State Governments, in providing loans to the farmers, from their resources, the Centre gives a loan of 25% to the States. Thus the contribution by the Centre in respect of field channels, comes to 25% grant and 25% loan to the State Governments.
The Commission recommends that a comprehensive plan of ayacut development should be prepared for every major and medium irrigation project, simultaneously with the preparation of a plan for the project.	
Recommendations of Irrigation Commission	**Views/Action Taken**
The Commission is of the opinion that a epecial administrative agency for the co-ordinated and expeditious development of command areas under medium and major projects is very necessary. No separate Cadres should be created for the ayacut development programme and the relevant departments of the State Government, such as Irrigation, Agriculture, Coopera-	For activities like land levelling and land shaping and construction of field drains, the beneficiary farmers are expected to take loans from the financial institutions. They are entitled to subsidy on the IRDP pattern for this purpose. The subsidy amountt payable for

Recommendations of Irrigation Commission	Views/Action Taken
tion, etc. should continue to discharge their respective functions within the ayacut under the normal departmental control. The co-ordinating agency for the ayacut could, however, set out specific tasks for various departments and institutions, coordinate their activities and ensure implementation of the agreed proggramme. Each irrigation project deserves a separate ayacut development agency.	these items of work are shared equally between the State and the Centre.
19.25 The States are unanimous that the absence of field channels has been a major reason for serious lags in the utilisation of irrigation potentials. In 1966, Mysore State took upon itself the responsibility of excavating field channels. This brought about a spectacular improvement in the utilisation of the irrigation potential. Andhra Pradesh took action on similar lines in the Nagarjunasagar Project and this also had a salutary effect.	Other items of On Farm Development works like construction of farm roads, establishment of market centres etc. are included in the State sector and the States provide funds from their State Plans. No assistance for these items of work is extended by the Centre.
19.26 We have made recommendations for land levelling and land-shaping and also their financing from institutional sources.	The Command Area Development Programme envisages a multidisciplinary effort and the staff of the Command Area Development Authority is drawn from various disciplines like irrigation engineering, agriculture, co-operation etc. The Administrator in charge of the Authority provides the required coordination and usually has been entrusted with administrative powers over the functionaries of various Departments concerned with irrigated agriculture.
19.27 We have also recommended that research should be conducted in command areas of projects to encourage the farmers to adopt improved irrigation practices and crop patterns with confidence. Demonstration plots, training programme and the use of television for educating the farmers have been recommended.	The Ministry of Irrigation had set up a high level Committee to make recommendations regarding the organisational set up of Command Area Development programme and creation of a water management and Land Development Wing in the State Irrigation Departments. The Report of the Committee has been forwarded to the State Governments and their reaction to the recommendations of the Committee is awaited.
19.28 During the formulation of the Fourth Five Year Plan, the Government of India felt that the development of regulated markets, all-weather roads and storages had lagged behind, because the State Governments could not find the funds for it. It led to the acceptance of the Area Development Programme as a centrally sponsored scheme, and was to be executed through the State Governments. Before any command area become eligible for inclusion in the programme, the State Governments concerned have to provide funds for all other services and works which form part of the plan. The Commission hopes that the tempo of these activities will gain momentum and have a larger coverage.	Regarding the recommendation that a comprehensive plan of ayacut development should be prepared simultaneously with the project, the recommendation is acceptable in principle but there are practical difficulties in its implementation. It is only after the alignment of the canal distribution system has been decided upon and there are no possibilities of any change in their alignments, that further surveys for land levelling and land shaping, as well as for fixing the alignment of field channels to individual holdings can be taken up. A time lag is, therefore,

Recommendations of Irrigation Commission		Views/Action Taken
		inevitable between the two. Presently, it is considered optimum to commence Command Area Development activities (which include surveys for field channels etc.), two years prior to the date by which the canal system is expected to be ready to serve the particular area in the Command. The recommendation regarding demonstration farms, training programmes and education of farmers through television is already in vogue for many years. In fact, there is a daily programme of "Krishi Darshan" on the television from all television Centres in the country.
Drought Affected Areas 19.29 The India Meterological Department has defined drought as a situation occuring in any area when the annual rainfall is less than 75 per cent of the normal. Areas where drought has occurred in 20 per cent of the years examined are considered 'drought area', and where it has occurred in more than 40 per cent of years, as 'chronic drought areas'. A persisting adverse water balance has also been found to be characteristic of the drought areas.		Observation is noted.
19.30 On the basis of the annual and south-west Monsoon rainfall data from 1901 to 1960 for about 500 stations, drought and chronic drought areas have been identified as follows :—		Observation is noted.
(a) Drought areas (20 per cent probability of rainfall departures of more than (—)25 per cent from the normal)	(1) Gujarat, Rajasthan and adjoining part of Punjab, Haryana, West Uttar Pradesh and West Madhya Pradesh.	
	(2) Madhya Maharashtra, interior Mysore, Rayalaseema, southern Telengana and parts of Tamil Nadu.	
	(3) A small portion of north-western Bihar and adjoining east Uttar Pradesh.	

	(4) A small portion of north-western Bihar and adjoining portion of West Bengal.
(b) Chronically drought affected areas (40 per cent probability of rainfall departure of more than (—)25 per cent.	Western parts of Rajasthan and Kutch.

As the chronically drought areas and drought areas are part of the same meteorological phenomenon and the difference between the two is one of degree, for our purposes no distinction has been made between the two.

19.31 We have accepted the taluk as a unit for identifying and planning for drought areas. From the list of the taluks furnished by the State Governments, the Commission has excluded (i) those which lie outside the drought zone, (ii) those where 30 per cent or more of the cropped area is irrigated, and (iii) those which comprise only a small portion of the districts with an adequate rainfall or irrigation. After these adjustments, most of the drought areas which need special attention lie in the States of Mysore, Andhra Pradesh, Gujarat, Rajasthan, Maharashtra and Tamil Nadu. The hard-core areas of the drought comprise about 16 per cent of the total geographical area of the country and account for over 11 per cent of its population.

The priority called for by drought prone areas has, in particular, been recognised in the Sixth Plan, during which period new Projects are being allowed to be taken up only where they seek to benefit drought prone areas, or tribal or backward areas.

At present, about 13 per cent of the cropped area of the drought affected region is irrigated. This is likely to rise to about 19 per cent when the schemes under execution are completed. In the drought areas of Madhya Pradesh, Mysore, Maharashtra, and Gujarat where the present level of irrigation is lower than 13 per cent, the position may be worse. The extent of the area irrigated in the drought districts is not like by to go above 25 per cent of the cropped area when all the works proposed by the States for these areas are completed.

The needs of the drought areas will not be adequately met by any minimum programme of irrigation. What is needed is a maximum programme, because even if such a programme is implemented, drought areas will lag behind. In drought areas only 25 per cent of the cropped area will come under irrigation, as against the 50 per cent for the country as whole.

The Commission recommends that high priority should be given to irrigation works in drought areas.

19.32. If rigorous tests of productivity are applied, it may not be possible to take up as many new schemes as in desirable for drought areas. The likely expenditure on famine relief also needs to be kept in mind because the introduction of irrigation would reduce, if not eliminate, such expenditure.

Only a few states, like Gujarat and Maharashtra have given thought to the special needs of drought areas in determining criteria for financing irrigation projects. The Gujarat Government has relaxed the benefit-cost ratio in respect of major and medium schemes in drought and other backward regions upto unity. The Maharashtra Government allows the same relaxation but only in respect of irrigation schemes costing less than Rs. 30 million. Both these Governments have fixed more liberal yardsticks in respect of minor works, like storage tanks, percolation tanks, check dams, etc. The Gujarat Government has removed all cost restrictions on medium and minor irrigation schemes in scarcity areas, under certain conditions. The Commission supports a liberal policy for irrigation works in drought areas and recommends that the benefit-cost ratio of major and medium works in those areas may be relaxed upto unity. The State should be provided with loans at the concessional rate of half the normal rate to facilitate the construction of irrigation works in the drought areas.

The benefit cost ratio has been drought down to 1:1, against the normal 1.5 : 1, in the case of medium projects benefiting drought prone areas.

At present overall plan assistance has been extended by the Centre to each State, in the form of grants and loans without linking such assistance to individual plan sectors or projects. However, the recommendation made by the Commission has been brought to the notice of the Planning Commission and the Ministry of Finance for their consideration.

No. 2|11|82-P.II
GOVERNMENT OF INDIA
MINISTRY OF IRRIGATION
New Delhi, the 28|31st October, 1983

The Secretary,
Planning Commission,|Ministry of Finance
New Delhi.

SUBJECT :—*Second Irrigation Commission-Recommendation of—*

Sir,

The Second Irrigation Commission has recommended that—

"The States should be provided with loans at concessional rates of the noraml rate to facilitate the construction of irrigation works in drought areas". The relevant extracts from its report are given below :—

Financing of Irrigation Schemes in Drought Affected Areas.

11.26 : In drought affected areas irrigation works are undertaken to ameliorate widespread suffering and to provide protection against recurring failure of corps. Projects in such areas are generally more expensive and irrigation is not as satisfactory as in areas with better water resources. The people of these areas are generally economically backward Social justice, therefore, requires that they should receive special attention.

11.27. The Union Government has been advancing large sums of money by way of loans and grants to States for relief to drought affected areas. In addition to providing direct relief to the people, money is spent on rural works, such as minor Irrigation Schemes, roads and moisture conservation measures. But only the dependable irrigation schemes provide permanent relief. Their completion directly reduces the amount that has to be spent on relief measures year after year. In order to promote early implementation of these schemes, we recommend that the Union Government should provide loans for them at a concessional rate of half the normal rate charged for irrigation schemes.

This recommendation is brought to the notice of the Planning Commission for appropriate action.

Yours faithfully,
Sd|-
(A. R. S. MURTHY),
Deputy Secretary to the Govt. of India.

Improvement of Existing Irrigation works

19.33 Many of the irrigation systems in the country date back to the 19th century or earlier, and need remodelling. Among such systems are the Eastern and Western Yamuna Canals, the Cauvery Delta System, Upper Ganga Canal and the Godavari Delta System. The usefulness of these systems is limited by structural handicaps, such as out-moded hand-works, the absence of silt excluding devices and unsatisfactory cross drainage. Faulty irrigation practices and poor drainage add to these handicaps. As a result, the systems cannot meet the exacting demands of water for the new high-yielding varieties of crops.

Irrigation from wells of all kinds forms 30 per cent of the total irrigation in the country. Many of these wells and tubewells lie within the command areas of canal systems.

The Commission recommends that inadequacies in run-of-the river systems should be met by the increased use of ground water, by the construction of storage reservoirs and by supplementing supplies by transferring water from an adjacent basin. Farmers should be encouraged by providing them financial assistance, technical guidance and electricity, to sink wells or tubewells so as to make up any inadequacies in supply from canals and to extend irrigation.

Other measures recommended to mitigate the effect of inadequacies are the lining of canals the control of drainage, the provision of regulators and escapes, the substitution of weirs by barrages and the improvement of headworks.

The hydraulic performance of some systems has been reduced by the addition of emporary outlets, by changes in canal sections

The recommendations of the Commission regarding measures for meeting inadequacies in run-of-the river schemes are accepted and are already practised. The Conjuctive use of surface and ground water is included as an item of activity under the command area development programme. Modernisation programmes that have been drawn up, as for instance, Upper Ganga modernisation project and Sone modernisation project provide for the installation of tubewells for augmenting the surface flow. Where possible reservoirs have been built to provide back up storages to order diversion system. The National Perspective Plan envisages inter-basin transfer of surplus waters and for studies and investigations relating to the Peninsular component of the perspective, the National Water Development Agency has been established.

Under Command Area Development Programme for conjunctive use of ground water, the farmers are entitled to subsidies on IRDP pattern. The Department of Agriculture and Cooperation has recently drawn up a special programme of assistance to small

due to silt, erosion crossbunding and the cutting of banks. This call for remodelling. Periodic examination of each system once in twenty or thirty years should be done to make systems upto date. The remodelling project undertaken in the Cauvery Delta illustrates the big gains accruing from planned remodelling. Remodelling schemes should include, *inter alia*, (i) measures for working the system with greater efficiency and minimum loss of water; (ii) measures to supplement supplies by pumping water from neighbouring rivers or from sub-soil reservoirs and by transferring water from adjacent basins; (iii) changes in cropping patterns; and (iv) measures to enlarge areas under irrigation and to increase its intensity.

farmers and marginal farmers which provides for an average outlay of Rs. 3.50 lakhs per block, for providing subsidies, at IRDP rates, for the sinking of wells, tube wells energisation of pump sets etc.

Other measures recommended by the Commission to mitigate the effect of inadequacies in run-of-the river systems and remodelling of some systems to improve their hydraulic performance have been advised to the State Governments to be taken up under modernisation programme.

Existing methods of conveying water from the outlets and field-to-field irrigation of rice are causes of a heavy waste of water. The Commission recommends that effective steps should be taken gradually to replace field-to-field irrigation of rice by the system of field channels. There should also be separate drains serving individual fields.

As already stated in respect of recommendation No. 19.24 to 19.28, the construction of field channels and of field drains are items of work which are being taken up under the Command Area Development Programme.

The Future Perspective

19.34 A third of the country is prone to drought, which makes for lower yields. Improve dry farming practices can improve yields, but the results can at best be a fraction of those from irrigated areas. The growing disparity between irrigated and dry regions can be reduced only if vigorous steps are taken to improve irrigation facilities in the dry zones. The perspective of development is thus not confined to the limited aim of increasing agricultural production, but has been extended to include the broader objectives of removing social and regional disparities.

The observation is noted.

19.35 The provisional totals of the 1971 census reveal that the total population of India on 1 April, 1971 was 547 millions. The growth rate of 24.66 for the decade 1961—70 closely tallied with the projected growth rate of 24.6 for the quinquennium 1966—70.

The observation is noted.

The demographers have worked out firm population Projections only upto the year 1985. The Commission proceeds on the assumption that the expected population growth rate of 14.5 per thousand per annum, attained during the quinquennium 1981—85, will be maintained in the subsequent 15 years. On this basis, India's population in the year 2000 AD would work out to around 900 millions, and increase of 65 per cent over the 1971 population.

The food and fibre requirements at the end of the Century will, however, increase by about 100 per cent because of the likely rise in living standards. The country must, at the very least, produce twice its present output of food and fibre. This increase is possible if more areas are brought under irrigation.

19.36 Scope for extension of agriculture to new areas is almost exhausted, and future increases in yield must be secured from intensive and double cropping.

An analysis of yields and irrigated areas under principal crops—rice, wheat, pulses, oilseeds and cotton-made by us lead to the inescapable conclusion that the crop yields are high in States which have a high percentage of irrigated areas under the crops, and low where the irrigated percentage is less.

The observation of the Commission regarding the various crops in different States, the yields of which can be increased on proper attention being given to irrigation, has been noted. In these States, while formulating irrigation projects and assessing the cropping pattern, the crops mentioned by the Commission are being taken into account.

We are of opinion that significant results in increasing yields of these crops can be achieved if proper attention is given to irrigation, particularly in the States mentioned below :

Rice	Bihar	West Bengal	U.P.	Orissa
Wheat	Uttar Pradesh	Madhya Pradesh	Rajas-than	Bihar
Pulses	Madhya Pradesh	Rajas-than	Maha-rashtra	Bihar
Oil-seeds	Uttar Pradesh	Gujarat	Andhra Pradesh	Madhya Pradesh
Cotton	Maha-rashtra	Gujarat	Mysore	Madhya Pradesh

19.37 Many States have not furnished a reasonably accurate assessment of future possibilities of irrigation development by surface and ground waters. In some cases it appears that the figures were based on a rough assessment.

As the inter-State disputes over the waters of the Krishna, the Godavari and the Narmada are pending before inter-State water tribunals, the total irrigation potential of Andhra Pradesh, Mysore, Maharashtra, Madhya Pradesh, Orissa and Gujarat cannot be worked before the tribunals allocate water to the various States.

In some cases the projects proposed by two or more States in the same river valley are mutually exclusive. Which of these projects would be sanctioned ultimately and in what form, can be determined only after the completion of river basin plans and agreement among the States concerned. The total irrigation potential suggested by such States is liable to be reduced.

The recommendations of the Commission that storages should be built to impound monsoon flows is accepted and is already being implemented. National Water Development Agency has also been established for carrying out investigations and studies on the peninsular rivers for working out details relating to peninsular component of the National perspective which envisages storage of flood waters and diversion of the same from one river basin to another.

A great deal of work has been done in the past few years to assess the ground water potential, but a complete assessment for the whole country has not so far been carried out. At best, the estimates of ground water potential are based on certain assumptions which may or may not turn out to be correct.

Of over 500 medium irrigation schemes taken up during the last 20 years, more than three-fifths have been completed. With better planning and co-ordination, it should be possible to complete the investigation of the remaining schemes in the next 5-7 years. If necessary funds are allocated, it should not be difficult for the State to complete all medium works in about 15 years. Minor works should be completed within a period of 10 years.

Of the total irrigated area of 40.5 million hectares, the perennial flows of the Himalayas account only for about four million hectares. Tubewells account for another 2.4 million hectares. The rest of the area depends for its water supply on storages and river diversion schemes, and shallow aquifers.

More than 90 per cent of the river flow occurs in the monsoon months of June to September. It is imperative that storages should be built to impound monsoon flows for utilising that water for irrigation in winter and summer. Big storages have big catchment areas, and variations in rain fall do not affect them to the same extent as they do small tanks. These reservoirs provide assured irrigation.

19.38 The Commission estimates the total irrigation potential of the country, both from surface and ground water resources, including 20 million hectares of the Godavari, the Krishna and the Narmada as of the order of 81 million hectares. This would provide irrigation facilities to about 50 per cent of the total cropped area.

If this potential is developed by turn of the century it would double the production of food and fibre in the country, including increases in yield effected by improved varieties of seeds, fertilizers, pesticides etc. This increase would not only ensure self-sufficiency in 2000 A.D. but also lay a sound foundation for higher production in subsequent years.

