

**HUNDRED AND FORTY-FIRST
REPORT**

**PUBLIC ACCOUNTS COMMITTEE
(1982-83)**

(SEVENTH LOK SABHA)

**PLANNING PROCESS AND MONITORING
MECHANISM WITH REFERENCE TO
IRRIGATION PROJECTS**

**MINISTRY OF PLANNING
(PLANNING COMMISSION)**

*Presented in Lok Sabha on 11.4.83
Laid in Rajya Sabha on 26.4.83*

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PART II*

Minutes of the sittings of the Public Accounts Committee (1981-82) and (1982-83) held on

31-3-1982, 23-27, 31-8-1982, 24-25-9-1982, 3-5, 10-11-1982 & 7-4-1983 .

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(1982-83)

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1. Shri T. R. Krishnamachari—*Joint Secretary*
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INTRODUCTION

I, the Chairman of the Public Accounts Committee as authorised by the Committee, do present on their behalf this Hundred and Forty-First Report of the Public Accounts Committee on Planning Process and Monitoring Mechanism in relation to Irrigation Projects relating to Ministry of Planning (Planning Commission).

2. Irrigation is vital for agriculture and agriculture forms the backbone of the country's economy. This Report highlights the deficiencies in the Planning process and monitoring mechanism in relation to irrigation projects undertaken since Independence. Since the first Plan, we have been able to add about 40 million hectares of irrigation potential. There has been a heavy shortfall of nearly 20 million hectares in the achievement of targets since the First Plan. A colossal sum of Rs. 14,000 crores (at 1970-71 prices) would be needed to bridge this gap. This is bound to escalate with further delays.

3. In order to achieve the target of 113 million hectares by the turn of the century, the growth rate will have to be stepped up to 2.5 to 3 million hectares per year. A large number of irrigation projects have revealed huge cost escalation and heavy time overrun. 8 of the major projects have been lingering on for the last 15 to 20 years. As many as 42 projects have shown cost overrun of 500 per cent and more. In fact, not a single project has been completed within the anticipated cost and time schedule.

4. The Committee 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 cement, steel, coal etc. to enable completion of projects within the time schedule laid down and within the approved estimates.

5. The Committee examined Planning Process and Monitoring Mechanism in their sittings held on 31st March, 1982, 23 to 27 August, 31 August, 24-25 September, 3, 5 and 10 November 1982. The Committee considered and finalised this report at their sitting held on

7 April, 1983. Minutes of the sittings forming Part II* of the Report highlight some of the basic deficiencies/weaknesses noticed in the formulation, implementation, and monitoring of irrigation projects.

6. For reference facility and convenience the observations and recommendations of the Committee have been printed in thick type in the body of the Report and have been reproduced in a consolidated form in Appendix III of the Report.

7. 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.

8. The Committee would also like to express their thanks to the Officers of the Planning Commission, Ministry of Irrigation, Ministry of Agriculture, Department of Statistics and to the representatives of State Government of Bihar and West Bengal and the cooperation extended by them in giving information to tendering evidence before the Committee.

NEW DELHI;

April 8, 1983.

Chaitra 18, 1905 (S)

SATISH AGARWAL

Chairman

Public Accounts Committee

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CHAPTER I

INTRODUCTORY

1.1 Irrigation and power are the two principal sectors on which the entire economic development of the country depends. During the course of their examination of Salal Hydro-electric Project and the Badarpur Thermal Power Project, the Public Accounts Committee had found that huge time and cost overruns were a common feature of the power projects taken in hand since Independence. In fact, not a single power project—hydel or thermal—has been completed since Independence within the approved estimates and the stipulated target dates. According to calculations of the Department of Power, one year's delay in commissioning 1MW of power results in a loss of Rs. 1.78 crores to the economy. The colossal loss to the country as a result of these slippages can be well imagined.

1.2 It was in this context that the Committee at their sitting held on 6 January 1982 considered the question of examining the planning process and monitoring mechanism in relation to some of the developmental projects on a sectoral basis. In this connection, attention of the Committee (1981-82) was drawn to the Supplementary Report of the Comptroller & Auditor General of India for the year 1975-76, Union Government (Civil) which contains the findings of studies undertaken in 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 thousand hectares. The Committee decided to examine the planning process and monitoring mechanism with reference to the major irrigation projects taking the Report of the C&AG referred to above as the basis of their examination. The Committee recorded evidence on the subject on 31st March but it remained inconclusive.