The ultimate irrigation potential of the country, both from surface and ground water resources, is assessed at 113 million hectares on present information made available by the State Governments, As per conceptional National Water Plan, the potential could be incurred to about 140-150 million hectares. The long-term objective of the Ministry is to achieve this ultimate potential by the turn of the century on soon thereafter. The terms of reference to the 7th Plan Working Group also envisages that a perspective of development over a period of 20 years from 1985-86 should be kept in view while formulating the programme proposals for the 7th Plan.

19.39 The cost of the major and medium irrigation projects sanctioned during the last few years varies from Rs. 1500 to Rs. 3000 per hectare and average around Rs. 2000. The future projects will be more expensive than the present or those now under way, because of

The observation is noted.

difficult locations and complex technology involved. It may, therefore, be reasonable to assume that the future schemes, on an average, will cost Rs. 3000 per hectare at current prices. On a rough basis, the cost of future development may work out to about Rs. 100 billion.

19.40. The Ganga Cauvery link will operate as a grid to make up periodical shortages in the Son, Narmada, Godavari, Krishna and Cauvery systems. This gigantic project should be investigated.

Proposals relating to Ganga-Cauvery link were examined by the Central Water Commission and it was found that the proposals were grossly under estimated both in regard to capital and recurring costs and that they would require large amount of power for lifting irrigation water. Further, the proposals did not have any flood control components.

The Central Water Commission and the Ministry of Irrigation have on the other hand, drawn up the outline of a national perspective which envisages utilisation of water, to bring under irrigation an additional area of 25 million hectare by surface flows and 10 million hectares by increased use of ground water. The transfer of water is essentially by gravity and only in small reaches by lifts not exceeding 400 ft. The proposals also envisages generation of about 40 million KW of power of which only about 4 million KW would be required for lifting the water.

The national perspective has been thought of in two segments, the first relating to Himalayan rivers and the other relating to peninsular rivers. For carrying out investigations and studies in respect of penisular links, the National Water Development Agency has been established.

19.41 We are of the opinion that proper attention should be given to maintain the ecological balance in the Planning of Major irrigation works.

The recommendation is accepted. Proposals relating to irrigation schemes are to be cleared by the Department of Environment before they are approved by the Planning Commission on the recommendation of the Advisory Committee. Even the clearance by the Department of Agriculture under the provision of the Forest (Conservation) Act, 1980, is being given only after obtaining the advice of the Department Environment.

Economic and Financing of Irrigation Works

19.42 The Commission supports the adoption of the benefit-cost ratio, criterion in sanctioning projects. It, however, recommends that the Financial return of the projects should also be examined. The present practice of accepting projects only if the benefit-cost ratio is more than 1.5 is a prudent precaution. The Commission however, recommends that this rule should be relaxed in favour of irrigation projects in the drought affected areas where a lower limit of unity may be accepted.

In working out the benefit-cost ratio, the investment on ayacut development comprising land-levelling and construction of field channels and field drains should also be taken into account. The investment which may be necessary for soil conservation measures in the catchment area need not be considered.

19.43 The Commission wishes to emphasise that once a scheme is taken up for implementation it must be constructed at an optimum place determined by technical considerations and the necessary funds must be provided for it. Where an irrigation scheme is too large for proper financing from the State's own plan resources, the State should negotiate with the Union Govt. for special financial arrangements for the scheme.

The recommendation is accepted. The criterion of benefit-cost ratio is being adopted at present and as mentioned earlier against recommendation No. 19.32, this ratio has been reduced to 1:1 in the case of medium projects in benefiting drought prone tribal and backward areas.

The Committee set up by Planning Commission to review the existing procedure and recommend improvements have recommended an Internal Rate of Return method of assessing the viability of a project, instead of the B.C. ratio method.

The recommendation is accepted.

The State Governments have repeatedly been exhorted to give priority of attention to the completion of on-going projects before they take up any new project. In particular, the Sixth Plan strategy lays down the expeditious completion of as many on-going major schemes as technically and financially feasible and the compeltion of all on-going medium schemes except those which will be taken up during the last two or three years of the Plan period. Further, the strategy envisages than action would be initiated on a few selected projects to keep the tempo of development in the Seventh Plan and also to meet the needs of drought prone, tribal and backward areas and remove regional imbalance.

Irrigation schemes are implemented by the State Governments from their plan outlays, irrespective of their size and overall plan assistances is given by the Centre to each State without linking it to any sector of development

or any Project. Where the State Governments plead for the provision of additional funds, in cases where the resources of the centre make this possible, advance plan assistance is being extended.

19.44 Irrigation Works in India were making a net annual contribution to the exchequer of over Rs. 10 million, at the time of Independence. There was an annual loss of Rs. 566 million in 1967—68. The Commission is of the view that irrigation works in a State should give an annual income at least equal to the annual cost of operation. No part of the burden for providing irrigation should fall on the general tax-payer.

19.44 to 19.46 : Recommendation is accepted.

vide D.O. No. IC—4(40)/72 dated 1-12-1972, the then Union Minister of State for Irrigation and Power addressed the Chief Ministers of States proposing the Constitution of Committee of Irrigation Ministers to consider the recommendation of the Irrigation commission and work out practical steps for carrying out revision of water rates and also go into the question of betterment levy and give their considered opinion. 12 States replied indicating agreement to the proposal. Four States did not have popular Government at that time and could not indicate specific agreement or disagreement. One State (Haryana) did not agree to the proposal on the ground that a decision taken at the Central level applicable to all the States would not be practicable.

The question, was, however, reviewed in the Seventh Conference of State Ministers of Irrigation & Power held in July, 1973 and a resolution was passed that "the conference notes that the progress made in increasing the water rates is slow in most of the States and reiterates its earlier recommendation that the State Govts. should increase the water rates on irrigation projects to realise additional resouces from the people who benefit from irrigation projects involving large public outlays.".

19.45 Essentially, the value of irrigation is the benefit it gives to the farmer. From the irrigator's point of view, therefore, the water rate, should be related to the benefit which irrigation confers rather than to the cost of an irrigation project. There can be no precise formula for the fixation of water rates, which remains a matter for administrative decision. As a guideline, the Commission recommends the following principles:

(i) Water rates should be levied on a crop basis, except in the case of irrigation from tubewells;

(ii) The rates should be related to the gross income from the crop and not to the cost of project. It should range between 5 percent and 12 per cent of gross income, the upper limit being applicable to cash crops;

(iii) The rates should be within the paying capacity of irrigators and aim at ensuring full utilisation of available supplies;

(iv) As between regions with a similar class of supply, there should be the minimum disparity, if any, in the rates charged.

(v) For fixing rates, irrigation should be divided into A,B, and C, categories on the basis of the quantity and timeliness of supplies of water. Lower rates may be fixed where, on account of good rainfall, the demand for irrigation water is less or where the supply is inadequate and uncertain;

It was, therefore, decided in Sept. 1973 with the approval of the then Deputy Minister for Irrigation to defere the proposal.

The matter was again considered in the first Conference of State irrigation Ministers held in July, 1975 and a resolution as under was adopted:—

The Conference recommends that the State Govts. should increase the water rates for irrigation projects in a phased manner to realise additional resources from the farmers who benefit from irrigation projects involving large public outlays.

"The Conference also recommend that 'Standing Inter-Departmental Water Rates Review Boards be set up by the State Governments in order to review on a c tinuing basis, the rate structure and make recommendation to the State Governments for appropriate increases on flow and lift irrigation and recovery of betterment levy or alternatives to it".

The matter was again considered at the Second Conference of State Irrigation Ministers held in September, 1976, when a resolution as under was passed.

The Conference recommends that the State Govts. which have not yet set up inter-Departmental water Rates Review Boards in pursuance of the recommendations of the First Conference, should do so at the earliest. The Conference notes that the idea of setting up of Inter-Departmental Boards is not only to revise the water rates structure, but also to modernise and broaden the data base so that State Governments can evolve a rational rate structure and suitably revise upwards the rates as necessary, keeping in view socio-economic objective.

It will no doubt, be the desirable that contiguous States being served by common irrigation projects adopt similar set of water rates.

(vi) The general level rates in a State should be such that, taken as a whole, the irrigation schemes do not impose any burden on the general revenue.

Irrigators in drought affected areas derive larger benefits from irrigation than those in other areas. The Commission is of the opinion that farmers in these areas should be charged the normal irrigation rates.

In canal commands, a lower rate should charge for lift irrigation in view of the extra effort or expenditure involved in lifting Water and the economy in its use.

19.46 Tubewell water is charged on the basis of the quantity of water supplied at the tubewell in some States, and in others on the basis of the electricity consumed. The Commission is of the view that the former is more equitable.

The Conference also recommends that in few States where no water rates are charged at present, suitable water rates should be introduced as soon as possible".

The question of water rates again came up before the Fifth Conference of State Ministers for Irrigation held in November. 1980 and a resolution as under was adopted:—

"The Conference notes that the water rates levied at present in most of the States are not adequate even to meet the operational and maintenance costs of the projects.

Heavy investments are made from the State Exchequer on irrigation projects. The result of the low water rates is that the general tax payer has to subsidise the farmers who derive large benefits from irrigated agriculture. The Conference, therefore, reiterates that water rates are increased in suitable phases so as to meet initially the operation and maintenance charges and, as soon as possible, a part of the interest on the large investment made for the canal irrigated areas."

The Seventh Finance Commission which considered the question of returns from Irrigation Projects, in the light of the proposals/ recommendations made by various authorities including the Ministry of Irrigation recommended that receipts from Irrigation Projects should not only cover working expenses but laso provide for a return by way of interest at 1 per cent on the total

capital invested by the State at the end of 1978-79 as estimated by them from the information furnished.

The Seventh Finance Commission also assumed that this return of 1 per cent would be achieved beginning with 0 2 per cent in 1979-80 and going up by 0 2 per cent in each successive year. Several State Governments have since revised the water rates upwards.

19.47 The Commission recommends that water rates should be reviewed and revised by all the States in the fourth year of every Plan.

As mentioned against recommendation No. 19.44 to 19.46 the Seventh Finance Commission had made recommendations relating to the water rates to be charged by the State Governments. It is expected that the 8th Finance Commission would also make its recommendation on the subject. The state Governments will get the opportunity to take action on the recommendations of the Finance Commission soon after their reports are submitted. The report of the 8th Finance Commission would be available during the current year, which is the fourth year of the current Plan period.

19.48 In order to remove difficulties experienced in enforcing the existing laws for betterment levy, the Commission recommends that these laws should be amended so that half the capital cost of the irrigation projects is recovered from the beneficiaries.

The recommendation is accepted in principle. It may be noticed from the action taken specified against recommendation Nos. 19.44 to 19.46, that in the First Conference of State Irrigation Ministers held in July, 1974, the recommendation had been that the State Governments should recover betterment levy or alternatives to it. However, there does not appear to have been any examination of possible alternatives by the State Governments, who have shown no inclination to recover betterment levy.

Administration and Organisation

19.49 The messive programme for the development of Water resources calls for a streamlining of the procedure and agencies dealin : with irrigation both at the Centre and in the States. Our recommendations in this connection are:

19.49 : No action is called

19.50 A Directorate of Hydrology should be set up under a Director-General. The functions of the Directorate will be to collect hydrological data, standardise procedure and publish the data.

Action taken

Two Directorates of Hydrology each under a Director, have been set up in the Central Water Commission. The Central Water Commission, have also set up a network of key hydrological stations manned by adequate technical and non-technical staff headed by two Chief

Engineers—one for the Northern Region and the other for the Southern Region. These units bring out every year Water Year books containing daily/10 daily data of the river systems in respect of water levels discharges, silt content etc. Even prior to the receipt of the Report of the Irrigation Commission, a proposal had been mooted for setting up a National Institute of Hydrology, which has been set up in Roorkee in 1978. Its functions include fundamental and basic research in the field of Hydrology including snow melt hydrology.

19.51 Prospecting and mapping of ground water has been the responsibility of the GSI. Recently a decision has been taken to transfer the division doing this work from the GSI to the CGW&B. The Commission recommends that the decision may be reviewed and the GSI allowed to continue to do this work.

The CGW&B which is at present under the Ministry of Agriculture, should be transferred to the Ministry of Irrigation and Power.

The recommendations of the Irrigation Commission that the decision to transfer the work of prospecting, exploration and mapping of ground water from G.S.I. to CGWB, may be reviewed, was possibly based on the thinking that in the event of the transfer of this work from GSI to CGWB the officers who have acquired high level of scientific expertise in dealing with the subject of ground water might not be available to the C.G.W.B. However, as a result the decision of the Government, 90 to 95% of the officers who were engaged on the work on ground water surveys and exploration in the G.S.I., opted for service in the C.G.W.B. and were consequently transferred to the CGWB w.e.f 1-8-72.

It would, therefore, be seen that the objective for which the Commission had recommended the reversal of the decision of the transfer of the functions from GSI to CGWB has very well been achieved by the decision to merge the Ground Water Wing of GSI with the CGWB.

The Commission has also recommended that the Central Ground Water Board which is at present under the Ministry of Agriculture should be

transferred to the Ministry of Irrigation and Power. This recommendation has since been implemented by the Government and the Central Ground Water Board has been placed under the control of the present Ministry of Irrigation from July, 1980.

19.52 Each river basin has its peculiar characteristics and would need a plan of its own. To formulate twenty major river basin plans will be too heavy a task for a single Commission. We have recommended that seven River Basin Commission should be set up for the whole country. To begin with, the work may be entrusted to four Commissions.

Each Comission would consist of four whole-time members nominated by the Union Government, two engineers, an agricultural economist and an agronomist. The Chairman of the Comssion will be nominated by the Union Government. Each State Government concerned with the basin shall be represented by a Chief Engineer. These small States and Union Territories may be grouped and given representation by rotation.

The basin plans prepared by the Commission will be sent to the States for opinion, and, thereafter, the plans with the view of the States and the comments of the Commission, if any, will be submitted to the National Water Resources Council. The Plans will then be forwarded to the States and the Union Government.

19.53 The Commission recommends the setting up of a high level authority. 'The National Water Resources Council' to take policy decisions relating to the conservation, utilisation and inter-basin transfers of water to lay down priorities for use of water to keep a continuous watch on the working of the River Basin Commissions and problems of inter-State rivers, and to ensure that the formulations and execution of Irrigation projects is in accordance with the higest national interests.

The Prime Minister of India should be the Chairman of the Council and the Union Minister for Irrigation and Power, its Vice-Chairman. The Ministries of Finance, Agriculture, Community Development, Planning, Health, Industry and Tourism should be represented on it through their Ministers.

19.52 & 19.53

The recommendation is accepted in principle. Taking into consideration various factors, the Government have since set up by an Executive Order the National Water Resources Council in March, 1983 under the Chairmanship of Prime Minister. Details of the river Basin Commission to be set up are being worked out

Major States should be represented on the Council either by the Chief Ministers or by the Irrigation Ministers. To smaller States and the Union Territories would have group representations by rotation.

Two eminent irrigation engineers and the Chairman, CW&PC should also be Members of the Council. The CW&PC will act as the Secretariat of the Water Resources Council.

The National Water Resources Council and the River Basins Commissions should be created by an Act of Parliament.

19.54 The Chairman of the CW&PC should be ex-officio Special Secretary in the Ministry of Irrigation & Power.

The recommendation has been accepted and Chairman, Central Water Commission conferred the ex-officio Secretariat status of secretary in the Ministry of Irrigation. The Members of the Central Water Commission are also designated ex-officio Additional Secretaries to the Government.

19.55 The work of exploitation of ground water in the State should be entrusted to two divisions, one under the Irrigation Department dealing with planning, operation and maintenance of heavy duty State tubewells, and the other under the State Agriculture Department dealing with drilling, boring of private wells and shallow tubewells.

The recommendation is accepted in principle.

The Ground Water Development work in the States is being done by Irrigation and Agriculture Departments. As recommended by the Commission, the construction, maintenance and operations of heavy duty tubewells is being done either by Irrigation Departments or the Minor Irrigation Ground Water Development Corporations which have been set up in quite a few States. The State Corporations are also operating and maintaining the shaollw tubewells which are wholly owned by the State Governments. In other words, all public tubewells, whether shallow or deep, are being maintained and operated by either the Irrigation Departments or Public Sector Corporations of the States.

Regarding drilling and boring of private wells and shallow tubewells, the work is being handled by different organisations in different States.

	In the State of Punjab and Haryana, this work is being looked after by Agriculture Departments, in Rajasthan, by State Ground Water Department and Agriculture Department, in Maharashtra by the Ground Water Survey and Development Agency; in Andhra Pradesh by State Irrigation Department Panchayat Rajya Department and State Ground Water Department, in Assam by State Minor Irrigation Development Corporation.
19.56 The Governments of the southern States and Maharashtra should consider proposal to make their Irrigation Departments responsible for the management of water from the source to the field as practised in the northern States.	The recommendation has been referred to the State Governments for consideration.

No. 2|11|82-P-II
GOVERNMENT OF INDIA
MINISTRY OF IRRIGATION
New Delhi, the 29th October, 1983

To

All Irrigation Secretaries.

SUBJECT :—Management of irrigation works.

Sir,

The Second Irrigation Commission has recommended that the Irrigation Department should be responsible for the management of water from the source to the field. An extract of paras 12.59, 12.60 and 12.61 of the report is enclosed. It is requested that the system actually existing in your State and any change(s) that you propose to make in the light of the recommendation may kindly be intimated to the Central Water Commission and to this Ministry at an early date.

Yours faithfully,
(A. R. S. MURTHY)
Deputy Secretary to the Govt. of India.

ENCL : As above.

No. 2|11|82-P-II
GOVERNMENT OF INDIA
MINISTRY OF IRRIGATION
New Delhi, the 31st October, 1983

To

The Chairman,
Central Water Commission,
Sewa Bhawan, R. K. Puram,
NEW DELHI-110066.

SUBJECT :—Management of irrigation works—Recommendation of the Irrigation Commission.

Sir,

Vide para 19.56 of Vol. I of its report, the Second Irrigation Commission has recommended as under :—

"The Government of the Southern States and the Maharashtra should consider proposal to make their Irrigation Departments

resposible for the management of water from the source to the field as practised in the northern States".

The full write up on this recommendation is contained in paras 12.59 to 12.61 of the report (Vol. I). An extract of these paras has been sent to all the State Governments with the request to intimate the actual system obtaining at present and the changes proposed by them in the light of this recommendation. A copy of the letter addressed to the State Governments is enclosed. It is requested that necessary follow up action may kindly be taken with the State Governments and consolidated position intimated to the Ministry at an early date.

Yours faithfully,
Sd|-
(A. R. S. MURTHY)
Deputy Secretary to the Govt. of India.

Extract of paras 12.59 to 12.61 of Vol. I of the report of Second Irrigation Commission

Management of Irrigation Works

12.59 Efficient management and maintenance is efficient irrigation. This axiom is widely accepted. But there are variations in the extent of responsibility that the State Irrigation Departments are required to shoulder. In the States of the south, and in Maharashtra, the Irrigation Department is not responsible for the manner in which water is actually used in the field. Its responsibility ends at the outlet, and it is not concerned, either with the actual distribution of water among farmers or with its use by any individual farmer. In these States, the State Revenue Department is responsible, both for the distribution of water beyond the outlet, and for the assessment and collection of water dues.

In the northern States of Punjab, Haryana, Uttar Pradesh, Gujarat and Rajasthan, the Irrigation Department is responsible for the management of water from the source to the field. This includes the distribution of water among co-shares on each outlet and the preparation of bills for the recovery of canal dues. But the recovery of these dues is the responsibility of the Revenue Department. In these States, the irrigation engineer is assisted by a canal revenue officer in regulating the supply of water to the field.

12.60 We are of the opinion that the system prevalent in the north has several advantages. It is necessary for the irrigation engineer to know how and where water is being used or misused. If we expect him to run the system efficiently, he must know the details of the end-use of the water which is being supplied. Only then can he be made responsible for achieving results and avoiding waste.

On these considerations, therefore, we would recommend that the southern States, and Maharashtra, might consider making the Irrigation Department responsible for the management of water from the source to the field.

12.61 In Chapter XVI dealing with Irrigation Acts and Codes, we have dealt with legal provisions which might be adopted to deal with the menace of cutting canal and distributary banks. Here we would like to draw attention to the success which has been achieved in Haryana through extensive patrolling and inspection of canals and channels by flying-squads of officers, adequately armed. These flying-squads carry out surprise night inspections and whenever offenders are caught heavy penalties are imposed on them. The essence of the system is surprise, and prompt and condign punishment. A similar system of inspection by flying-squads could be adopted with advantage elsewhere.

19.57 The present system of keeping the Secretariat separate from the Department is sound. One of the Chief Engineers should be appointed as an Additional or Joint Secretary in the State Irrigation Department.	The observation is noted.

No. 2|11|82-P-II
GOVERNMENT OF INDIA
MINISTRY OF IRRIGATION

New Delhi, the 29th October, 1983

To

The Chief Secretaries of All States.

SUBJECT :—Set up in State Secretariat—Recommendation of Second Irrigation Commission.

Sir,

The Second Irrigation Commission has recommended that "the present system of keeping the Secretariat separate in the Department is sound. One of the Chief Engineers should be appointed as an Additional or Joint Secretary in the State Irrigation Department". An extract of para Nos. 12.62 to 12.65 of the report is enclosed. It is requested that the recommendation may kindly be considered for implementation and action taken intimated to this Ministry.

Yours faithfully,

(A. R. S. MURTHY)

ENCL : As above.

Deputy Secretary to the Govt. of India.

Extract of paras 12.62 to 12.65 of Vol. I of the report of Second Irrigation Commission

Set-up in State Secretariats

12.62 A brief description of the growth of Irrigation Departments in the States is necessary in order to understand their present constitution and procedure. When the Departments of Public Works were first constituted in the Provinces in 1949, they handled irrigation and also other public works like buildings and roads. The Secretariat and the Department

of Works formed one unit. The Head of the Department also functioned as the Head of the Secretariat. In his capacity as Secretary, the Head of the Department has access to the Governor. Later on, a separate Irrigation Department was formed in some States, while in others irrigation continued to be a part of the responsibility of the Public Works Department.

So long as the Governor and senior officers of the Secretariat and the Department were Britisht the system worked smoothly. But particularly after the First World War, when Indian engineers began to occupy higher posts including those of Chief Engineers, difficulties arose. Senior British officers, anxious to protect imperial interests, were reluctant to associate Indian officers with the formulation of high policies. Since the British element in the higher echelons of the Secretariat was preponderant, a decision was taken to create separate posts of Secretaries to Government, and to fill these posts by members of the Indian Civil Service, who were at that time almost all British. Separate posts of Chief Engineers were created to head departments outside the Secretariat. The Chief Engineers thus ceased to be Secretaries to Government. The first Province to enforce the new policy was Madras in 1925, followed by Bengal in 1927. Other Provinces followed suit later, with the exception of Assam. The bifurcation became an established practice even though the original basis for it had lost its relevance. Even Assam, which was the only Province to make an exception, has lately appointed an officer as Irrigation Secretary who is not a Chief Engineer. In Gujarat and Maharashtra Secretariats and departmental offices from a single unit and Chief Engineers are ex-officio Joint Secretaries to Government. We were informed that this system had streamlined the administration and had led to the expeditious disposal of work.

12.63 We have already mentioned the essence of the controversy as to the place of the generalist vis-a-vis the technocrat. Here we shall merely touch on the relationship of the Secretariat with the executive department of irrigation under the Chief Engineer. Traditionally, the functions of the Head of the Secretariat and those of the Head of the Department are distinct and separate. Their working relationship should therefore, present no problem. Over the last two decades, however, in practice there has been a gradual deterioration in this relationship. Many Chief Engineers consider that they are not being given their due place in the hierarchy of the State Services and, therefore, feel frustrated. Views have been expressed that a closer integration between the functions of the two posts of Secretary to Government and Chief Engineer is necessary, and that unless this ensured, the development programme may suffer. It has also been suggested that this closer integration can be achieved either by having an irrigation engineer as the Secretary to Government in the Irrigation Department, or by combining the posts of Chief Engineer Irrigation and Secretary Irrigation.

12.64 The Minister in-charge of the department decides policy, which is an amalgam of many factors-technical administrative, financial, and political. He must get suitable advice on all these matters. It is not necessary that the same person should give him both technical and administrative advice. This leads as to the question whether the post of the Secretary and the Chief Engineer should be combined. After due consideration

we are of the opinion that the present system of keeping the secretariat separate from the department is sound. In the succeeding paragraphs we propose to discuss how the Minister can get the best administrative and technical advice.

12.65 To expedite the clearance of technical proposals and to enable the Minister to have technical advice readily we recommend that a Chief Engineer should be appointed as an Additional or Joint Secretary in the the State Irrigation Department. This, incidentally, would give the engineers a better sense of participation in the sphere of policy. The Additional or Joint Secretary would tender his advice to the Minister on technical matters and process such matters with other Secretariat departments of the Government such as Finance, Planning and Agriculture. If for any reason there is difficulty in giving effect to this recommendation we suggest that one of the Chief Engineers should be given the ex-oficio status of the Additional|Joint Secretary.

The latter recommendation is particularly relevant, though it may not conform to the principle of the separation of the functions of secretariat and department, for small states where the work load may not justify the appointment of a full-time Additional or Joint Secretary.

19.58 The Commission is of the opinion that the appointment of the Secretary, Union Ministry of Irrigation and Power and Secretaries to the States Irrigation Departments, technocrats should be treated at par with generalists.	The recommendation is accepted and is being implemented in the Central Ministry of Irrigation since 1976. In so far as State Governments are concerned, the recommendation has been commended to them for consideration. Some of the State Governments have, in fact already implemented this recommendation. In Maharashtra, Gujarat, West Bengal, Madhya Pradesh, Karnataka and Assam, the Secretary to the Irrigation Department is a technocrats.

No. 2|11|82-P-II
Government of India
Ministry of Irrigation

New Delhi, the 29th October, 1983

To

The Chief Secretary,
(All States)

SUBJECT :—*Set-up in State Irrigation Departments—Recommendation of Second Irrigation Commission.*

Sir;

I am directed to reproduce below the extract of para 12,66 of the Report of the Second Irrigation Commission in which it has been recommended that in the appointment of Secretaries to the State Irrigation Departments, technocrats should be treated at par with generalists.

"As we have said while discussing the question of the incumbency of the post of Secretary to the Union Ministry of Irrigation & Power, we see no reason why a technocrat possessed of experience, vision and foresight should be denied an equal opportunity of being appointed to the post of Secretary, Irrigation in the States".

2. The recommendation is commended for consideration. It is possible that the recommendation might have already been implemented in some States. If so, the position may kindly be intimated. If not implemented so far, the action taken on the recommendation may kindly be intimated to this Ministry.

Yours faithfully,
(A.R.S. MURTHY)
Deputy Secretary to the Govt. of India

19.59 Early steps may be taken to set up the Indian Service of Engineers.	The Proposal for the creation of an Indian Service of Engineers Cadre is under consideration of the Government.
Waterlogging, Drainage and Floods	
19.60 Large tracts in the Indo-Gangetic plain suffer from waterlogging. The State of Punjab before its second re-organisation, had the largest affected area. Signs of waterlogging also appeared in Maharashtra in the commands of the Deccan Canals. Even in recent projects like the Chambal in Rajasthan and Madhya Pradesh waterlogging has become a problem. As irrigation is extended and developed, necessary precautions should be undertaken in advance to avoid waterlogging. The presidency of Bombay, as it was then known, was the first to set up an irrigation research division in 1916. This division made valuable studies and Maharashtra has implemented a number of drainage schemes.	The recommendations are accepted. The guidelines issued to State Governments for the preparation of detailed project reports include items of drainage and other anti-water logging measures in the commands of irrigation projects. Field drains are also constructed under the CAD Programme. These aspects also receive attention under CAD and other water management projects in the country.
19.61 Other States have also constructed drainage works and other schemes like flood embankments, pumping out drainage water, and sepage drains. However, the Commission is of opinion that a more vigorous and planned action on the lines of what has been done in Punjab is called for in many other States. The Commission feels concerned about dangers of serious waterlogging in the command areas of the Gandak and Kosi Projects. The high water table, heavy rainfall, perennial irrigation and the flat nature of the terrain are conditions that can create serious problems in these areas. The Commission recommends that the dangers of waterlogging in the Gandak and Kosi Projects should be vigorously dealt with from now on.	The Government of Bihar carried out field studies in the Eastern Kosi Canal system and prepared a detailed report in 1975 to cover an area of 0.86 lakh hectares at an estimated cost of Rs. 20.05 crores. The drainage plan according to this report provides for resectioning of the defunct old Kosi Dhars and construction of drains to remove congestion, apart from improvement and provision of additional escapes in the canal system as well as conjunctive use of ground water with the dual purpose of optimal utilisation of water resources and

The Commission hopes that the States will continue to take steps to improve drainage in their irrigated areas. The drains should be excavated to adequate sections, and bad curves should be eased.

The Commission has drawn attention to the need for examining the waterways at bridges, on roads and railway embankments, and cross drainage structures across the canals and waterways across drains.

limiting the rise in the water table. An area of 23,500 hectares had been reclaimed upto June, 1979 with an expenditure of Rs. 4.57 crores.

The progress on improved drainage arrangements has been rather slow on account of delays in land acquisition, scarcity of cement and steel, limited construction period and shortage of power for taking up lift irrigation scheme.

Similarly the waterlogging problem in the Gandak Canal system has also been studied and work on Rs. 86 crores drainage project is currently under execution. The project authorities are also considering an additional drainage project for the Gandak Command at an estimated cost of Rs. 110 crores.

Regarding the need to examine the waterways at bridges, roads and railway embankments and cross drainage structures etc. this is already being attended to as required.

19.62 The Commission has not been specifically asked to examine the problem of floods. But irrigation cannot be introduced in areas prone to flooding unless they are freed from it. For instance, the extension of irrigation to Purnea and Saharsa districts would not have been feasible but for the flood control works built on the Kosi river.

The recommendation is accepted. The problems relating to flood control have been gone into in depth by the Rashtriya Barh Ayog and its recommendations have been communicated to State Government for implementation.

Floods cause heavy damage to numerous irrigation works and irrigated areas. The sudden floods in the Ganga in 1970 led to heavy silting up of the Upper Ganga Canal which resulted in the closure of the Canal for nearly nine weeks during critical parts on the Kharif season.

Flood Forecasting units have already been set up in most of the flood prone river system since 1976.

Complete protection from floods can seldom be achieved, even if it were technically feasible. Works for cent per cent protection from floods may not be economically justifiable. Most flood control works aim at minimising the flood damage and protecting the maximum areas. Steps should also be taken for flood forecasting to reduce the loss of life and property.

Sedimentation of Reservoirs

19.63 Recently, studies of selected reservoirs to assess the sediment load carried by rivers, and the rate at which silt is deposited have been carried out by the Soil Conservation Directorate of the CW&PC who have collected data for 22reservoirs. In the Tungabhadra reservoir against the assumed siltation rate of 42,861 cu. m. per hundred sq. km. of catchment, the observed rate is 181,927. At this rate its dead storage, will be filled in 22 years

For the purpose of developing definite package of soil conservation measures, the entire country has been delineated into 10 soil conservation regions. 31 catchments distributed in the different soil conservation regions have been identified and priority treatable areas in them further localised. A

and the live storage in 74 years. In all reservoirs, the observed rate of siltation is very much higher than the rate initially assumed.

Soil conservation is the normal method of protecting the Water-shed. It includes such measures as afforestation, pasture development, protection of river fringes, road sides and the shore-lines of reservoirs, and the control of forest fires.

For an effective soil conservation progaramme, rivers and streams which carry a heavy silt load should be identified. The next step should be to locate the sources and assessment of sediment. This entails a systematic study of silt loads and discharges at selected observation stations. We have recommended that new observation stations on all important projects should be set up early.

A Centrally sponsored scheme now covers 21 major projects for soil conservation. The Commission recommends that the State should make an early assessment of the erosion problem in the catchment areas of reservoir not covered by the Central scheme. Soil conservation should be taken up urgently in the more vulnerable areas.

The Commission recommends that the problem of soil conservation in all major projects should be completed in the next 20 years. In projects where the problem is acute, it should be completed within ten years.

programme of soil conservation work in these catchments has been in progress as a Centrally sponsored scheme under the Ministry of Agriculture. The programme is continuing. In addition, another Centrally sponsored scheme for "integrated watershed management in the catchment of flood prone rivers of the Indo-Gangetic basin" has also been launched by the Ministry of Agriculture in 1980-81. Regarding catchment area not, covered in the Centrally sponsored schemes, the recommendation has been commended to the State Government for action.

No. 2/11/82-P.II

Government of India

Ministry of Irrigation

New Delhi, the 29th October, 1983

To

All Irrigation & Agricultural Secretaries

SUBJECT :—*Soil conservation in the catchment areas of reservoirs.*

Sir,

The 2nd Irrigation Commission has recommended that "the States should make an early assessment of the erosion problem in the catchment areas of reservoirs not covered by the Central schemes. Soil conservation should be taken up urgently in the most vulnerable areas."

2. It is requested that the recommendation may kindly be considered and implemented by the State Governments. It will be appreciated if the action taken by the State Government is intimated to the Central Water Commission and the Ministry of Irrigation.

Yours faithfully,

A.R.S. MURTHY,

Deputy Secretary to the Govt. of India.

No. 2/11/82-P.II
Government of India
Ministry of Irrigation
New Delhi, the 31st October, 1983

To

The Secretary,
Government of India,
Ministry of Agriculture,
Krishi Bhavan-110001.

(Attention : Shri N.D. Bachketi, Inspector General of Forests.)

SUBJECT :—*Soil Conservation in the catchment areas of reservoirs.*

Sir,

The Second Irrigation Commission has recommended that—

"The States should make an early assessment of the erosion of the problem in the catchment areas of reservoirs not covered by the Central Schemes, Soil Conservation should be taken up urgently in the most vulnerable areas".

The State Government have been requested to take action on this recommendations. A copy of this Ministry's letter No. 2/11/82-P.II, dated 29th October, 1983 is enclosed. It is requested that the possibility of extending the Centrally sponsored scheme, to more catchment areas may kindly be examined. In the matter of selection of priority areas, this Ministry will be glad to render any assistance that may be required.

Yours faithfully,
Sd/-
(G.S. JAKHADE)
ADVISER

ENCL :—As above.

19.64 A special problem, which deserves consideration is the silting of canals, as has been observed in the Kosi Irrigation system. Such silting affects the functioning of the irrigation system. The Commission, therefore, recommends that the silt problem of the Eastern Kosi Canal should receive urgent attention.

The silting problem in the Eastern Kosi Canal has been studied in detail. The silt excluders provided in the left under-sluce portion from where the East Kosi Canal takes off have proved inadequate to eject heavy silt charge in the river during the flood season. Though an additional silt excluder was provided on the Eastern Kosi Canal at Kosi Power Station to control the entry of silt into the Power Station, it is considered necessary that measures to control silt entry into the canal at the Barrage itself are to be adopted. The project authorities have taken up the following measures to reduce the silt entry in the canal system during the flood season :

(i) Still pond operation;

(ii) Keeping the lower leaf of the two-tier gate of the silt regulator lowered on the crest to give effect of raised crest;

(iii) Flushing of the pocket from time to time during monsoon. During flushing period, the canal head regulator is kept closed to prevent silt entry into canal; and

(iv) Operating silt ejector in the Kosi Canal, there is also a proposal to construct an additional silt ejector on the Kosi-Canal.

Inter-State Water Disputes

19.65 At present, the riparian States in a river valley are free to reach agreement among themselves for sharing the river flows in the valley. Should no agreement be reached, the issues in dispute can be referred by the Union Government to a tribunal on a request made by all or any of the States concerned. Although resort to a tribunal may occasionally be necessary in inter-State water disputes, adjudication is less satisfactory than negotiation.

The observation is noted.