1.3 The present Committee decided to continue examination of the subject. In all, 8 further sittings were held to examine the official witnesses. Besides, two sittings were devoted by the Committee to examine non-official witnesses viz., Sarvashri N. G. Abhyankar, IAS (Retd.) and Ramachandra Singh Deo, ex-Irrigation Minister, Government of Madhya Pradesh. The Committee also called for Memoranda from the Governments of Rajasthan, Bihar, West Bengal, Madhya Pradesh and Andhra Pradesh with regard to

major irrigation projects in these States. The Committee took the evidence of the representatives of the Government of Bihar in one of the sittings in which other officials of the Planning Commission, Ministry of Irrigation, Ministry of Agriculture, Central Water Commission etc. were also present.

1.4 It transpired during evidence that the C&AG's Report as well as the other reports submitted to the Governors of the States concerned with regard to matters pertaining to utilization of irrigation potential in the selected projects, had not been given the attention they deserved, based as they were on studies undertaken in Audit in the context of specific conditions obtaining in the selected projects and detailed data collected from the initial records of the different departments of the State Government concerned. Secretary, Planning Commission assured the Committee that suitable institutional arrangements would be made to ensure that the Reports of the G&AG were concurrently studied and implemented to the extent possible.

1.5 The Committee are aware that irrigation is a State subject. However, in the context of the planned development of the country for which the Planning Commission is the initiator, guide as well as monitor, the Committee have proceeded to examine the subject with the sole objective of focussing the attention of Parliament and the public to the imperative need to streamline the planning process and the monitoring mechanism in this vital sector. The Committee trust that the findings and conclusions of the Committee contained in this Report will engage serious attention of the planners.

CHAPTER II

CREATION OF IRRIGATION POTENTIAL

A. Irrigation Sector

2.1 The Committee pointed out that irrigation had not been shown as a separate item in the sectoral classification of input-output table included in the Technical note of the Sixth Plan and that it was covered by item 79—'Construction' which included new construction, repair of residential buildings, factory, establishments, roads, bridges, multi-purpose power projects, reclamation of land, digging of wells and development of other irrigation sources etc. Asked whether it would not be desirable to treat irrigation as a separate sector of activity considering the importance attached to it under the 20-Point Programme, the representative of the Planning Commission stated:

"This particular classification is on the basis of input/output table given by the C.S.O. There is no separate item of irrigation there. But in the Planning Commission, we have separated it in the working group report."

2.2 In reply to a further question whether the C.S.O. had been asked to revise the classification so as to include irrigation as a separate item, the witness stated:

"They are now doing it."

B. Plans and Projects formulation

2.3 At the instance of the Committee, the Planning Commission have furnished the following note regarding the planning process for formulation of major and medium irrigation projects, the stages through which such proposals have to pass from the time these are initiated till they are sanctioned and the role of the Planning Commission in their formulation:

"The Planning process for formulation of major and medium irrigation projects comprises basically two stages. The **first stage** is the formulation of the States, five year plan and the size of the irrigation sector. The second is the approval or acceptance of individual major and medium

projects after their scrutiny and consideration. The plan for major and medium irrigation projects in each State is formulated as follows:

“Just before the formulation of each Five Year Plan, a working group on irrigation is set up by the Planning Commission to formulate proposals for inclusion in the five year plan. This working group takes into account the projects already on hand in the various States, the capacity and capability of the concerned organisations, requirement of essential construction materials and the need for completing the on-going lingering projects as early as possible. With a view to sustaining and accelerating the irrigation development from plan to plan, it is also necessary to make a start on a few new projects taking into consideration the need to give priority for projects benefiting drought prone areas, tribal areas, etc. based on the recommendation of this working group and the detailed plan proposals received from the State Governments subsequently, the Planning Commission carried out further discussions with the States at the time of the plan formulation, by another Working Group. This Working Group on Irrigation comprises the officers of the Planning Commission, representatives of Ministries of Finance, Irrigation, Environment and others and also the State representatives. After discussing the State’s proposals, they make recommendations about the projects that may be included in the plan and the outlays for them during the five years. In respect of new projects either individual outlays or lump sum provisions or a combination of both are indicated. The recommendation of the Working Group are reviewed by the State Plan Advisers in the Planning Commission taking into account the State’s resources and the requirements of other sectors. Their report is discussed by the Deputy Chairman, Planning Commission with the State Chief Ministers and the size of the plan is finalised. Certain adjustments are made on the outlays suggested and sometimes specific schemes are also mentioned in these discussions. The plan thus finalised is then communicated to the State Government.

Thereafter every year, there are Annual Plan discussions where the progress of the projects is reviewed and taking into account the resources of the States and the Central

assistance that they are likely to get, the Annual Plans are formulated and the allocations for each sector determined. Here also the process of Working Group comes into action. Report by the State Plan Adviser and discussions between Deputy Chairman and Chief Ministers are followed.