Joint Commissions, such as the European Commission for the Danube, the International Water Boundary Commission set up by Mexico and the United States and the Niger River Commission and other have provided useful forum to facilitate international agreements between riparian States. The functions of these Commissions include the investigation of the potentialities of a basin the collection and collation of technical and other data and the formulation of schemes which provide the basis for eventual agreement. A body of this nature creates a climate of negotiation, helps to define and limit the major issues in dispute. The Commission recommends that the machinery of River Basin Commissions should be used to marshall facts and to clarify issues involved in inter-State disputes.

Negotiation still continues to be the first choice in the settelement of disputes on the use of inter-State River Waters. During the last ten years, the good offices of the Central Government have been made available for settling 16 disputes by negotiation.

It is only three cases of disputes—on the sharing of waters of very large inter-State River Basins, that adjudication had to be resorted to and tribunals appointed for the purpose. In all the three cases, the tribunals have given their Awards and State Governments are now going ahead with implementation of projects in those basins, in conformity with the decisions given by the tribunals.

In the past the Union Government has played the role of mediator in settling inter-State Water disputes. In some cases if set up committees to assist the contending riparian States to reach an agreement. The Union Government provides substantial funds for plan projects of the States. Since an early settlement of inter-State disputes is important in nation's interest, the Union Government should step in when necessary. It can suggest alternative schemes and can expedite agreements by providing loans and grants or other forms of assistance to balance the scales.

We are of opinion that the Union Government should assume the same active and beneficial role in the settlement of inter-State Water disputes as the World Bank did in bringing about the Indo-Pakistan Treaty in the Indus Water Dispute.

Irrigation Acts and Codes	1966 *to* 1968
19.65 There are different Irrigation Acts and Codes which regulate irrigation in the States. The acts vary because of the differences in irrigation practices in different parts of the country. These practices are influenced by such factors, as the incidence of rainfall, soil characteristics, topographic features and the agricultural practices. In most States there exists a multiplicity of laws covering various aspects of irrigation management and administration. This accounts for multiple lines of authority. The diversification of central diffuses responsibility. After the reorganisation of States in 1957 irrigation works in certain areas of the same States continue to be administered by the laws of that parent States prior to reorganisation. The Commission recommends that the irrigation laws in each State should be consolidated into a single statute. Within the State the statute should apply uniformly to all regions.	The recommendation was considered in a meeting held on 15-11-1972 under the Chairmanship of the then Union Minister of State for Irrigation and Power where it was decided that the Indian Law Institute be requested to prepare Model Legislation which could be referred later to the States. Accordingly the Indian Law Institute was requested to prepare the Model Irrigation Bill. The draft 'Model Canal Irrigation and Drainage Bill, prepared by the Indian Law Institute was considered by a Group of Experts from the Centre and some of the States. The recommendation of the Group of Experts was reviewed, section by section, by an Informal Committee of senior Officers of the Department of Irrigation and representatives of the Ministry of Law and Planning Commission.
19.67 The existing Irrigation Acts do not define the ownership of sub-surface or ground water. In view of the vital importance of ground water for agriculture. It is essential to extend control of Government over it to provide control and regulation. The Commission recommends that the State Governments should assume legal power to regulate deep acquifers. However, ground water up to a certain depth, say 30 m., in alluvial plains, being volaminous, may be exempted. The Union Government has prepared and circulated a model bill for this purpose.	A Model Irrigation Bill as modified by the Department of Irrigation was considered at the Second Conference of the State Irrigation Minister, held in September, 1976. The Conference recommended that the draft Model Bill be considered by the State Governments for adoption with such modifications as may be necessary in the light of local conditions. The State Governments have accordingly been requested to take further necessary action in the matter. The Model Irrigation Bill commended to the States contains provisions similar to the recommendations made by the Irrigation Commission regarding the responsibility for the construction and maintenance of water courses and field channels.
19.68 The Commission recommends that the law relating to water courses and field channels should make provision for (i) construction of water courses at Government's cost and their maintenance by the beneficiaries; (ii) construction and maintenance of field channels by the beneficiaries; (iii) on failure to construct or maintain a water course and/or field channel, the State's right to construct and maintain such works and recover the cost from the beneficiaries; (iv) the State's power construct field	As at present, the State Governments have been advised to construct the water courses upto 5—8 hectare blocks at Government cost as a part of the project itself. Regarding field channels, since the beneficiary farmers have not been constructing them, they are being constructed by Government under the Command Area Development Programme, with 50

channels *suo-moto* or on a request made by a majority of irrigators holding more than 50 percent of land to be benefited; (v) to enact laws on the lines of the Northern India Canal and Drainage Act as applicable to Punjab for the purpose of acquiring land for water courses and field channels; and (vi) fo. recovery of compensation for land acquired for field channels from the beneficiaries.

per cent of the cost borne by Government and the other 50 percent as loan burden on the beneficiaries.

19.69 Experience of entrusting certain functions of irrigation administration to the Panchayati Raj institutions and irrigators Cooperatives has not proved satisfactory. The Commission is of opinion that some sort of body composed of irrigators has to be created to share responsibility. The Commission recommends that State Governments should examine the nature of organisations or societies of irrigators to be set up.

Committees of Irrigators or Cooperative Societies are being organised by State Government, particularly in the commands—of projects aided by World Bank/USAID. Even earlier, Kulaba Samities/Pani Panchayats for the purpose of regulating irrigation water supplies below the Government outlets were in existence in Uttar Pradesh and Maharasthra. They have, however, become defunct of late. Water Users' Associations have been coming up on an experimental basis in Gujarat.

During the Sixth Conference of State Ministers for Irrigation held in September, 1981, the States were urged to set up cultivators' societies for utilisation programme on the canals, distributories and minors etc. The Seventh Conference of State Ministers of Irrigation held in December, 1982 noted that much more remained to be done and urged the State Government that the recommendation be implemented on priority.

Research, Education and Training

19.70 Research in hydraulics and construction material can play an important role in effecting economics and improving quality in the massive programme of construction ahead of us.

The use of standardised precast members in various structures not only reduces the cost but also improves the quality and speed of construction. We are of opinion that research stations should work in closer collaboration with the design centres to promote standardisation.

Local materials should preferably be used to cut down the cost of transport. If suitable local materials are not available, research should be done to improve their quality.

The recommendation is accepted in principle.

Central Water & Power Research Station in Pune and Central Soil and Materials Research Station in New Delhi have been set up under the Ministry of Irrigation for the purpose of research in the field of hydraulics and construction materials respecitvely. Various problems are referred to these two institutions by the State Governments as well as other couhtries. In fact, CWPRS has been recognised by ESCAP UNDP as Regional Centre for South

Research activities would need the support of well-equipped libraries, and documentation. The Commission recommends that the library maintained by the CBI&P/CW&PC should be provided with a proper building and modern equipment. A systematic extention of library facilities to different regions for research and designing is called for.

A significant portion of the literature on irrigation originates from non-English speaking countries such as the USSR and Japan. Translation facilities in English and Indian languages should be provided at CBI&P/CW&PC library.

Asian countries. Also engineers from other Asian and African countries are sent to CWPRS for training in hydraulic research. Most of the State Governments have also set up their own research stations in the States.

While the CWPRS and CSMRS work in close association with the State Governments and State Research Stations, the scope for standardisation of hydraulic structures is comparatively limited. Many States have now separate design and research units, which work in collaboration with each other.

As a matter of general practice, only local materials are used in the construction of irrigation projects by the State Governments. CSMRS does carry out experiments on the suitability of specific local materials or combination/admixture of local materials for use in the construction of irrigation projects on reference to it by the State Governments.

Proposals for an independent building for the Central Board of Irrigation and Power/Central Water Commission Library as well as translation facilities therein are under consideration.

19.71 Irrigation engineers should acquire a basic knowledge of agronomy. The education and training of irrigation engineers should include a basic course in agronomy.

The recommendation is accepted in principle.

In Indian Universities, irrigation is only one of the subjects in the Civil Engineering Course at the Undergraduate level. However, the Ministry of Education was requested to consider this recommendation. Recently a Committee under the Chairmanship of Prof. Jagdish Narain, Chairman of the Indian Universities Association has been constituted by that Ministry to examine the matter.

Irrigation Statistics

19.72 Delay in the publication of land use statistics which include irrigation statistics, is frustrating. The Commission has been compelled to use statistics which are at least three years old.

Recommendation is accepted in principle.

The recommendation has been referred to the Department of Agri-

The Commission recommends : (i) computerisation of irrigation and agricultural statistics at the State headquarters; (ii) Training of patwaris; (iii) strengthening of statistical set-up in districts; (iv) preparation of statistical extracts for each village, each district and each state with the aid of computers; and (v) routing back abstracts to appropriate levels of administration.

The Commission hopes that this process will ensure that the statistics are available within twelve months of the close of the relevant period.

culture and Cooperation at the Centre and to the State Governments for initiating action on this.

No. 2|11|82-P. II

GOVERNMENT OF INDIA

MINISTRY OF IRRIGATION

New Delhi, the 31st October, 1983

To

The Secretary,
Department of Agriculture & Co-operation,
Krishi Bhavan,
NEW DELHI-110001.

Sir,

The Second Irrigation Commission has observed that :

"Delay in the publication of land use statistics which include irrigation statistics is frustrating. The Commission has been compelled to use statistics which are at least three years old".

The Commission has *inter-alia* recommended—

(i) "computerisation of irrigation and agricultural statistics at the State headquarters;

(ii) training of patwaris;

(iii) strengthening of statistical set-up in districts;

(iv) preparation of statistical extracts for each village, each district and each State with the aid of computers;

(v) routing back abstracts to appropriate levels of administration.

The Commission hopes that this process will ensure that the statistics are available within twelve months of the close of the relevant period.".

The State Governments have been addressed to initiate steps for implementing the above recommendation. A copy of the circular letter is enclosed. It is suggested that the E&S Dte. of your Department may kindly pursue the matter with the State Governments. The recommendation to reduce the time being taken in publishing Land Use Statistics concerns the Economics and Statistics Division of the Department of Agriculture and Cooperation as well. It is, therefore, requested that suitable steps may kindly be taken for expediting the publication of these statistics. It will be appreciated if this Ministry is kept informed of the steps taken in the matter.

Yours faithfully,
Sd|-
(K. RAMANUJAM)
Additional Secretary

ENCL : AS ABOVE

No. 2|11|82-P.II

GOVERNMENT OF INDIA

MINISTRY OF IRRIGATION

New Delhi, the 29th October, 1983

To

The Chief Secretary,
(All States)

Sir,

The Second Irrigation Commission has observed that—

"Delay in the publication of land use statistics which include irrigation statistics is frustrating. The Commission has been compelled to use statistics which are at least three years old".

The Commission has *inter-alia* recommended—

(i) Computerisation of irrigation & agricultural statistics at the State headquarters;

(ii) training of patwaris;

(iii) strengthening of statistical set-up in districts.

(iv) preparation of statistical extracts for each village, each district and each State with the aid of computers;

(v) routing back abstracts to appropriate levels of administration.

2. The Commission hopes that this process will ensure that the statistics are available within twelve months of the close of the relevant period. It is requested that suitable action may kindly be initiated in the State to overcome the deficiencies mentioned in the report and implement the recommendation thereon. It will be appreciated if the matter is given urgent attention and this Ministry kept informed of the action taken.

Yours faithfully,

K. RAMANUJAM,

Additional Secretary.

Recommendation

At present there is no regular system of assessing the actual economic return of the irrigation projects, with the result that no information about the actual *vis-a-vis* the estimated benefits is available in the Project Appraisal Division of the Planning Commission. The Committee consider that it should also be the function of the project Appraisal Division of the Planning Commission to carry out post-facto evaluation of the irrigation projects at least at five yearly intervals with a view to finding out to what extent the economic benefit envisaged in the project report has been actually

realised and what steps should be taken to ensure optimum economic return.

[Sl. No. 35 Appendix III Para 4.10 of the 141st Report of PAC Seventh Lok Sabha]

Action taken

A Standing Committee to guide and review the perspective evaluation studies of irrigation projects was set up in September, 1983 under the chairmanship of Secretary, Planning Commission. This Standing Committee is to select irrigation projects for evaluation studies, review the programme and progress of the work of the studies periodically and give directions suitably, to coordinate the post-facto evaluation studies of irrigation projects initiated not only by the Ministry of Irrigation but also by the Planning Commission and other organisations and to suggest further follow-up measures suitably. As a follow-up action, Ministry of Irrigation and Power (Department of Irrigation) and Central Water Commission have been requested by the Planning Commission for furnishing a list of projects for which evaluation studies are proposed, for the examination of the Committee. The CWC have requested all the States to send proposals to enable them to list but the projects for which evaluation studies could be proposed.

The Committee would finalise the list on receipt of the proposals from the CWC|Ministry of Water Resources. It may, however, be stated that before the constitution of the Standing Committee mentioned above, evaluation studies of selected projects are being undertaken by CWC|Ministry of Water Resources. The list of projects for which such studies have been entrusted to various institutes is enclosed as an Annexure.

[Planning Commission U.O. No. 16(82)|83-I&CAD dated 23-1-1986]

ANNEXURE I

Statement showing the present position of socio-economic and agro-economic studies to various institutes.

ENTRUSTED

Sl. No.	Title	Name of Institute
1	2	3
1.	Rajasthan Canal Project Stage-I & II (Rajasthan)	National Council of Applied Economic Research, New Delhi.
2.	Socio-Economic and Agro-Economic studies on management and use of water in Maharashtra in respect of Nira, Pravara project.	Gokhale Institute of Politics and Economics, Pune.
3.	Agro-Economic and Socio-Economic Survey of Dantiwada Project	Economics Department, Sardar Patel University of Vallabh Vidyanagar, Gujarat.
4.	Godavari Dalta (Modernisation) scheme Andhra Pradesh	Ecomomics Department, Andhra Pradesh University, Waltair.
5.	Agro-economics & Socio-economic survey of Sriram Sagar (Pochampad) Command Area.	Economic Department Osmania University, Hyderabad.

Recommendation

The Committee find that the levels of yield achieved in the National demonstration forms and by experiments in water management projects, have been of the order of 4 to 5 tonnes per hectare as against the national average of 1.7 tonnes. The Planning Commission have pointed out that the difference between national demonstration output and farm level output highlights the potential that exists and the need for removing constraints in respect of management practices, input use and credit etc.

There is thus tremendous scope of increasing the yield per hectare in irrigated area considering the high levels of productivity achieved in national demonstration farms. While it is true that the high yields derived from a controlled system of agriculture where all the inputs are assured, cannot be replicated all over the country the Committee would like to stress the imperative need for removing the constraints economic and social in the way of higher production.

[Sl. No. 37, Appendix III, Paras 4.22 and 4.23 of the 141st Report of the Public Accounts Committee, (7th Lok Sabha)]

Action Taken by the Ministry of Water Resources

The recommendation of the Committee has been noted. The Planning Commission and the Ministries of Agriculture and Irrigation are seized of the problem. The need to give closer attention to the problem of productivity from irrigated agriculture is being brought to notice of the States through various communications and discussions, seminars. The examination of the Committee's recommendation has been included in the terms of reference for the Working Group on 'Irrigated Farming' for the Seventh Five Year Plan, set up by the Planning Commission in October, 1983, to enable more detailed discussions for arriving at some consensus about the most effective measures for improving the production.

[Ministry of Water Resources, O.M. No. 14|1|83-Coord, dated Feb. '84]

Action Taken by the Planning Commission

Ministry of Agriculture have been consulted. The relevant action taken|proposed to be taken by the Department of Agriculture and Cooperation is as under :—

There are a number of bottlenecks and constraints on account of water, reducing losses to the minimum and adopting efficient methods of conditions of an efficient irrigation system are : proper conservation of water, reducing losses to the minimum and adopting efficient methods of water management.

It is well recognised that the heavy backlog of field channel construction has been one major factor responsible for the gap in utilisation of

irrigation potential created. The field channels have to be properly lined, right type of drainage has to be introduced and the land levelling essential for better distribution of water at the farm level has to be ensured.

Apart from the engineering gaps, improvement in the water deliveries so as to have equitable distribution amongst the beneficiaries need to be given the highest priority. As a first step, Warabandi|rotational water supplies has been started in most of the projects. However, emphasis has to be laid on improving the water deliveries further so as to suit the crop season and match crop-water requirements with a view to increasing the crop intensity as well as crop yield. Farmers association can play a useful role in this regard in observing the schedule for supply of water and distribution and proper water use management.

There is need for selection of appropriate crop varieties and application of right method of suitable on-farm water application under different soil situation. Improvements in the water management of an irrigation system have to be brought about alongwith physical improvements in the engineering items.

There have been inadequacies also in certain other respects such as lack of success in developing and propagating appropriate technological packages, absence of inputs supply system and lack of farm roads to transport produce as well as weak credit institutions.

The agricultural production plan for each CADA area has to be prepared taking into account the local conditions. A comprehensive programme indicating the targets for utilisation of water for each season, the crops which can be grown in the available water and the expected yields from the principal crops is required to be prepared for each project. The projects administrators have to work out, thereafter, the requirements of inputs and other facilities and fix responsibilities for each of concerned agencies and intimate these agencies in advance about them.

While gradually introducing discipline in irrigation water scheduling, efforts have to be made simulatneously by extension for including a change in the cropping pattern and sequence. To illustrate, release of water earlier for reservoirs has helped in better germination and early transplantation so as to improve the yields. There has to be assured water supply, quality seeds, fertilizers as well as crop insurance. The agriculture production plan for the CADA area should provide for the infrastructural support, *i.e.*, the input delivery system, arrangements for quality control, seed testing and certification, arrangements for buffer stocking of breeders foundation and certified seeds, building seed storage at strategic locations. Similarly, this plan should provide for adaptive research as well as extension system. Needless to say, this calls for close coordination among the Irrigation and Agriculture Departments and the extension services.

Finally a well-organised extension system on the pattern of T&V System will provide a two-way flow of information from farmers to the various Departments and other agencies involved and *vice-versa*. With

improvements in supply of water both in terms of timelines as well as quantity, it will be for the farmers to make better use of these facilities. Extension will be providing feed-back to various research as well as implementing agencies and would be instrumental in removing deficiencies in the technology as well as programme implementation. Thus, extension has a role also in monitoring the progress of production plan including the response of supplying agencies to the increasing demand of farmers for improved services. It will also function as a base level organisation for establishing an operational cohesion between various concerned departments and agencies. The extension services themselves need to be strengthened by induction of suitable number of water management specialists.