As regards inclusion or acceptance of individual major or medium irrigation projects, the first thing is their detailed investigation which has to be carried out by the States. The Planning Commission and the Ministry of Irrigation have been sending detailed guidelines periodically to the State Governments about the nature and content of these investigations. The Ministry of Irrigation had appointed in 1977 a Working Group to formulate detailed guidelines for the preparation of feasibility and detailed project reports of irrigation and flood control projects. The report of this Committee was sent to the State Governments in January 1981. In the light of this report, Planning Commission has issued a revised circular indicating the technical, financial and other aspects of the projects which should be adequately dealt with in the project reports. The State Governments have to prepare project reports on the basis of these guidelines and furnish copies to the CWC, the Planning Commission, the Department of Environment. In respect of multi-purpose projects, they have to send the reports to the Central Electricity Authority and the Department of Power also.

The Central Water Commission carries out examination of the major and medium irrigation projects. For medium projects, the States have to furnish only proforma information. The examination is confined to hydrology, irrigation benefits, inter-state aspects and benefit-cost ratio or the cost per hectare of providing irrigation. For major projects, detailed project reports are to be sent. The projects are examined to find out if they have been formulated keeping in view the overall development of the river basin; what are its inter-state and international aspects; whether detailed surveys have been carried out for the foundations, reservoirs, canal systems, power house etc., whether soil surveys have been carried out in the command systems; whether the geological surveys

have been carried out for the dams and other headworks major canal structures, tunnels etc. The CWC also scrutinise whether sufficient investigations have been carried out regarding materials of construction and whether adequate tests have been carried out to determine the suitability of these materials. Another major examination is regarding the hydrology and dam design including spillway capacity for floods. The project report is also examined to find out if enough surveys and investigations have been carried out about the submersion of land under the reservoir, rehabilitation of oustees and the provisions for land acquisition. Specialised Directorates carry out studies to check whether the type of dam and headworks etc. proposed are considered safe and economical.

The project report also has to indicate the surveys and investigations carried out for the irrigation systems and development of command area, the crop patterns proposed to be followed, the water requirements etc. These are checked in the Water Management Unit of the Ministry of Irrigation. The State Agriculture Department has to certify that the crop patterns proposed are in accordance with the soil and climatic conditions of the region. The State Finance Department have to indicate their acceptance about the reasonableness of the estimated cost, the benefits anticipated and the schedule of construction envisaged therein and also the revenues anticipated from the project. In the CWC, there is R&C Directorate which examines the major projects with respect to the various cost elements.

The Comments of the Central Water Commission are communicated to the State Governments for clarification, further studies etc. With a view to expedite the clearance of the projects, State Governments are often requested to depute their concerned officers alongwith the clarifications/studies so that these could be discussed and project report suitably modified and finalised for the purpose of further processing.

After the project is examined by the various technical directorates in the CWC, a note is prepared and placed before the Advisory Committee on Irrigation, Flood,

Control and Multi-purpose Projects. The Committee has been constituted by the Planning Commission to examine the projects proposed by the States to satisfy itself about the Techno-economic viability. In a few cases, the Advisory Committee desires some additional data or clarifications. In such cases, the State Governments are again addressed by the CWC and the additional information obtained is placed before the Committee for consideration.

The Committee is headed by the Secretary (Irrigation) and has as members the Chairman, CWC; the Chairman, CEA; representatives of the Planning Commission, Minister of Finance, Industry and the Department of Environment. The Advisory Committee examines the project from broad aspects and takes note of the comments and remarks made by the CWC and other members. A view is taken whether the project should be recommended for acceptance to the Planning Commission. Based on the recommendations of the Advisory Committee and keeping in view the plan provisions for New Schemes, the Irrigation Division obtains the approval of the Commission and communicates to the State Governments and others, the acceptance of the schemes for inclusion in the plan and execution as per approved outlays.

The Planning Commission thus comes into the picture in the formulation of major and medium irrigation projects right from the time of investigations and formulation of the project report till its sanction.

The Department of Environment have recently constituted an Environmental Appraisal Committee which has also to clear the project before the Planning Commission issues their acceptance."

2.4 The Committee enquired whether adequate attention has been paid to important ancillary aspects such as maintenance of ecological balance, soil conservation, provision of drainage facilities etc. in the Irrigation Projects and if not, how it was proposed to get over these deficiencies. The Planning Commission have replied:

"The proposals relating to all major irrigation projects involving storage are sent to the Department of Environment for examination from the point of view of

environmental requirements. While according approval to the projects, the States are requested to comply with the safeguards suggested by the Department of Environment. The provisions made for drainage in the project reports are examined in the Technical Directorates of Central Water Commission. It has been found in recent projects that adequate provision for drainage is being made. However, in case of projects where it is felt that adequate drainage arrangements are not made, the States are requested to do so while communicating approval to the projects. Soil conservation is an independent programme for the specific catchments of the project. Where problems of soil conservation are serious, adequate measures should be taken to reduce the silt load into the reservoir."

2.5 In reply to a question on the subject, a representative of the Planning Commission stated in evidence:—

"Our course, environmental impact studies have not been carried out in any of the projects so far. We are now beginning to carry out these studies. There is the Department of Science and Technology and the Department of Environment. They go into this aspect of environmental impact."

2.6 Asked if it was not desirable to have an inter-disciplinary approach at the start associating economists, financial experts, sociologists, agriculture experts etc. besides engineers, the Planning Commission have replied:

"At the detailed project report stage of an irrigation scheme, agricultural experts and scientists and environmentalists are associated with the project formulation as required. Involvement of sociologists, would be useful especially in assessing the likely impact of the project in the submergence area as well as for irrigation in Tribal Area, or areas which are backward in agriculture. Appropriate involvement of agricultural economists would also be beneficial".

2.7 The Naegamvala Committee had recommended in its report in 1979 that very big projects costing over Rs. 30 crores require a more strict treatment. In their case, the first stage should invariably be the sanction of an Investigation Estimate on the basis of the preliminary project report or reconnaissance report. The outlay on such

an estimate could be as much as 5 per cent of the anticipated total cost of the scheme and should be sufficient to enable a well manned organisation to be set up at the project site for carrying out thorough investigations and preparing detailed estimates in terms of accurate data on quantities etc. The Committee desired to know if the recommendation had been accepted and implemented. The Planning Commission have replied as under:

“Since the Naegamvala Committee submitted its report, most of the major States like U.P., Karnataka, Bihar etc. have set up separate organisations for investigation and formulation of new projects. However, these organisations are not broad based and do not include agronomists etc. as part of the organisation. However, much closer coordination is required between the concerned Departments and there should be full consultation between these Departments before formulating and submitting project reports.

Irrigation being a State subject, funds for investigation have to be provided by the State Governments and the Central Government do not give any special assistance in this regard. However, whatever technical assistance is sought by the State Governments from the C.W.C., the Water Management Division, the Minor Irrigation Division and the Central Ground Water Board is provided to them.

The first conference of State Ministers for Irrigation held in July, 1975 adopted a resolution recommending to the State Governments that they consider the association of the Central Water Commission in major projects costing more than Rs. 30 crores right from the stage of preliminary investigation, site selection and preparation of feasibility report in the first instance. These recommendations have been circulated to the States. The State Governments have however not responded favourably so far.”

2.8 The strategies of development in the irrigation sector during Sixth Five Year Plan include *inter alia* initiating investigation for a National Plan for inter-basin transfer of water from the water surplus areas to water short areas, preparation of state-wise Master Plans etc. Asked about the steps taken in pursuance of this objective, the Planning Commission have stated:

“The Fifth Conference of State Irrigation Ministers recommended in a Resolution that a corporate agency should be

set up by the Government of India so that the work of surveys and investigation of the Paninsular component of the National Plan for inter-basin transfer of water is carried out expeditiously according to a time bound schedule. A proposal was accordingly prepared for setting up a National Water Development Agency as a Society to be registered under the Societies Registration Act, 1860. A Resolution announcing the decision of the Government of India to set up a National Water Development Agency (NWDA) was issued on 26-8-81. The Society has the Union Minister for Irrigation as its President and the Union Minister of State for Irrigation as its Vice-President. Chief Ministers/Ministers-in-charge of Irrigation of the concerned State Governments are *inter alia* Members of the Agency. The Agency has also a Governing Body under the Chairmanship of Secretary, Ministry of Irrigation. The Society has been registered on 8th July, 1982. The Director General, who is the Chief Executive of NWDA has started functioning from 15th July, 1982."

2.9 As for the progress made so far in preparation of the Master Plans, the Planning Commission have stated:—

"So far no State has prepared any Master Plan. Some of the States have, however, prepared outline master plans as investigations and data collection are still in progress. Some of the investigations connected with the preparation of master plans have still to be completed. They are still in progress. During the Annual Plan discussions and also in regional meetings conducted by the Ministry of Irrigation, the States are being requested to expedite the investigation work and prepare the master plans as early as possible."

2.10 The Committee enquired whether in view of serious short-falls in the creation of irrigation potential compared to Plan targets and in the utilisation of potential created, it could be claimed that our sectoral planning as well as implementation of the Plan were sound. The Committee further enquired about the pre-requisites for translating the Plan into reality that are lacking. The Planning Commission have stated in reply:—

"Ever since planning began in 1951, we have added nearly 40 M.ha of potential. This achievement has been possible because of systematic, sustained and continuous efforts

under the various plans. It cannot therefore be said that our sectoral planning and implementation of the Plan is not sound. There have been some difficulties, and efforts have been made to overcome them.