It might be worthwhile to add that there are a number of experiments in the national demonstration scheme of ICAR whose results will show that irrigated yields of various crops are in fact significantly higher than unirrigated yields. If the object is to find out whether investment made in irrigation is resulting in higher yield levels or not, then the only way to get yield levels in the command area as a whole and not to get yield levels of only irrigated crops in the command areas.

[Planning Commission O.M. No. G. 25015|15|83-IFC dated

Recommendation

The Committee further recommend that wherever in the past cropping pattern has not been laid down in the project reports, suitable cropping pattern should be devised to maximise the benefit and that wherever the cropping pattern has been laid down, the position should be maintained to ensure that this is adhered to.

[S. No. 40 Appendix III (Para 4.26) of 141st Report of Public Accounts Committee (Seventh Lok Sabha)]

Action taken

The recommendation has been forwarded to the State Governments on 9-9-1983 for implementation.

[Ministry of Irrigation O.M. No. 14|1|83-Coord. dated the February, 1984]

Action Taken by the Ministry of Agriculture

As desired by the Planning Commission, this recommendation has been included in the Terms of Reference of the Working Group on Agricultural Production including Irrigated and Rainfed|Dryland Farming, Agricultural Extension and Administration, constituted by the Planning Commission for the formulation of the Seventh Five Year Plan, for indepth examination and making suitable recommendations. This Working Group has already started its work and is expected to submit its recommendations within the next two months.

[Ministry of Agriculture, Department of Agriculture and Cooperation O.M. No. F. 2-5|83-PP-ES, dated 25|2|84]

Recommendation

"A package of policy measures covering also land reforms should also be evolved to enforce the cropping pattern. The Committee trust that the Planning Commission and the Ministry of Agriculture would take action in this regard in concert with the States."

[S. No. 41, Appendix III para 4.27 of 141st Report of Public Accounts Committee (Seventh Lok Sabha)]

Action taken

Ministry of Agriculture have been consulted. The relevant action taken/proposed to be taken by the Department of Agriculture and Cooperation is as under :

It is stated that the observations made in connection with the recommendation/observation at S. No. 37 are also applicable to the subject of Cropping Pattern. The constraints as well as the approach to be adopted for bringing about the right cropping pattern based on a scientific research and extension system has been brought about in the observations made therein.

It may be added that the Ministry of Irrigation is already seized of these problems and a close liaison between this Ministry and the Ministry of Irrigation is being maintained through inter-departmental meetings as well as regional meetings held from time to time.

[Planning Commission O.M. No. G-25015/16/83-IFC]

Recommendation

Out of a total irrigation potential of 113 m. ha. the achievement so far is 61.58 m. ha., that is to say, only 55 per cent of the potential has been tapped so far. The country had inherited at the time of Independence a potential of 22.6 m. ha. and another 39 m. ha. have been added during the last 32 years of Planning. The growth rate of a little over 1 m. ha per year needs to be stepped upto 2.5 to 3 m. ha. per year so as to achieve the target of 113 m. ha. by the turn of the century. Considering the pace of development since the First Five Year Plan, the task is indeed formidable.

The share of irrigation in the total outlay of the necessary Five Year Plan has been of the order of about 10 per cent only. This would need considerable augmentation of the target of adding another 51.5 m. ha. during the next 20 year is to be achieved.

[S. No. 46 Appendix-III paras 6.1 & 6.2 of 141st Report of PAC—(Seventh Lok Sabha)]

Action taken

Reports of the Working Group on Major, Medium and Minor Irrigation Projects for Seventh Plan have been submitted to the Planning Commission by the Ministry of Water Resources and their recommendations has been taken upto of while finalising sectorial allocation for the 7th Plan.

(Planning Commission U.O. No. 16(74)|84-L&C&D dated 23-1-1986)

Recommendation

The Committee's examination has revealed large scale cost escalation and heavy time overruns in the execution of Plan Projects in the irrigation sector. Eight of the major projects have been lingering on for the last 15-20 years and some of them may not be completed even by the end of the current plan. Consequently, all anticipations of cost have gone hay-wire. As many as 32 major projects have shown cost overruns of 500 per cent and more. In fact, not a single project has been completed within the anticipated cost and time schedule. The country has already paid a heavy price for the inordinate delays in completion of the irrigation projects. It is the Committee's considered view that the on-going schemes must be completed on a priority basis and that work on new projects should be taken up only if financial and other resources can be assured for their completion within the anticipated time frame.

[S. No. 47 Appendix III para 6.3 of 141st Report of PAC (Seventh Lok Sabha)]

Action taken

Committee's observations regarding delays in completion of Irrigation Projects is noted. Both the Ministry of Irrigation (now Ministry of Water Resources) and the Planning Commission have been persuading the State Governments to provide maximum possible allocation for on going Projects. During the Sixth Plan period the bulk of the agreed outlays of the Irrigation Sector was being allocated to the on-going irrigation schemes. The percentage of allocation was between 75% to 80% of the total agreed plan outlay.

2. Further, in the light of Committees recommendation No. 3 letters were addressed to all State Governments to ensure full balance outlay required for completion of pre-1969 irrigation projects during 6th Plan period itself.

3. The strategy for the Seventh Plan is to accord priority to the completion of unfinished irrigation projects, particularly those at an advanced stage of implementation by providing the requisite funds on a priority basis. New starts would be restricted to medium irrigation projects in drought prone areas and in tribal and backward areas and Minor Irrigation Schemes.

[Ministry of Water Resources No. 14|1|83|Coord. dated December, 1986]

Recommendation

There has been a shortfall of nearly 20 million hectares in the achievement of targets since the First Five Year Plan and the annual Plans, 1978-80. The Economic Survey (1982-83) has brought out that the cost of providing irrigation has increased at constant (1970) prices from Rs. 2,770 per hectare in the First Plan to Rs. 5,880 in 1979-80 and is expected to go up further to nearly Rs. 7,000 as per the Sixth Plan projections. In addition to capital cost escalation the loss in food production due to the failure to achieve the targets of creation of irrigation potential is estimated to be anywhere between 23 and 30 million tonnes over the last 32 years.

[S. No. 48 Appendix III (para 6.4) of 141st Report of PAC (Seventh Lok Sabha)]

Action taken

The observation is noted.

[Ministry of Irrigation O.M. No. 14|1|83-Coord, dated the February, 1984.]

Recommendation

Minor Irrigation must get far greater attention and a larger share of the nation's resources in view of the short gestation period and the scope that exist for providing employment opportunities and augmenting food production, in areas so far bereft of irrigation facilities.

[S. No. 50 Appendix III Para 6.6 of 141st Report of PAC (Seventh Lok Saba)]

Action taken

The need for greater attention to minor irrigation projets is the subject of recommendation No. 6 and the action taken note on that recommendation may kindly be seen.

[Ministry of Irrigation O.M. No. 14|1|83-Coord. dt. Feb., 1984]

Recommendation

The losses on irrigation have been continuously mounting. The Budget estimates for 1981-82 place this figure at Rs. 424.75 crores. It is no secret that the real benefit of irrigation is being derived by the relatively well-to-do farmers. This is no reason why this section of the rural population should continue to be subsidised by the poor tax-payer. In any case, investments of the order required in this sector make it imperative that the irrigation works are made to pay for the maintenance, operation and depreciation charges and also yield some interest on the capital.

[S. No. 51 Appendix III Para 6.7 of 141st Report of PAC (Seventh Lok Sabha)]

Action taken

The recommendations made by the Public Accounts Committee are noted for appropriate action.

In the meanwhile, the recommendations have been forwarded to the State Governments for their implementation.

[Ministry of Irrigation O.M. No. 14'1'83-Coord. dated February 84]

Further Action taken

Further to the observations of the Public Accounts Committee having been brought to the notice of the State Govts. *vide* d.o. letter No. 6.49|82-Irrig. dated 9-9-83 from Member (WR), Central Water Commission, the draft Seventh Five Year Plan document has stressed upon the State Governments the need for undertaking measures for minimising irrigation losses. It has further been pointed out that water rates need to be fixed at reasonable levels to reduce the recurring burden of subsidies to irrigation works. In view of this the States have necessarily to raise the irrigaion rates with a view to covering atleast the working expenses.

The National Development Council in its meeting held in November, 1985 has endorsed the above approach.

[Ministry of Water Resources O.M. No. 14|1|83-Coord. dated December, 1986.]

Recommendation

"We have a centralised planning in a federal set up. There has therefore necessarily to be a coordinated approached by the Centre and the State Governments to ensure that the National plans are translated into reality and plan targets are adhered to. In this connection the role of unitary and independent audit in our federal policy assumes significance. The Committee have in the Introductory chapter of this Report drawn attention to the supplementary report of the C&AG for the year 1975-76. Union Government (Civil) which contains the findings of the studies undertaken by audit of 20 irrigation projects in different parts of the country of which 12 are large projects each with an irrigation potential of not less than 50,000 hectares. Similar reports were submitted simultaneously to the Governors of the States concerned. It is unfortunate that these reports were not given the attention that they deserved, in the Planning Commission, The Committee expect that suitable institutional arrangements would be made without delay to ensure that the Reports of the C&AG containing sectoral reviews of implementation of Plan Programme

and presented to Parliament and State Legislatures are studied by the Planning Commission for taking such steps as may be necessary to remove the deficiencies in the system".

[S. No. 53, Appendix III Para 6.9 of 141st Report of PAC (Seventh Lok Sabha)]

Action taken by the Government

The C&AG has been requested *vide* letter No. G. 25015|1|83-IFC dated June 15, 1983 to supply to the Planning Commission three copies each of the supplementary reports of the C&AG on various Irrigation Projects and other sectoral reviews regularly, as and when these reports are brought out, for examination by various Divisions of the Commission. In the Commission itself, suitable institutional arrangements to initiate remedial|corrective action taken on various paragraphs of the Reports of the C&AG|PAC which concern the Planning Commission have been made *vide* Office Memorandum No. F. 3|4|83-Parl., dated May 19, 1983.

(Planning Commission O.M. No. G. 25015|10|83-IFC dated 31-12-83.)

Recommendation

"Monitoring and appraisal plans are the integral parts of Planning Process. In future the Planning Commission should therefore undertake a detailed appraisal of implementation of plan *inter-alia* bringing out the physical and financial targets and achievement 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.

The Committee's labours would not have been in vain if the problems outlined in this Report and suggestions given are pursued with the earnestness that the situation demands.

[S. No. 54 Appendix III, Para 6.10 and 6.11 of the 141st Report of PAC (Seventh Lok Sabha)]

Action Taken

With reference to paragraph 6.10 of the 141st Report of the P.A.C. (1982-83)—Seventh Lok Sabha regarding "Planning Process and Monitoring Mechanism with reference to Irrigation Projects", the following is the position regarding the monitoring and appraisal of Plans in vogue currently.

Beginning with the Third Five Year Plan, Mid-term Plan Appraisals have been carried out for the Third Five Year Plan (1960-65), the Fourth Five Year Plan (1969-74) and the Sixth Five Year Plan (1980-85). The respective Mid-term Appraisal documents were laid on the Table of both Houses of Parliament on 26th November, 1983 for the Third Plan Mid-term Appraisal document, on 22nd December, 1971 for the

Fourth Plan Mid-term Appraisal document, and on the 19th August, 1983 for the Sixth Plan (1980-85) Mid-term Appraisal. These appraisals were also discussed in the Lok Sabha and Rajya Sabha on the following dates :—

Mid-term Appraisal document for the Third Plan

Discussed in Lok Sabha on December 5, 6, 9, 10, 11 and 12, 1963 and in Rajya Sabha on February 20, 24, 25, 26 and 27, 1964.

Mid-term Appraisal document for the Fourth Plan

Discussed in Lok Sabha on April 5, 6, 1972 and in Rajya Sabha on April 11, 12 and 13, 1972.

Mid-term Appraisal document for the Sixth Plan

Discussed in Lok Sabha on December 12, 13 and 14, 1983 and in Rajya Sabha on December 15 and 19, 1983.

As regards the Fifth Plan (1974-79), no Mid-term appraisal was made, but it may be mentioned that the Fifth Five Year Plan 1974-79 document itself was laid on the Table of the Lok Sabha on 25-10-76 and on the Table of the Rajya Sabha on 3rd November, 1976. As may be recalled, the Fifth Five Year Plan document itself in its foreword (being the address of the Prime Minister to the meeting of the National Development Council on 24th September, 1976) mentioned that the presentation of the Draft Fifth Plan had, unfortunately, coincided with a major upheaval on the inter-national economic scene which profoundly affected development and developing countries. The sharp increases in the prices of food, fertilisers and oils seriously upset the assumptions on which the draft Fifth Plan had been prepared and all these developments lent urgency to a time-bound programme for achieving the measures of self-reliance in food and energy, with all other objectives having to be subordinated to the control of inflationary measures caused by domestic as well as international factors. As a result of the success of the measures in combating inflation and some encouraging trends being noticed in the initial years of the Fifth Plan, Government was able to finalise the Fifth Plan, and this was fianally presented to the National Development Council on 24th September, 1976 and thereafter placed before Parliament. Therefore in a sense the Fifth Five Year Plan 1974—79 as finally published after presentation to both Houses of Parliament could itself be considered a Mid-term appraisal with on-course-corrections having been integrated into it.

As regards the recommendation made by the P.A.C. that the detailed appraisal of each Plan should bring out physical and financial targets and the achievements against targets together with reasons for shortfalls in achievements or deficiencies in implementation, it wil be seen that each of the above-mentioned Mid-term Appraisals of the respective Five Year Plans has in fact done this. Also, in the process of framing every

Five Year Plan, on intensive review is undertaken of the areas where corrective action is required arising from the experience of implementation of the current and on-going Plan. In formulatng the new Plan, the necessary changes in policies, or programmes, or priorities are decided upon taking into account the lessions that emerged from such detailed appraisals and reviews. In fact, every one of the Five Year Plan documents from the Second Plan onwards has an introductory portion wherein the achievements of the previous Plan, the current situation and the perspective is discussed in some detail, prior to the setting out of the main Plan frame (and its parameters) and the sectoral development programmes.

[Planning Commission O.M. No. F. 3|10|83-Parl. dated 21-4-1984]

CHAPTER III

RECOMMENDATIONS AND OBSERVATIONS WHICH THE COMMITTEE DO NOT DESIRE TO PURSUE IN THE LIGHT OF REPLIES RECEIVED FROM GOVERNMENT

Recommendation

The Committee find that in several cases the approval by Planning Commission|Ministry of Irrigation was accorded 3-5 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 got cleared from 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 a certain discipline and proper procedure in regard to these things". The Committee consider that any ad-hocism in project selection could be a self-defeating exercise. The Committee are, therefore, strongly of the view that the Planning Commission should be in a position to ensure that the Plan schemes and projects are so selected, that returns, financial, economic and social on utilisation of our scarce resources, are maximised, consistent with the objectives of the Plans.

[Sl. No. 8, Appendix III, Para 2.59 of 141st Report of P.A.C. (Seventh Lok Sabha)]

Action Taken

The Planning Commission has from time to time, reiterated in the circular letters issued to the States that no work in any irrigation project should be taken up by State Governments unless the schemes are approved in accordance with the procedure laid down. Since the State Governments continued to incur expenditure on unapproved schemes, the Planning Commission informed the State that the expenditure incurred on such schemes would not be treated as 'Plan expenditure'. The observation of the Public Accounts Committee contained in para 2.59 of the 141st Report has been conveyed to the State Governments in Planning Commission's letter No. 16(74)|83-I&CAD dated 18th June, 1983.

It has again been emphasised to the States that the prescribed procedure in starting work on major and medium irrigation schemes only after their approval may be strictly followed so that the Plan resources could be allocated to the approved schemes for their speedy completion.

Another suggestion made by the Committee is with regard to the ad-hocism in project selection, which has been termed as a 'self-defeating exercise' by the Committee. At the time of formulation of the Five Year Plans, the States are advised to indicate the inter-se priority of schemes so that the available resources could be allocated to a few projects which could be completed in the shortest possible time, consistent with the availability of financial, material and manpower resources of the States. The same procedure will be followed in the future Five Year Plans so that the projects are selected for implementation consistent with the availability of resources.

[Planning Commission No. G. 25015|4|83-IFC]

Recommendation

Delays in land acquisition impede the speedy execution of irrigation projects. A number of recommendations had been made by the Land Acquisition Review Committee appointed by the Government of India to examine the provisions of the Land Acquisition Act, 1894. These recommendations obviously have not been taken seriously and delays on account of difficulties in land acquisition are a common feature. The Committee understand that a proposal to further amend the Land Acquisition Act is under consideration of the Government of India. The Committee urge that the matter should be reviewed in depth in consultation with the State Governments with a view to obviating costly delays in finalising the land acquisition proceedings.

[S. No. 12, Para 2.63 of Appendix III of 141st Report of Public Accounts Committee (7th Lok Sabha)]

Action Taken

The reasons for procedural delays in the completion of acquisition proceedings and remedies therefor have been discussed in Chapter VII of the report of Land Acquisition Review Committee (commonly known as the Mulla Committee). In the context of acquisition of land specifically for big projects requiring large tracts of land, the Committee has made the following recommendations—

(i) A provision may be made in the Land Acquisition Act, 1894 for a preliminary survey of land before the issue of a notification under section 4 for the purpose of enabling the Government to determine whether land in any locality is needed or is likely to be needed for any public purpose.

(ii) As detailed pre-planning is particularly necessary in case of acquisition of land for big projects, a project notification which should remain valid for a period of 2 years should be issued in order to enable the State Government to complete the preliminaries in the case of acquisition of land for such projects. The land covered by the project notification should be free from all the handicaps and restrictions imposed by acquisition proceedings if the notification under section 4(1) is not issued within a period of 2 years from the date of project notification.

(iii) For completing acquisition proceedings from the date of notification under section 4(1) upto the date of reference to the court an overall time limit of 12 months may be prescribed in the Act. In cases where it is not possible to complete the said proceedings within this period, it may be extended by another 6 months if there are good reasons to be recorded in writing.