For translating the Plan into reality, it is necessary that there should be a time bound programme for each project and the necessary technical, managerial, financial and material resources must be made available for the projects. New projects should not be taken up without giving the consideration to the requirements of on-going projects. Project formulation should be based on detailed investigations to the maximum extent possible, leaving only the minute details to be investigated later on in order that there is no over-run of costs for avoidable reasons. Systematic and periodical evaluation and monitoring of the programme is necessary."

2.11 In a further note on the constraints felt by the Planning Commission in translating the Plan into reality and their suggestions in the matter, the Planning Commission have stated *inter alia* as follows:

- (i) The major constraint is the limitation on the overall availability of resources. Therefore, the assumptions with regard to creation and utilization of capacities, operational efficiency, technological developments as also fixation of reasonable target of additional resource mobilization have to be practical and realistic.
- (ii) Another constraint is inadequate preparation of projects and inaccurate estimation of the cost and time schedules. It is therefore necessary to undertake action for preparation of projects particularly those having long gestation, well in advance of the commencement of a Plan period.
- (iii) There is general lack of effective machinery for appraisal of investment proposals.
- (iv) There is need for adequate decentralization of the Planning process. It is necessary to have block level development plans fully integrated with the district and State plans.
- (v) The planning machinery in a number of States needs to be considerably strengthened for efficient Plan formulation and monitoring, both at the State level and at the district

level. The recommendation of the Planning Commission to appoint Planning Boards at the State level with an assurance of 2/3rd assistance has met with little response. The machinery at the district level is even less satisfactory. In the absence of this, there is no timely and adequate feed-back to the Planning Commission.

- (vi) Indian fiscal system does not have adequate built-in elasticity to generate additional resources automatically for financing higher project costs in the wake of inflation. The increase in resources in money terms lags behind the escalation in project costs and in spite of high additional resources mobilisation, a shortfall in resources in real terms for financing the Plan is experienced.
- (vii) Managerial deficiencies and lack of adequate implementation capacities in the case of certain projects leads to delay in execution and cost overruns. These deficiencies also effect the utilization of existing assets, production and productivity as well as the generation of resources for development.

C. Classification of irrigation projects

2.12 Asked about the basis of classification of irrigation projects as (i) major (ii) medium and (iii) minor projects, the Planning Commission have in a written reply stated:—

The concept of classification of irrigation projects has undergone changes from time to time. The basis of classification under the various categories is indicated below:—

(i) Major:

From September 1958 to September 1975, Irrigation Schemes costing more than Rs. 5 crores were classified as major irrigation schemes. In September 1975, it was decided that all irrigation projects with culturable command area (C.C.A.) of more than 10,000 hectares should be classified as major.

This classification is now in force.

(ii) Medium:

Earlier, irrigation schemes costing between Rs. 5 crores and Rs. 10 lakhs were classified as medium. From 1-4-70, the lower limit was

raised to Rs. 25 lakhs in plain areas and Rs. 30 lakhs in hill areas. From 25-9-75 schemes with C.C.A. of 10,000 hectares or less and those with the estimated cost more than Rs. 25 lakhs for plain areas and Rs. 30 lakhs for hill areas were classified as medium, with effect from Annual Plan 1978-79, medium irrigation schemes were classified as those with C.C.A. above 2000 ha. upto 10,000 ha.

This classification is now in force.

(iii) *Minor:*

Prior to April 1970, all irrigation scheme costing Rs. 15 lakhs and less were classified as minor irrigation schemes. This limit was subsequently raised to Rs. 25 lakhs in case of schemes in plain areas and Rs. 30 lakhs in case of projects in hilly areas with effect from 1-4-1970.

Subsequently in January 1978, the Planning Commission has decided that all irrigation projects having a C.C.A. upto 2000 hectares may be classified as minor irrigation schemes subject to the following conditions.

- (a) The revised classification for minor Irrigation Schemes will be applicable with effect from 1978-79 Annual Plan.
- (b) The irrigation schemes which have already been included in the State Plans and approved by the Planning Commission as medium schemes should continue to form part of the major and medium irrigation programme of the concerned States.

Thus, as of date, all irrigation schemes having a C.C.A. of upto 2,000 ha. are treated as minor irrigation schemes.

Thus, briefly stated, the position in respect of the various categories of schemes as of date is as under:—

Major—Those with culturable Command Area more than 10,000 hectares.