The ideas underlying the recommendations of the Committee are unexceptionable. Survey of an area ought to be made before its suitabiilty for a public purpose or a big project is decided upon. This survey, however, should be made by the State Government or the concerned project authorities or both together before the initiation of proceedings under the Land Acquisition Act. It is submitted that the issue of a project notification should not be part of the land acquisition proceedings. For if it is done, it will amount to putting on notice land owners in the concerned area of the likelihood of their land being taken for a project or any other public purpose. Since the land market in the area, prior to the issue of notification under Section 4(1) cannot be frozen, it will provide opportunities for speculative land transactions and boost up prices artificially. The need for speedy action for land acquisition without allowing opportunities for speculative transactions in the land market is likely to be fulfilled by the provision of a definite time-limit for completing all the proceedings between the issue of the preliminary notification under Section 4(1) and the award of the Collector under Section 11.

The recommendations of the Committee were examined in consultation with the State Governments and in the light of these consultations proposals for certain amendments to the Act were made in the Land Acquisition (Amendment) Bill 1982 (Bill No. 67 of 1982) introduced in the Lok Sabha on 30-4-1982. The bill provides for a period of not more than 3 years from the date of publication of the preliminary notification under section 4(1) to the date of the Collector's award under section 11 [allowing a maximum time limit of one year between the issue of the preliminary notification and the declaration under section 6(1), and a maximum time limit of 2 years between this declaration under section 6(1) and the award of the Collector]. A period shorter than this is not considered practicable, nor is it possible to prescribe a time limit for each and every stage of acquisition proceedings.

It may not be practicable to lay down different procedures under the Land Acquisition Act for acquisition of land for different public purposes. Therefore, when land is acquired for a big project, the steps to ensure that the area chosen is suitable and only so much land is acquired as is really likely to be needed for the project, should always be taken as a part of the pre-acquisition exercise. This calls for more systematic planning on the part of the authorities for whom land is being acquired.

[Ministry of Rural Development O.M. No. 15014/1/83-LRD dated the 25th November, 1983]

Recommendation

The Committee understand that in pursuance of the recommendation made at the Fifth Conference of State Irrigation Ministers, a National Water Development Agency has been set up as a registered society with the Union Minister for Irrigation as its President and the Chief Ministers/ Ministers incharge of Irrigation of the concerned State Governments as Members of the Agency. The Agency is expected to facilitate the work of surveys and investigations with regard to the national plan for inter-basin transfer of water according to a time-bound schedule. The Committee expect that this Agency would be provided with the necessary powers and financial/technical back-up needed to facilitate the task of preparation of Master Plans for the States as well as a National Plan for the country as a whole.

[Sl. No. 14, Appendix III (Para 2.65) of 141st Report of Public Accounts Committee (Seventh Lok Sabha)]

Action Taken

The organisational set-up of the National Water Development Agency is having sufficient flexibility to meet the task entrusted to it as the Agency has been set up as an autonomous Society under the Societies Registration Act, 1860. The activities of the Society are controlled by a high powered govering body with Secretary, Ministry of Irrgation as Chairman and Secretaries of concerned Central Ministries, including Ministry of Finance, as Members, which speeds up the decision making process of the Agency considerably. The financial requirements of the Society are fully met by the Central Government by way of assistance in the form of Grants-in-aid. A budget provision of Rs. 3.35 crores is provided for the Agency for the financial year 1983-84 out of which Rs. 65 lakhs have been released so far. There is a provision of Rs. 30 crores for this Agency in the Sixth Five Year Plan under the Central Sector. Similarly, the requisite funds will be provided in the Seventh Five Year Plan for this.

The primary objective of National Water Development Agency is to carry out the surveys and investigations and other related studies for the optimum utilisation of the waters of the Peninsular River System and Southern Trioutaries of Yamuna and to prepare the feasibility reports. The Agency is not entrusted with the preparation of the Master Plans of the Water resources development of individual States but to review them in the overall national interest with a view to preparing the feasibility report for the Peninsular component of the National Plan.

The Agency has requested the State Governments to furnish the Master Plans prepared by them for water resources development of the States.

As pointed out in the note on the action taken on the recommendation at Sl. No. 13 of the PAC, the Central Government have already addressed the State Governments to take expeditious action for the finalisation of

the Master Plan of water resources development of the State. These Plan which finalised, will be made available to the National Water Development Agency. During the second annual meeting of the Society held on 26-9-1983, the Union Minister, Irrigation requested the State Chief Ministers|Ministers present to expedite Master Plans to enable National Water Development Agency to make speedier progress.

[Ministry of Irrigation O.M. No. 5|27|84-WD dated 10-10-1983]

Audit Observation

The facts and figures given by the Ministry could not be vetted for want of files|documents from which these were taken.

Recommendation

"The Committee find that the actual expenditure on irrigation in the First Plan amounted to 19.2 per cent of the total public sector outlay (at current prices). In the subsequent Plan periods this has varied between 10.6 and 11.2 per cent. Central assistance is being given from 1969-70 onwards in the form of block loans and grants covering, among others, irrigation projects also. However, there has been a system of earmarking of Plan outlays for specified projects and schemes including certain irrigation projects, and a shortfall in approved Plan outlays attracts a proportionate cut in the entitlement of Central assistance. Further 10 per cent of total available Central assistance was made over to the States specifically for major continuing irrigation and power, projects upto the Fifth Plan. Apart from the normal Central assistance for the Plan. States have been given since 1975-76 additional central assistance for externally aided projects in the irrigation and Command Area Development (CAD) sectors amounting to Rs. 319.53 crores, bulk of which (Rs. 214.09 crores) was given during 1980-81 and 1981-82".

"Having regard to the need to avoid thin spreading of resources and the serious delays in implementation of major projects the Committee recommend that a portion of Central Plan assistance should continue to be earmarked for continuing major irrigation and power projects."

[S. Nos. 17 and 18, Appendix III, Paras 2.82 and 2.83 of the 141st Report of Public Accounts Committee (1982-83) (Seventh Lok Sabha)]

Action Taken

Central assistance for State Plans is distributed on the basis of the Modified Gadgil Formula as approved by the National Development Council at its meeting held in August, 1980. The criteria embodied in the formula are as under :

1. The requirement of Special Category States is first pre-empted out of the total pool of Central assistance;

2. The balance Central assistance is distributed among the non-special category States on the following principles :

(i) Population	60 per cent
(ii) Tax effort	10 per cent
(iii) Assistance to States having per capita income below the national average.	20 per cent
(iv) Special problems	10 per cent
Total	100 per cent

The formula in its present form does not provide for earmarking of any percentage or amount for continuing major irrigation and power projects. Any change in the criteria embodied in the present formula is the prerogative of the National Development Council. In this connection it may be pointed out that the National Development Council at its meeting held on 8th and 9th November, 1985 considered and approved the Draft Seventh Five Year Plan (1985-90). Keeping in view overall considerations, the council also approved the Seventh Plan allocation of Central assistance for the State Plans worked out on the basis of the existing formula viz. the Modified Gadgil Formula.

[Planning Commission O. M. No. 11|7|84-FR dated 24th February, 1986]

Recommendation

Suggestions have been given from time to time regarding the need to provide for the anticipated escalation in the Plan so that the physical targets and construction programmes of the projects proposed in the Plan are achieved. These have not been found acceptable *inter-alia* because it is not possible to predict with any degree of precision the behaviour of prices from year to year. It is also apprehended that building in the price rise in the Plan estimate is likely to generate the psychology of inflation and inflationary expectations and as such is would be "a risky venture". While the Committee would not like to go into the merits of this issue, they consier that the least that can be done in this regard is to update the estimates in time and make necessary provision therefor, from year to year. The Committee urge that at the time of Annual Plan discussions this aspect should be thoroughly gone into and it should be ensured that the on-going projects receive necessary funds to maintain the tempo of development.

[Sl. No. 22, Appendix III, para 2.104 of 141st Report of P.A.C. (Seventh Lok Sabaha)]

Action Taken

Although provision for price escalation is not built into the plan outlays, the increase in the cost of projects due to change in scope as also due to rise in cost of materials and wages is duly considered at the time of deciding the financial allocation for irrigation projects for the year at the time of the Annual Plan discussions held in the Planning Commission with the officials of the State Governments and the Central

Ministries concerned. The schemewise outlays to be provided are discussed in detail in the Working Group on Irrigation and Flood Control at the time of the discussions and the updated costs of projects are duly considered in order to provide adequate outlays, particularly for on-going projects, for completion within a reasonable time. If the revised estimated cost of projects is more than 10 per cent of the cost as originally approved by the Planning Commission, the need is impressed upon the representatives of the State Governments to submit the revised estimate for examination by the Central Water Commission, review by the Advisory Committee on Irrigation, Flood Control and Multipurpose Projects and acceptance by Planning Commission. This practice will continue to be followed with a view to ensuring provision of necessary funds for completion of on-going projects within a certain time-frame. As a result of the detailed review carried out during the Annual Plan discussions, it has been found in the past that, in the annual allocation of resources, the bulk of the outlay is provided for completion of on-going schemes.

[Planning Commission No. G. 25015|3|83-IFC dated 22-12-83]

Recommendation

The Committee find that in pursuance of the recommendations of the Neeganwala Committee, State Level Cost Control Cells Cost Engineering Cells have been set up in a few States in order to help in controlling costs and keeping the estimates upto-date. Similar cells have been set up at the project level also in certain States. The Committee trust that adequate care will be taken in staffing of such cells with qualified personnel. The Committee would urge that the States which have not so far set up such cells should be persuaded to do so in the interest of better project planning and for inculcating cost consciousness at all levels. The Planning Commission should, therefore, take up this matter with the State Governments concerned in all earnestness.

[Sl. No. 23, Appendix III Para 2.105 of 141st Report of the P.A.C. (Seventh Lokk Sabha)]

Action Taken

The Planning Commission issued a circular letter No. 16(74)|83-I&CAD dated 20-12-1983 requesting all State Governments to set up cost control cells at the State|Project level for irrigation projects at the earliest. Five States viz., Uttar Pradesh, Gujarat, Goa-Daman and Diu, Maharashtra and Haryana had replied while the States of Assam and Tamil Nadu had only acknowledged the receipt of this circular. State representatives were requested at different forums including Annual Plan discussions for expediting the creation of such cells. A reminder is being issued separately to those States who have not yet set up such cost control cells for irrigation projects or they have not yet replied. The replies of the States received on the above mentioned suggestion are mentioned as follows :—

(A) *Uttar Pradesh*

Monitoring Cells have been set up in Sarju Nahar Pariyojana, Sharda Sahayak Project, Madhya Ganga Nahar Stage-I. These cells would look after work of cost control also.

(B) *Gujarat*

Cost Control Cells, one at state level and two at project levels i.e. one each at Damanganga Project and Karjan Project are functioning since August, 1980. The action for establishing project level Cells for Sukhi, Sippu and Zankhari Projects is under process.

(C) *Goa, Daman & Diu*

The Central Planning Organisation of Irrigation Department of this administration will look after the work of irrigation project including the rates and cost estimates. The Administration felt that there is no need to set up separate Cost Control Cells in the Union Territory.

(D) *Maharashtra*

All possible reasons for the increase in the cost of project are usually gone into and analysed while seeking revised Administrative Approval to the project. These are scrutinised at the State level in the Irrigation Department by the Project Branches and got cleared from the Finance Department. Moreover, the yearly schedule of rates at the state level are decided by the Committee under the chairmanship of the senior most Chief Engineer which will be really useful in monitoring and controlling the cost of the projects.

(E) *Haryana*

A project circle headed by a Superintending Engineer is already in existence to look after cost control aspect of each project estimate costing more than Rs. 30 crores.

[Planning Commission U.O. No. 16(74)|84-I&CAD dated 23-1-1986.]

Recommendation

So far as the under utilisation of the potential under major|medium irrigation to the extent of 4 million hectares is concerned, the Committee have been informed that it has not been possible to utilise fully the potential created because of the difficulties faced by farmers in the levelling of their lands, in construction of field channels and supply of other inputs for irrigated agriculture. The Committee wish to clarify that apart from the lag in the development of the command, the availability of water in storage reduced by siltation and loss of water in transmission by seepage also contribute in no small measure to this phenomenon. The Committee have dealt with these problems in some detail in the succeeding sections of this report. The situation calls for an integrated and inter disciplinary view of the irrigation projects even at the initial project formulation stage. Command Area Development should form an essential part of this and maintenance of irrigation system should received adequate attention.

[Sl. No. 27, Appendix III, para 3.27 of the 141st Report of the Public Accounts Committee, 7th Lok Sabha]

Action Taken

Since the Committee have observed that the problems mentioned by them have been dealt with, in some detail, in the succeeding sections of the Report, no specific action is called for on this recommendation.

In regard to the observation for the need for an integrated inter disciplinary view, the project formulation stage itself, it may be mentioned that the guidelines issued by the Central Water Commission do require of the Irrigation Departments of the State Governments that they should consult, sister departments concerned wih Soil Conservaion, Soil Survey, Crop Sciences, etc. and then formulate their project proposals. Command Area Development measures like land levelling, construction of field channels and of field drains, are to be taken into account while estimating the total cost of an irrigation project. In regard to the observation that maintenance of irrigation system should receive adequate attention, the action taken note on recommendation No. 29 may kindly be seen.

[Ministry of Irrigation O. M. No. 14-1-83-Coord, dated 9-2-1984]

Recommendation

A study made by the Planning Commission with regard to the shortfall in production of foodgrains consequent upon the non-materialisation of the irrigation potential to the targetted levels, shows that the cumulative loss since the commencement of the First Plan is in the region of 23 to 30 million tonnes. However, according to the Planning Commission, these calculations suffer from a bias towards exaggeration since they are based on the assumption that corresponding supply of fertilizers, seeds and credit in agriculture and cement, steel and other major inputs in construction of the irrigation sector would have been fully adequate. From a general view of the earlier plans, however, this would appear to be an unrealistic assumption.

The fact cannot be disputed that the loss to the country both on account of non-materialisation of targets of creation of irrigation potential as well as non-utilisation of the irrigation potential already created, is bound to be colossal. The Committee, therefore, urge that the ongoing old projects should be completed without further delay and the scope of augmenting production in the irrigated areas and devising measures to facilitate optimum utilisation of the available irrigation potential should be identified early and action initiated as part of our planned endeavour.

[S. No. 42 Appendix III of 141st Report of PAC Seventh Lok Sabha]

Action Taken

The question of improving utilisation of potential created has been engaging the attention of Government of India for quite some time. In 1972, the Government of India constituted a Committee of Ministers to examine this problem in depth. Consequent to its report in 1972, Command Area Development Authorities were created which are charged

with the task of utilisation of irrigation potential in the projects in their charge by taking action to remove the various constraints. In addition, this question is being discussed in the various regional and other meetings with the State Officers from time to time, including Irrigation Ministers' Conferences.

As regards the recommendation that ongoing old projects should be completed, the Action Taken Note on Recommendation No. 3 (para 2.49 to 2.51) may kindly be seen.

Measures to improve utilisation of created irrigation potential were also discussed in a meeting of Secretaries taken by the Cabinet Secretary on the 15th March, 1983. As a result of the discussions, a Task Force under the Chairmanship of Secretary, Department of Agriculture and Cooperation was constituted ti make an indepth study and submit their report on :

(i) Changes in irrigation practices and procedure in consonance with the requirement of modern agriculture.

(ii) Steps required to bring out a more meaningful inter-action between water resources Managers and Agricultural Scientists| Agronomists to ensure that more water leads to higher productivity.

The Task Force was also requested to visit three-four projects|command areas to arrive at their formulations. This Task Force had since submitted its report to the Government.

A Group has also been set up in April, 1983 in the Planning Commission chaired by Secretary (Planning) with Secretaires of Agriculture, Irrigation now Water Resources, Expenditure, Rural Development and Agricultural Research and Education as members to go into :—

(i) The time-frame|phasing|financing of the programmes of construction of water courses, field channels and for reduction of conveyance losses.

(ii) Monitoring of the impact of the three programmes outlined in (i) above.

(iii) Processing the report of the Task Force on the steps required to strengthen the links between potential creation, utilisation and higher productivity.

The Group has met thrice and has considered the various issues referred to it, including the recommendations of the Task Force headed by the Secretary, Department of Agriculture & Cooperation and have given guidelines for its implementation.

It will thus be seen that every possible effort is being made to see that the gap in utilisation in irrigation projects is reduced.

[Ministry of Water Resources O.M. No. 14|1|83-Coord dated Dec. 1986]
Recommendation

Recommendation

According to the data made available to the Committee the lag in utilisation of potential under major/medium irrigation is to the extent of 4 million hectares. This, according to the Committee, is an understatement having regard to the reduction in storage on account of faster siltation and greater loss of water in transmission than anticipated. Further the claim that there is 100 percent utilisation of the minor irrigation potential of 30 million hectares appears to be presposterous. The experience of the common cultivator with regard to operation of tubewells is altogether very sad. No estimate is available of the extent of the loss to the country on account of actual under-utilisation of the irrigation potential created. There can, however, be no doubt that this is quite substantial.

[S. No. 49 Appendix III (para 6.5) of 141st Report of PAC (Seventh Lok Sabha)]

Action Taken

The purport of this recommendation is similar to that of recommendation No. 42. Action taken note against that para is relevant here also.

[Ministry of Irrigation O.M. No. 14/1/83-Coord, dated the February 1984]

Recommendation

At the macro level, there is urgent need to revise the priorities to concentrate on ongoing projects and consolidate the gains by developing Command Areas. At the micro level the project planning, implementation, monitoring and evaluation need to improve. There has to be an interdisciplinary approach for an integrated view to make the project a success and to create conditions in which the benefits could be optimised. Though Irrigation and Agriculture are State subjects the Centre has responsibility for overall planning, financing and monitoring as well clearace of individual plan projects besides technical guidelines and coordinating supply of inputs.