Medium—Those with culturable Command Area (C.C.A.) above 2,000 hectares, upto 10,000 hectares.

Minor—These with culturable Command Area (C.C.A.) upto 2,000 hectares.

D. Involvement of Central agencies

2.13 The Working Group on Land and Water Development constituted by the Ministry of Agriculture in 1972 to review the progress of programmes under the Fourth Plan and to formulate the proposals for the Fifth Five Year Plan observed in their Report (March, 1973):

“It is the Centre which, in the last resort, has to face the consequence of low production levels in agriculture, animal husbandry and forestry, and must therefore, interest itself in the proper arrangement of soil and water irrespective of the strict constitutional position. It is time that the Centre took cognisance of these hard and real facts of life and decide to assume not only a larger but a more direct responsibility in the field of soil and water.”

2.14 In this context, the Committee enquired about the steps that have been taken by the Planning Commission and Central Ministries concerned to assume greater responsibility in so far as the question of optimum utilisation of the water resources of the country is concerned. In reply, the Commission has stated:—

“The Central Government realised that optimum utilisation of water and soil resources finally rests on the ability of the soil profile to function as a favourable production base as well as the storage and medium for water to replenish the channel flow and ground water much after prime supplier rain has stopped. It was also recognised that the physical, chemical and biological health of soil, besides the management of land surface, determines, the complex ability of the soil profile. The Government, therefore, took steps to launch multi-directional soil and water conservation programmes since the First Five Year Plan in the field of problem identification, survey and investigation, development, training besides providing direction for enacting legislation and to establish high level bodies to provide policy direction to the concerned departments.

Problem Identification

Land resource is physically damaged through soil erosion and land degradation. This in turn creates instability in the production system and lowers down total production capability. Presently available estimates show that an area of 150 million ha. is subject to erosion by water and wind while an area of 25 million ha. is degraded through

alkalinity, salinity, water logging, shifting cultivation, etc. Thus, about 53 per cent of the country's geographical area is subject to various conservation hazards, besides 40 million ha. affected by flood and 260 million ha. subject to various degrees of water stress condition. The Centre has been providing consistent support to the States for tackling the problems which call for long term investment, inter-State coordination and, therefore, may not get adequate priorities in the State Plan which are preoccupied with the concern to meet local and immediate needs. In such cases 100 per cent Central assistance has been provided to implement the schemes on scientific basis.

For effective implementation of soil conservation programmes the Department of Agriculture and Cooperation circulated a Model Bill on Soil Conservation. As a result 14 States and 2 Union Territories have enacted the Soil Conservation Acts. To arrest extensive denudation of forests, in 1980 Forest Conservation Act was passed to ensure that no forest land is denuded and diverted for non-forest uses without prior approval of Central Government. Forest Law is also proposed to be strengthened by the Centre to provide better protection to the existing forest areas.

This Department also urged the States to establish Apex Body, namely, State Land Use Boards, for providing policy directions in matters relating to health and care of soil and for achieving better coordination among the concerned Departments. As a result, 20 States and 6 Union Territories have established State Land Use Boards. To oversee the functions of these State Land Use Boards and to provide expert advice to the Government in matters of natural resource of soil, setting up of a national agency is under consideration.

The Centre has been providing guidelines for preparation of watershed management plans and organising orientation courses to train the inservice personnel in the field of watershed management, planning, continuous collection, processing and collection of hydrologic and sedimentation data from small watersheds and for carrying out concurrent appraisals in respect of multi benefits which accrue from implementation of this programme."

E. Managerial Problems

2.15 The Naegamwala Committee had in its report observed that the present day water resources projects, particularly the complex ones suffer from the same management problems as ones encounters in industrial undertakings. Unless these are tackled a scientific manner, delay and cost increases are bound to occur. The Committee strongly advocated the use of all the modern management techniques based on "system" approach in the implementation of river valley projects. In this context, the Committee enquired if the managerial problems had been properly identified and necessary corrective action taken. The Planning Commission have in a note stated:

"The managerial problems in relation to the irrigation projects have been identified in the report of the Expert Committee on rise in cost of irrigation and multipurpose projects, in April 1973 (Naegamwala Committee) as follows:

1. For a major river valley project, a Chief Engineer must be posted exclusively for its execution.
2. It is essential that the person incharge of execution of a project is vested with the authority both administrative and financial so that he may discharge his responsibility unhesitatingly.
3. There should not be too frequent changes in the key personnel entrusted with the execution of the projects.
4. Senior technical officers who show an aptitude for project management should be earmarked for special training.
5. A comprehensive institute should be set up in the centre preferably in CWC for training in the water resources sector of all who are engaged in project works.
6. The use of management techniques based on system approach.
7. Adequate arrangement should be made for training of project personnel at all the levels in modern management techniques.