[S. No. 52, Appendix III, Para 6.8 of the 141st Report of the Public Accounts Committee, (7th Lok Sabha)]

Action Taken

The observations of the Committee have been the subject of specific recommendations in the earlier chapters of the Report. As regards the need for concentration on the completion of ongoing projects, the action taken note on recommendations No. 3 and 5 may kindly be seen. Insofar as monitoring of projects is concerned, the action taken note on recommendation Nos. 44 and 45 are relevant. Interdisciplinary action at the time of project formulation is the subject of action note on recommendation No. 27. The Ministry of Irrigation had set up a High Level Committee on Organisation Set up of Command Area Development Programme in Major & Medium Irrigation projects and Creation of a water Management

and Land Development Wing in State Irrigation Departments. In its report, submitted in September, 1982, this Committee has recommended the setting up of multidisciplinary teams at the project and State levels for the efficient management of irrigation systems. The report of the Committee has been forwarded to the State Governments for their consideration.

[Ministry of Irrigation O.M. No. 14|1|83-Coord dated 9-2-1984]

CHAPTER IV

RECOMMENDATION AND OBSERVATION REPLIES TO WHICH HAVE NOT BEEN ACCEPTED BY COMMITTEE AND WHICH REQUIRE REITERATION.

Recommendation

At the commencement of the First Plan, the country had a total irrigation potential of 22.67 million hectares (9.7 m.h. under major medium irrigation and 12.9 m.h. under minor irrigation. During the period 1951-82 Rs. 16,047 crores have been invested on development of major, medium and minor irrigation facilities—Rs. 10,096 crores on major and medium irrigation and Rs. 5951 crores (including institutional outlays of Rs. 2,840 crores) on minor irrigation. The comulative target for creation of irrigation potential during this period was 59.57 m.h. (29.10 m.h. unedr the major and medum irrigation and 30.47 m.h. under minor irrigation) whereas the potential created was only 38.98 m.h. 18.98 m.h. under major|medium irrigation and 20 m.h. under minor irrigation). This represents a shortfall of nearly 33 per cent.

In reply to Unstarred Question No. 2419 given to the Lok Sabha on 8 March 1982 the Minister of Irrigation had confirmed that the target of providing irrigation to 5 million hectares during the period 1975-76 to 1978-79 had been fulfilled. From the statement appended to the reply the Committee find that the additional potential created during this period from major and medium irrigation schemes was 4.78 million hectares from continuing schemes and 302 million hectares, from new schemes, making a total of 5.082 million hectares. The Secretary, Ministry of Irrigation however informed the Committee during evidence that the potential achieved in the 4 years, 1975-76 to 1978-79 was 4.356 million hectares. He admitted that "there might have been some error in the reply given to Lok Sabha". In a further note on the subject the Ministry of Irrigation have tated :

> "The error in the reply to the above unstarred question answered in Lok Sabha on 8 March, 1982 came to notice during the oral evidence before the Public Accounts Committee. On verification it has been found that while giving the reply to the above question the figures of targets potential for the period 1975-76 to 1976-79 had been furunished instead of the actual achievements. A correction statement is also being sent to the Lok Sabha Secretariat in this regard. On the basis of information available prima facie it is an error through oversight by the Officers who dealt with the reply of the Parliament Question."

The Committee view with serious concern that wrong information was supplied to the Prime Minister and the same was given in a written reply to a question in Lok Sabha by the Minister of Irrigation. The Committee would like the responsibility to be fixed for the cross-examination of the officials by the Committee. The Committee would like to be apprised of the action taken in the matter as early as possible.

[S. No. 1 Appendix III (Paras 2.45 to 2.47) of 141st Report of Public Accounts Committee, (7th Lok Sabha)]

Action Taken

As reported to the Committee, the matter was investigated and it was found that due to an inadvertant error, the figures relating to target of potential were reported as against the figures of potential created. Apart from forwarding a correction statement to the Lok Sabha Secretariat, a circular was also issued to all the Officers of the Ministry directing them to take utmost care in preparing replies to Parliament Questions and ensure that no errors occured in the replies.

[Ministry of Irrigation O.M. No. 14|1|83-Coord. dated February, 1984]

Recommendation

The Committee observe that out of a total of 205 major irrigation projects taken up since Independence only 29 had been completed till the end of 1979-80. In regard to medium irrigation, the number of projects taken up was 916, of which only 469 could be completed during this period. Even after making allowance for hte normal gestation period of 10-12 years for major projects, the Committee find that at the commencement of the Sixth Five Year Plan, there were as many 58 projects started before 1969 that remained to be completed. Of these, 11 projects were carried over from the First Plan (1951-56), 13 from the Second Plan (1956-61), 24 from the Third Plan (1961-66) and 10 projects from the Annual Plans (1966-69). The Committee have been informed that out of 172-on-going major schemes, 88 are likely to be completed during the Sixth Plan while the rest 84 will spill over into the Seventh Plan.

Admittedly not a single project in the irrigation, power or flood control sectors has been completed within the time schedule and within the estimates. From the details of cost of on-going major irrigation schemes of the Sixth Plan (Appendix I), the Committee find that the latest cost estimate is of the order of Rs. 11,680 crores i.e. an increase of 290 per cen over the original estimate of Rs. 4,025 crores, 32 of these projects have shown cost overruns of 500 per cent or more.

The Committee consider this situation to be highly unsatisfactory. The Committee urge that topmost priority should be given during the Sixth Plan for schemes undertaken during the first three plans and it should be ensured that these are completed without delay and without further cost escalation.

[S. No. 3 Appendix III Para 2.49 and 2.51 of 141st Report of Public Accounts Committee Seventh Lok Sabha)]

Action Taken

The State Governments were addressed *vide* D.O. No. 2|5|83-P, II dated 2-9-1983 in respect of major irrigation projects and No. 2|5|83-P. II(B) dated 23-9-1983 in respect of medium projects taken up prior to 1969, requesting allocation of full requirement of funds for their completion during the Sixth Plan period itself. As per informtaion available, out of 58 major projects brought to the notice of concerned State Governments, 26 were completed during the Sixth Plan period. Further, out of 17 medium projects brought to the notice of State Governments, 5 have been completed. The remaining major and medium projects have spilled over in to the Seventh Plan period. The strategy adopted for the Seventh Plan is to complete all the ongoing schemes, particularly those which are at an advanced stage of completion.

[Ministry of Water Resources O.M. No. 14|1|83-Coord. dated December 1986]

MINISTRY OF WATER RESOURCES

Recommendation

One of the strategies|priorities of the Sixth Five Year Plan in the irrigation sector is preparation of State-wise Master Plans and compilation of all investigations by 1989-90. Not a single State has, however, been able to prepare such a plan pending completion of investigations needed therefor. The Committee trust that the State Governments would realise the desirability and the urgency of preparing such plans in the interest of orderly and phased development of the precious water resources. The expert assistance of the Central Water Commission should be made available to the States in this task in an increasing measure.

[S. No. 13, Appendix-III (Para 2.64) of 141st Report of PAC -(Seventh Lok Sabha]

Action Taken

A.D.O. letter was sent on 7-9-1983 by Central Water Commission from Member (WR) to all Irrigation Secretaries of the State Governments and to the Union Territories. Only 8 out of 23 States acknowledged the receipt of the above mentioned D.O. but so far none of the States has furnished the requisite Master Plan in pursuance of the above mentioned D.O. The State of Meghalaya has informed that no irrigation scheme has yet been commissioned in the State. The State of Maharashtra has intimated that the basinwise revised Master Plans are under preparation.

Earlier the Working Group for Sixth Plan has also suggested preparation of Master Plans for irrigation development by the end of 1980 itself. The Working Group for VII plan has suggested that a High Level Committee in Central Water Commission has to be formed to provide necessary expertise and advice, so that Master Plans of all the States became available by the end of the Seventh Plan.

In the meantime the National Water Development Agency (NWDA) set up in July 1982, has undertaken water balance studies of peninsular river basins, by taking into consideration the Master Plan proposals and studies made by the State Governments.

In the background note placed before the first meeting of the National Water Resources Council held in October 1985, the importance of a comprehensive Master Plan for each river basin to cover the entire range of water use and management activities was duly stressed. This was also generally agreed to by most of the States. The National Water Policy document to be placed before the Council would take due note of the need for Master Plans for suitable incorporation.

[Ministry of Water Resources O.M. No. 14|1|83-Coord. dated December 1986]

Recommendation

The Second Irrigation Commission (1972) had expressed the view that while domestic requirements should have the highest priority for allocation of water followed by industry and then by irrigation. The Commission, however, felt that between irrigation and power generation, priority should be given to irrigation. It has been represented to the Committee that "hydel power generation often leads to wastage of water. Needs of cultivators for water and those of industries for power never match..... In a single year Chambal Power House released water as much as one MAF (1|3rd of the normally stored water), carrying with it an irrigation potential of 3 to 4 lakh acres. Many reservoirs like Rihand are meant only for power generation and their releases even do not match with the irrigation needs down stream.....In hydel projects we lose precious water that would otherwise have irrigated large areas of land." The Committee have been informed that though irrigation is accorded priority for use of available water, hydel power generation is equally important to meet the peak load demand of power system. "A happy blending of meeting the conflicting requirements of water for irrigation and power has to be evolved through system studies and the overall regulation plan so as to ultimately meet the needs of irrigation without undue wastage".

While agreeing with the above approach enunciated by the Ministry of Irrigation, the Committee consider it extremely essential that a well defined national water policy is enunciated so as to provide for a balanced development of the water resources and their utilisation in the larger national interest. The Committee trust that the National Water Resources Council proposed to be se up in pursuance of the recommendation of the National Development Council would address itself to this task as a first priority.

[S. No. 32, Appendix III (Paras 3.49 to 3.50) of 141st Report of PAC (1982-83) (Seventh Lok Sabha)]

Action Taken

Ministry of Water Resources have constituted the National Water Resources Council on 26th March, 1983, under the chairmanship of the Prime Minister. One of the functions of the Council is to lay down the National Water Policy and to review it from time to time. The first meeting of the National Water Resources Council was held in October 1985. The Council was unanimous that water should be treated as a precious and scarce national resource and dealt with as such, and that there was urgent need for the formulation of a national policy with a view to ensuring an optimal use of the available water resources in the overall national interest. Accordingly, it was decided to set up a group under the chairmanship of the Union Minister of Water Resources to prepare a national water policy document for consideration by the Council.

[Ministry of Water Resources O.M. No. 14|1|83-Coord. dated December, 1986]

Recommendation

The Committee understand that the cost of ayacut development is not being taken into account for assessing the cost benefit ratio though a recommendation to this effect was made by the Irrigation Commission (1972). A Committee to review the criteria adopted for determining the costs and benefit of irrigation projects was constituted by the Planning Commission in December 1981. The Committee would like to be apprised of the action taken in pursuance of the findings of this Committee. The present practice of imputing the net increase in the yield in the command to irrigation alone is obviously incorrect. It is necessary to take into account on the cost side all the inputs that go to increase the yield e.g. agricultural research and extension, agricultural credit, ayacut development, etc. cost benefit analysis of projects should necessarily be preceded by socio-economic survey of the Command Area.

[S. No. 36 Appendix III para 4.11 of the 141st Report of PAC Seventh Lok Sabha]

Action Taken

The Committee's report recommends data collection by the Indian Council of Agricultural Research (ICAR) in respect of crop yields according to different agro-climatic zones of the country, indicating the research stations relevant for such zones. It was suggested that the estimates may be based on the costs of cultivation surveys sponsored by the Deptt. of Agriculture. The costs of cultivation studies could be carried out by the Department of Agriculture in regions where the data was not adequate. In order to facilitate understanding the revised methodology proposed by the Committee, it had recommended that the project Appraisal Division of the Planning Commission may prepare one or more detailed case studies to illustrate its application.

The Committee had recommended the Discounted Cash Flow (DCF) Method to calculate the Internal Rates of Return rather than the present value at a given discount rate. For selection of a project it has recommended a minimum cut-off rate of 9 per cent in general areas and 7 per cent in respect of drought prone, chronically flood-affected and hilly areas as well as for those areas in which 75 per cent of the dependable flow has been utilised.

The Committee has suggested that the project cost should take into account for benefit--cost analysis, the cost of irrigation upto the field level, the cost of on-farm development required for the utilisation of irrigation water, the costs of providing drainage facilities in the command area and the economic and psychic costs associated with the displacement of persons in the submerged areas. However, the costs of providing extension services, credit and input supply, marketing, etc., has not been suggested to be taken into account as these are generally required to be incurred both for irrigated and unirrigated areas.

The findings of the Committee are being examined in the Ministry of Irrigation and the Planning Commission in consultation with the States.

[Ministry of Irrigation O.M. No. 14|1|83-Coord, dated Feb.' 84.]

Recommendation

In this context, the Committee note with concern that so far no indepth study has been carried out with a view to finding out the productivity level in irrigated areas, *vis-a-vis*, unirrigated areas. This is necessary at least to know the extent to which production could be increased by providing further irrigation facilities.

As stated by the Planning Commission, an indepth study in this regard is necessary at the regional and State levels for different crops and for different agro-climatic conditions. In the view of the Planning Commission, such a study should be undertaken by a multi-disciplinary group under the aegis of institutions like the Indian Council of Agricultural Research and the agricultural universities. Since the Ministry of Irrigation is also looking after the Command Area Development activity, the Planning Commission consider that it will be appropriate that the study is coordinated by the Ministry of Irrigation. The Committee urge that the study should be initiated forthwith.

The Committee are surprised to learn that the 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.

[Sl. No. 39 and 39, Appendix III, Para 4.24 and 4.26 of the 141st Report of the Public Accounts Committee, 1982-83, 7th Lok Sabha].

Action Taken

For constituting the multi-disciplinary group, as recommended by the Committee, the Ministry of Agriculture and the Planning Commission have been requested to nominate the officers for the Group.

The Group of officers will also be directed to report on the procedure to be advised to the State Governments for regular compilation of data for comparing benefit actually derived with that anticipated when the project was formulated.

[Finistry of Irrigation O.M. No. 14|1|83-Coord. Dated 9-2-1984]

Action Taken by Ministry of Agriculture

In order to implement the recommendations made by the Public Accounts Committee, the Directorate of Economics & Statistics, Ministry of Agriculture, took up (28th September, 1983) the matter with the National Sample Survey Organisation (NSSO), Department of Statistics, who provided technical guidance to the State Governments in the matter of crop estimation surveys, and advised them to initiate action for estimation of crop yield in the command areas of irrigation projects. The NSSO had addressed (19th October, 1983) a communication to all the State Agricultural Statistics Authorities (SASA) to ascertain the details of any special surveys conducted by them in the command areas to assess the yield of the crops.

2. On the basis of the information received by the NSSO, in Andhra Pradesh, the Command Area Development Department conducts separate crop estimation surveys for 7 principal crops, *i.e.* rice, jowar, bajra, maize, groundnut, cotton and chillies. Currently, such surveys are carried out in four commands, *i.e.*, Nagarjuna Sagar Project—Right and Left,Tungabhadra Project and Srirama Sagar Project. The crop cutting experiments conducted by the Command Area Development Department in these four commands have been integrated with the General Crop Estimation Surveys (GCES) conducted by the State Bureau of Economics & Statistics so as to avoid any overlapping of the areas from which samples are drawn. In addition to the usual sample of two plots drawn from each selected village, the yield of the best plot is also reported in case of Command Areas.

It is also learnt that special crop cutting surveys are being conducted in Jammu & Kashmir to know the impact of Command Area Development Programme. The sample size for this survey is taken as a matching sample from the GCES.

3. On the basis of the replies received by the NSSO, it transpired that some States like Haryana, Himachal Pradesh, Kerala and the Union Territory of Pondicherry are not conducting any such surveys to assess the yield of crops in the commands of irrigation projects. Replies from other States are awaited.

4. The Directorate of Economics & Statistics have again requested (4th January, 1984) NSSO to advise the various State Governments to take up the crop estimation surveys in irrigation commands as part of General crop estimation surveys or independently on a regular basis and provide the necessary technical guidance in this respect. The matter would be pursued with the NSSO and the States so that a regular reporting system is established for estimating yields of crops in the commands of irrigation projects.

[(Min. Deptt. of Agriculture & Cooperation (Directorate of Economics & Statistics) O.M. No. 1-3|83(AS)(Com.)-ES dated 4-1-1984)]

Recommendation

"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 multipurpose 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 multipurpose river valley projects. In the successive Five Year Plans, the Planning Commission have been emphasising the need for revision of the rates with a view to cover at least the maintenance, operation and depreciation charges and also yield some interest on the capital. The Committee find that the National Development Council have also been exercised over the matter. However, the resolutions passed by the Council have remained only a pious wish and the losses on the irrigation and multipurpose river valley projects continue to mount.

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. It was therefore emphasised that the irrigation system should no longer be a burden on the State's finances. Again, the Sixth Plan stipulates that the minimum objectives should be to set rates at levels so as to cover the working expenses and bring additional resources to the tune of Rs. 325 crores over the Plan period. The Committee find that the cumulative losses were of the order of Rs. 2053 crores between 1975-76 and 1981-82. Obviously, this situation cannot and should not be allowed to continue in the development schemes in this vital area of our economy have to be pursued with the earnestness that is called for to make up for the heavy shortfalls caused by paucity of resources. The Committee see no reason why the big land owners who are the principal beneficiaries of the irrigation facilities, should continue to be subsidised any longer though it may be justified in the case of small and marginal farmers and share-croppers. The Committee would therefore like this matter to be thrashed out at the next conference of Chief Ministers so that the oft-repeated exhortations of the planners are translated into action without further loss of time."

[S. No. 43, Appendix III, Paras 4.39 and 4.40 of the 141st Report of Public Accounts Committee (1982-83) (Seventh Lok Sabha).]

Action Taken

The Seventh Five Year Plan has stressed upon the need for undertaking measures for minimising irrigation losses. The draft Seventh Plan document has pointed out that :

"Among the departmental enterprises of the State Governments, receipts from multipurpose, major and medium irrigation works are expected to fall short of working expenses by Rs. 966 crores over the Seventh Plan period. Water rates need to be fixed at reasonable levels so as to reduce the recurring burden of subsidies to irrigation works on the States' current revenues. During the Sixth Plan, the States have raised not more than Rs. 79 crores through revision in the irrigation rates against the target of Rs. 325 crores. During the Seventh Plan period, the States have necessarily to raise the irrigation rates with a view to covering at least the working expenses."

The National Development Council which met on the 8th and 9th November, 1985 has approved the Draft Seventh Plan and has thus endorsed the above approach.

[Planning Commission O.M. No. 11|7|84-FR dated]

Recommendation

The first Conference of State Irrigation Ministers held in 1975 had recognised the importance of monitoring and evaluation of Plan Projects. The Conference had recommended the setting up of an effective monitoring organisation at project, State and Central levels. Accordingly a Central Monitoring Cell was set up in the Central Water Commission in August 1975. Over the years, the Cell has been strengthened and at present it monitors 66 selected major irrigation projects in the country. The Committee, however, find that the progress in setting up the monitoring organisations at the project and State levels has been lagging behind in certain States. The Sixth Five Year Plan document has also pointed out that adequate organisation and systems do not exist at present for monitoring and evaluation of Plan projects and programmes at different levels. While certain States have created monitoring Cells, they have been given additional duties. In certain other States, like Karnataka and Jammu and Kashmir, the Planning Departments are carrying out the task of monitoring also. The Committee understand that a proposal for providing matching assistance to the extent of 50 per cent for setting up monitoring organisations at the State and project levels was submitted to the Planning Commission but was not found acceptable as the policy is not to increase the number of centrally sponsored programmes.

The Committee need hardly stress the importance and the necessity of setting up monitoring cells at the State and project levels for concurrent evaluation and monitoring of the progress of various projects taken up under the Five Year Plan to enable timely on course corrections. The

Committee therefore desire that the question of setting up such organisations should be pursued vigorously with the State Governments concerned.

[S. No. 44 Appendix III Paras 5.11 & 5.12 of 141st Report of PAC (Seventh Lok Sabha)

Action Taken

The observation of the Committee were communicated to the State Governments urging them to set up Monitoring Cells at the Project level and at the State level, wherever not established so far, and wherever already set up to ensure that these Cells were not burdened with any other work so that these Cells could concentrate on monitoring of the projects. In reply, the State Government of Meghalaya and the Union Territory Administrations of Chandigarh, Dadra and Nagar Haveli, Delhi and Lakshadweep have informed that as there are no major or medium irrigation projects, there is no need to set up Monitoring Cells at this stage. The State Government of Maharashtra have stated that a monitoring Cell in the State level has been set up, besides creation of 8 posts of Field Chief Engineers with their offices at Divisional Headquarters for ensuring closer control on execution, including monitoring of projects. The State Government of Uttar Pradesh have stated that there is a Monitoring Cell at State level and three at Project level. The State Government of West Bengal have informed that a State level Monitoring Cell headed by a Director assisted by 5 Deputy Directors has been set up. The Government of Kerala has set up a Secretarial Level Committee. The Andaman & Nicobar Administration have also set up a monitoring cell. The replies from the remaining State Governments|Union Territories' Administrations are awaited.

[Ministry of Water Resources O.M. No. 14|1|83-Coord. dated December, 1986]

Recommendation

The Second Irrigation Commission has recommended the setting up of a Control Board for all large inter-state projects and State projects costing Rs. 50 crores or more, with a view to promote the best use of man power and equipment. It was further recommended that these boards should be delegated maximum powers and the Boards in turn should be liberal in delegating powers to the Chief Engineers of projects in the interest of efficiency. The Committee find that in pursuance of the recommendation Control Board have been set up for the three projects handled by the Ministry of Irrigation, viz., Betwa River Board, Bansagar Control Board and Mahi Control Board. The Government of India is also represented on 8 other Boards set up by the State Governments. Two inter-State Control Boards have been set up bilaterally by the States. The Government of Madhya Pradesh has set up a Control Board for all major projects in the State, in respect of other projects, no information is available with the Government of India as to the reasons why the State Governments have not found it necessary to set up such Control Board.

Delays in decision-making at various levels have been a common feature in the execution of various projects. Adequate delegation of financial powers has been emphasised from time to time, viz., by the Third Irrigation Ministers Conference held in 1977 and by the Working Group constituted by the Planning Commission in May, 1980. However, the progress in this regard does not appear to be very encouraging. The Committee would like the matter to be pursued with the State Governments concerned. So far as major irrigation projects are concerned, the Committee consider it imperative that Control Boards comprising representatives of the Central and State Governments and other agencies concerned are set up without loss of time. The question of delegation of adequate powers to these Boards as well as to the Chief Engineers of the projects in the interest of their speedy execution should be pursued vigorously both by the Planning Commission and the Ministry of Irrigation.

[S. No. 45, Appendix III, Para 5.13 & 5.14 of 141st Report of PAC (Seventh Lok Sabha)]

Action Taken

The question of setting up of Control Boards was taken up with State Governments in August, 1983. In response, the Government of Karnataka have stated that since there already exists a Major Irrigation Projects Control Board in the state with sufficiently vast functions for speeding up the construction activities, it is not felt necessary to set up Control Boards for each project costing more than Rs. 50 crores. The State Government of Manipur have replied that a Control Board for Thoubal and Khuga projects was set up in November, 1982. The State Government of Kerala have accepted the recommendation. Response from remaining States is awaited.

[Ministry of Water Resources O.M. No. 14|1|83-Coord. dated December, 1986]

CHAPTER V

RECOMMENDATIONS AND OBSERVATIONS IN RESPECT OF WHICH GOVERNMENT HAVE FURNISHED INTERIM REPLIES

Recommendation

There has been general criticisms that persons entrusted with responsibility for planning, investigating and designing of projects are not most competent. The Committee would stress that carrier prospects and other material incentives should be such as would attract talent in this area. They desire that the Ministry of Irrigation should evolve a model personnel policy in this regard in consultation with the Department of Personnel & Administrative Reforms and command to the States for adoption so that this significant lacunae in the planning process could be removed.

[Sl. No. 16, Appendix III, Para 2.76 of 141st Report of Public Accounts Committee (Seventh Lok Sabha)]

Action Taken

The suggestion of the Committee is noted for consideration. A Personnel Policy Paper for attracting competent Engineers for the investigation, planning and designs of Irrigation Projects is being considered. However, these will involve decision on various aspects, its finalisation would take some time. It may be that Department of Personnel and Administrative Reforms may also have to be consulted.

[Ministry of Irrigation O.M. No. 14|1|83-Coord. dated February, 1984]

Recommendation

As regards criteria for investment, unlike in the case of Public Sector Industrial Projects, no minimum economic rate of return is applied by the Planning Commission for clearance of Irrigation Projects. Having regard to the need to ensure optimum use of scarce resources, the Committee recommend that suitable criteria for investment in irrigation facilities should be evolved.

[S. No. 34, Appendix III, Para 4.9 of the 141st Report of PAC (Seventh Lok Sabha)]

Action Taken

The recommendation of the P.A.C. has been carefully noted to examine this aspect. The Planning Commission had constituted a Committee headed

by Shri Nitin Desai. The report of the Committee has been circulated amongst the State Governments for their comments. Further action will be taken on receipt of the observations from State Governments in consultation with Planning Commission.

[Ministry of Water Resources O.M. No. 14|1|83-Coord. dated December, 1986]

NEW DELHI;
The April 6, 1987
16 *Chaitra*, 1909(S)

E. AYYAPU REDDY,
Chairman,
Public Accounts Committee.

PART II

Minutes of the 52nd sitting of the Public Accounts Committee held on 3-4-1987

The Committee sat from 1500 hrs. to 1600 hrs.

PRESENT

Shri E. Ayyapu Reddy —*Chairman*

Members

2. Shri Amal Dutta
3. Shri G. Devaraya Naik
4. Shri H. M. Patel
5. Shri Bhuvnesh Chaturvedi
6. Shri A. K. Antony
7. Shri Nirmal Chatterjee
8. Shri Nirendra Verma

SECRETARIAT

1. Shri K. H. Chhaya — *Joint Secretary*
2. Shri S. M. Mehta —*Senior Financial Committee Officer*

REPRESENTATIVES OF THE C&AG OF INDIA

1. Shri D. K. Chakravorty — Addl. Dy. C&AG (Reports Central)
2. Shri M. M. B. Annavi — DADS
3. Shri R. Parameswar — D.A.C. W&M-I
4. Shri S. B. Krishnan — Director (Reports)
5. Shri P. K. Bandhopadhya — DRA-II
6. Shri N. L. Chopra — Joint Director, Defence Audit
7. Shri S. K. Gupta — Joint Director Revenue Audit.

2. The Committee considered and adopted the following draft Reports with some amendments|modifications as shown in Annexures I, II* and III* :

(i) Draft Report on Action Taken on recommendations contained in the 141st Report (7th Lok Sabha) relating to Planning Process and Monitoring Mechanism w.r. to Irrigation Projects.

(ii) * * * * *

(iii) * * * * *

3. The Committee authorised the Chairman to finalise the draft Reports in the light of the above modifications and other verbal consequential changes arising out of factual verification by the Audit and present them to the House.

The Committee then adjourned

*Annexures II & III not appended.

ANNEXURE I

Amendments/Modifications made by Public Accounts Committee in Draft Report on action taken by Government on the 141st Report (7th Lok Sabha) relating to planning process and monitoring mechanism with reference to Irrigation Projects.

Page	Para No.	Lines	For	Read
6	1.11	1–2 (from below)	"even at.....Plan period"	"on 31 March, 1987"
8	1.14	8	"increased"	"additional"
9	1.14	8	"generally agreed to"	"accepted"
11	1.17	4	*Delete* the word "keeping".	
11	1.17	8	"satisfaction"	"regret"
11	1.17	16—22	*Delete* the sentence "The Council recognised.....of the Council".	
27	1.31	2	"State Government"	"State Government other than Karnataka, Manipur and Kerala"

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APPENDIX

Statement of Observations and Recommendations

Sl. No.	Para No.	Ministry/Deptt. concerned	Observations/Recommendations
1.	1.3	Planning/Water Resources/ Finance	The Planning Commission and Ministry of Water Resources etc. were requested to furnish their Action Taken Notes on the recommendations contained in the Report within six months of the presentation of the Report i.e. by 10 October, 1983. The Action Taken Notes were, however, received during February-July, 1984. On perusal, it was found that in a number of cases where the Committee had called for action on the apart of Planning Commission/ Ministry of Water Resources in concert with the States, the former had merely asked the States to take necessary action. In some other cases, the Planning Commission had referred the Committee's recommendations to concerned Ministries for necessary action. Thus, though action had been initiated, no final/concrete result had emerged. Therefore, Planning Commission/Ministry of Water Resources etc. were asked in May 1985 to furnish updated Action Taken Notes on recommendation Nos. 3, 4, 13, 17, 18, 23—26, 31—35, 37, 41—47 and 51 by 15 June, 1985. The Committee regret to have to observe that updated Action Taken Notes were furnished to them after a considerable delay. While the same were received from the Planning Commission in two lots in February-March 1986 the Ministry of Irrigation furnished the notes as late as December 1986. It is unfortunate that these recommendations were not given the speedy attention that they deserved. The Committee trust that effective suitable arrangements will be made to ensure that Action Taken Notes on the Recommendations are sent promptly and within the prescribed time-limit.

2.	1.7	Planning/Water Resources	The Committee cannot accept as satisfactory the explanation that incorrect figures were given due to an inadvertant error. The Committee had in the earlier recommendation desired that responsibility be fixed for this serious lapse which would have gone unnoticed but for the cross examination of the officials by the Committee and had desired that the Committee would like to be appraised of the action taken in the matter. Despite this specific recommendation, the Ministry of Irrigation had done nothing more than issue exhortatory instructions to all and sundry. The Committee consider that there has been gross negligence at various levels, and specific responsibility must be fixed at all these levels, for this serious lapse, negligence and carelessness. Action taken should be intimated to the Committee within a period of four months.
3.	1.10	–do–	The Committee note with concern that out of 58 major projects and 17 medium projects brought to the notice of the concerned State Governments, only 26 major and 5 medium were completed during the Sixth Plan period. The Committee consider the situation to be highly unsatisfactory and would like to be apprised of the progress in the completion of the projects which had been started before 1969 and which remained to be completed on 31-3-1987.
4.	1.13	–do–	The Committee in their earlier Report had pointed out that one of the strategies/priorities of the Sixth Five Year Plan, in irrigation sector, had been the preparation of State-wise 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 therefor. In view of this the Committee had desired that additional expert assistance of the Central Water Commission should

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			be made available to the States. The Ministry of Water Resources in their action taken reply have stated that all Irrigation Secretaries of the States were addressed on 7-9-1983 but none of the States have so far furnished the requisite Master Plan. The Meghalaya State has reported that no irrigation scheme had yet been constructed in the State, while in Maharashtra it was stated that basinwise revised Master Plans were under preparation. The Committee are constrained to observe that the State Governments have not reacted promptly to their suggestion and have failed to appreciate the urgent necessity of preparing Master Plans in the interest of orderly and phased development of the precious water resources and would urge Government of India to take up the matter at the highest level with the States to expedite investigations and formulation of Master Plans. It is also pertinent to observe that the Working Group for Sixth Plan had suggested preparation of Master Plans for irrigation development by the the end of 1980. Subsequently, the Working Group for Seventh Plan had also desired that Master Plans of all the States should be available by the end of the Seventh Plan. In this context, the Committe note that most of the States had generally accepted the importance of a Comprehensive Master Plan for each river-basin to cover the entire range of water use and management activities in the first meeting of the National Water Resources Council held in October 1985. The Committee are unable to comprehend the reasons for not expediting the investigations and preparation of Master Plans. It is obvious that preparation of State-wise Master Plans would accelerate the orderly and phased development of water resources. The Government of India should render all possible assistance to the States in this regard to enable them

			to frame their Master Plans at least by the end of the Seventh Five Year Plan.
5.	1.16	Planning Water Resources	In their earlier recommendation the Committee had desired enunciation of a well thoughtout national water policy designed to provide for a balanced development of water resources in the larger national interest and their utilisation for irrigation and power generation. They had also hoped that National Water Resources Council would take this up as a first priority task. The Committee note that National Water Resources Council has been constituted on 26 March, 1983 under the Chairmanship of the Prime Minister. One of the functions of the Council is to lay down the National Water Policy and to review it from time to time. However, the Committee regret to note that the first meeting of the National Water Resources Council was held only in October, 1985, that is 30 months after its constitution.
6.	1.19 and 1.20	-do-	The Committee in their earlier recommendation had pointed out that cost of ayacut development was not being taken into account for assessing cost-benefit ratio through a recommendation to this effect was made by the Irrigation Commission (1972). Planning Commission had constituted in 1981 a Committee to review the criteria adopted for determining the cost and benefit of irrigation projects. Pointing out that the present practice of imputing the net increase in yield in Command Area to irrigation alone is incorrect, the Committee had desired that all inputs that go to increased yield e.g. agricultural research and extension, agricultural credit and ayacut development etc. should be taken into account on the cost side. It was also desired that cost benefit analysis of projects should necessarily be preceded by socio-economic survey of the Command Area.

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			In their Action Taken Note the Ministry of Water Resources have detailed the measures suggested by the Committee and have stated that these findings of the Committee are being examined by the Ministry and Planning Commission in consultation with the States. In this context, the Committee would point out that a Committee to review the criteria was set up in December 1981 in pursuance of a recommendation made by Irrigation Commission in 1972. The Committee would urge the Government to see that the examination is completed expeditiously. There has already been serious delay. the original recommendation in this regard have been made by the Irrigation Commission as early as 1972. It is a matter for great regret that so important a matter has been handled in so indifferent and casual manner.
7.	1.24	-do-	The Committee in their earlier Report had emphasised the need to compile data on regular basis to assess net increase in yield in command area of irrigation projects. The Ministry of Agriculture have stated that National Sample Survey Organisation (NSSO) Department of Statistics had taken up the matter with the state agricultural statistics authorities in October 1983 to find out in any special survey was conducted by them in the command areas to assess the yield of crops. On the basis of information received so far it is evident that only in Andhra Pradesh and J&K such data have been collected through special crop cutting experiements in command areas. It has also been reported that some States like Haryana, Himachal Pradesh, Kerala and Union Territory of Pondicherry are not cnducting any such surveys to assess

			the yield of crops in command area. Replies from other States are still awaited. The Committee cannot but deprecate such inordinate delay in implementation of an important recommendation. The matter should be persued with the States with utmost vigour so that the required data on net increases in yield in command area of irrigation project become available at the earliest date possible.
8.	1.27	-do-	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.
9.	1.30	-do-	The Committee in their earlier report had emphasised the need to set up monitoring cells at State and Project level for concurrent evaluation and monitoring the progress of various projects taken up under the Five Year Plans and has desired that this matter should be persued vigorously with the concerned States. The Ministry of Water Resources in their Action Taken Note have intimated that while Maharashtra, Uttar Pradesh, Kerala, West Bengal and Andaman and

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			Nicobar have set up such monitoring cells. Union Territory Administrations of Delhi, Chandigarh, Dadra-Nagar Haveli and Lakshadweep have intimated that they do not require such monitoring cells as they do not have any major or medium irrigation projects. Replies from the remaining States were still awaited.
10.	1.31	Planning/Water Resourses	Similarly, the Committee had also recommended earlier that the advisibility of setting up Control Boards for all large inter-state projects and State projects costing Rs. 50 crores or more be taken up with the states with a view to promote the best use of man-power and equipment. The Committee note with regret that although the Ministry of Water Resources had taken this up with the States in August 1983, all States other than Karnataka. Manipur and Kerala have not yet responded. No information is available with the Government of India as to why the State Governments other than Manipur, Karnataka and Kerala found it necessary to set up such cotrol Board which would go a long way in removing bottlenecks in the execution of State and Inter-State projects costing Rs. 50 Crores and above. Implementation of the Committees recommendation regarding delegation of financial powers to the Boards as well as to the Chief Engineers of the projects in the interest of their speedy execution should be expedited. The Committee would again emphasise the desirability of pursuing all these suggestions vigorously by the State Governments.

MGIPRRND—1 LSS/87—III N/S—14-7-87—1,055.