8. The detailed plan of work should be chalked out and schedules drawn up in each activity.
9. In case of major projects, the modern systems and techniques of material management and inventory control should be adopted.
10. Cost Engineering cells should be established on all major projects.
11. A managerial information system for decision making be devised for use by the project manager.
12. Performance budgeting system should be adopted for efficient financial control during execution.
13. Adequate funds to be allocated so that all projects approved by the Planning Commission are completed in optimal time and further escalations due to protracted construction period are avoided.
14. Advance programme for stockpiling of construction materials and spare parts should be made very carefully with engineers with foresight and some reasonable stockpiling should be permitted.
15. Wherever possible a near-by cement factory could be linked to the project.

The recommendations of the Naegamwala Committee have been brought to the notice of the State Governments. Chief Engineers are generally being appointed exclusively for large major projects or a group of projects.

The streamlining of the procedures and adequate delegation of financial and administrative powers to the State Irrigation Department and the project authorities have been commended to the State Governments in the conferences of the State Irrigation Ministers.

Much remains to be done in the training of engineers in management. The proposal for a staff Training College for Ministry of Irrigation is under consideration of Government of India.

Proformae for management information system have been drawn up and the State Governments have been requested to adopt these.

There is scope for improvement of management in irrigation projects."

F. Projects since the First Plan

2.16 As regards, Projects taken up till the end of 1968-69 and completed so far, the Committee enquired as to the projects delayed badly and expected to be completed by the end of the Sixth Plan. In a note, the Ministry of Irrigation have stated:

"The number of major projects taken up and completed during each plan is shown below:

| | Major Schemes | | Medium Schemes | |
|---------------------------------|---------------|---------------|----------------|---------------|
| | No. taken up | No. completed | No. taken up | No. completed |
| I. Plan | 25 | 1 | 211 | 208 |
| II. Plan | 22 | 4 | 115 | 112 |
| III. Plan | 28 | 9 | 74 | 64 |
| Annual Plan (1966-69) | 11 | 1 | 37 | 23 |
| IV. Plan | 31 | 9 | 124 | 41 |
| V. Plan | 73 | 1 | 375 | 21 |
| Annual Plan (1978-80) | 15 | 1 | .. | .. |
| TOTAL | 205 | 29 | 916 | 469 |

Thus, it is seen that the number of major projects taken up till 1968-69 was 86. Out of these 86 projects, 15 had been completed by 1968-69 and 13 more were completed by the beginning of the VI Plan in 1980.

When the VI Plan started in 1980, the number of projects remaining out of these started before 1969, was 11 projects from the first plan, 13 from the II Plan, 24 from the III Plan and 10 projects from the Annual Plan of 1966-69 totalling 58. A list of these 58 projects is shown below. From this statement it will be seen that 41 of these are expected to be completed during the VI Plan.

| S.No. | State/Name of Project | Remarks |
|-----------------------------------|--|-------------------------------------|
| <i>I Plan Schemes (11 nos.)</i> | | |
| 1. | Kosi Barrage & Eastern Kosi Canal (Bihar) | Likely to spill into VII Plan. |
| 2. | Kakrapar (Gujarat) | Likely to be completed in VI Plan. |
| 3. | Mahi S'g. I (Gujarat) | Do. |
| 4. | Western Jamuna Canal (Remodelling) (Haryana) | Do. |
| 5. | Tungabhadra RBC & LBC (Karnataka) | Do. |
| 6. | Bhadra (Karnataka) | Likely to spill over into VII Plan. |
| 7. | Chambal (M.P.) | Likely to be completed in VI Plan. |
| 8. | Bhandar Canal (M.P.) | Do. |
| 9. | Mahanadi Delta | Do. |
| 10. | D.V.G. System (West Bengal) | Do. |
| 11. | Mayurakshi (West Bengal) | Do. |
| <i>II Plan Schemes (13 nos.)</i> | | |
| 1. | Nagarjunasagar (Andhra Pradesh) | Likely to spill over into VII Plan. |
| 2. | Mahi S'g. II-Kadana (Gujarat) | Likely to be completed in VI plan. |
| 3. | Periyar Valley (Kerala) | Likely to spill over into VII Plan. |
| 4. | Barna (M.P.) | Likely to spill over into VII Plan. |
| 5. | Tawa (M.P.) | Do. |
| 6. | Bagh (Maharashtra) | Likely to be completed in VI Plan. |
| 7. | Itiadoh (Maharashtra) | Do. |
| 8. | Mula (Maharashtra) | Likely to be completed in VI Plan. |
| 9. | Khadakwasla (Mah.) | Likely to spill over into VII Plan. |
| 10. | Salandi (Orissa) | Likely to be completed in VI Plan. |
| 11. | Rajasthan Canal St. I (Rajasthan) | Do. |
| 12. | Ramganga (U.P.) | Do. |
| 13. | Kangasabati (West Bengal) | Do. |
| <i>III Plan Schemes (24 Nos.)</i> | | |
| 1. | Sriramsagar (A.P.) | Likely to be completed in VI Plan. |
| 2. | Western Kosi Canal (Bihar) | Likely to spill over into VII Plan. |

| S. No. | State/Name of the Project | Remarks |
|--------|--|-------------------------------------|
| 3. | Rajpur Canal (Bihar) | Likely to be completed in VI Plan. |
| 4. | Gandak (Bihar) | Likely to spillover into VII Plan. |
| 5. | Ukai (Gujarat) | Likely to be completed in VI Plan. |
| 6. | Gurgaon Canal (Haryana) | Do. |
| 7. | Malaprabha (Karnataka) | Likely to spillover into VII Plan. |
| 8. | Pamba (Kerala) | Likely to be completed in VI Plan. |
| 9. | Muttiadi (Kerala) | Do. |
| 10. | Chittrupuzha (Kerala) | Do. |
| 11. | Kanhirapuzha (Kerala) | Likely to spill over into VII Plan. |
| 12. | Pazhassi (Kerala) | Likely to be completed in VI Plan. |
| 13. | Jayakwadi St. I (Maharashtra) | Do. |
| 14. | Bhima (Maharashtra) | Likely to spillover into VII Plan. |
| 15. | Kal (Maharashtra) | Likely to be completed in VI Plan. |
| 16. | Tulshi (Maharashtra) | Do. |
| 17. | Krishna (Maharashtra) | Likely to spillover into VII Plan. |
| 18. | Beas Unit I (Punjab) | Likely to be completed in VI Plan. |
| 19. | Beas Unit II (Punjab) | Likely to be completed in VI Plan. |
| 20. | Extn. of non-perennial irrigation to UBDC tract (Punjab) | Do. |
| 21. | Jakhm (Rajasthan) | Do. |
| 22. | Parambikulam Aliyar (Tamil Nadu) | Do. |
| 23. | Ghittarpattanankal | Do. |
| 24. | Sarda Sahayak (U.P.) | Do. |

Schemes of Annual Plan (1966—69) (10 Nos.)

| | | |
|----|------------------------------|------------------------------------|
| 1. | Sone H.L.C. (Bihar) | Likely to be completed in VI Plan. |
| 2. | Tungabhadra HLC (Karnataka) | Do. |
| 3. | Hemavathi (Karnataka) (N.P.) | Likely to spillover into VII Plan. |
| 4. | Kallada (Kerala) | Do. |
| 5. | Kukadi (Maharashtra) | Do. |
| 6. | Upper Godavari (Maharashtra) | Likely to be completed in VI Plan. |
| 7. | Hasdeo RBC (M.P.) | Do. |

| 1 | 2 | 3 |
|---|---|------------------------------------|
| 8. Utilisation of Surplus Ravi Beas Waters (Punjab) | | Likely to spillover into VII Plan. |
| 9. Modernisation of Vaigai channel (T.N.) | | Likely to be completed in VI Plan. |
| 10. Kosi (U.P.) | | Likely to be completed in VI Plan. |

N.P.—Non-Plan.

2.17 In a further note on the subject, the Planning Commission have stated:

“The total number of major schemes taken up since the beginning of planning is 205. Of these 29 were completed before the Sixth Plan. 4 schemes which relate to the Cauvery Basin were taken up outside the plan. The other 172 are on-going schemes as at the beginning of the Sixth Plan. In addition to these, 115 new schemes have been proposed by the States for the Sixth Plan but outlays for all the 115 new schemes have not been provided in the Plan. Specific outlays have been provided for new schemes. As for the others, lump sum provisions have been made and the States have been advised to take up a limited number of schemes after detailed investigation and clearance by the Planning Commission in accordance with the usual procedure.

Of the 172 on-going major schemes, 88 are likely to be completed during the Sixth Plan. The other 84 will over into the Seventh Plan in addition to the new schemes to be taken up during the Sixth Plan.

About 400 medium schemes are likely to be completed during the Sixth Plan and the rest will spill over into the Seventh Plan.”

2.18 The Committee pointed out that until the end of Fourth Plan, i.e., till 1974, new projects were added at a stardy rate, averaging 4 to 5 major projects and 15 to 20 medium projects per year. However, since 1974 there has been a spurt in the number of new projects, additions averaging 20 major projects and 100 medium projects. Asked about reasons for this phenomenon and whether the Planning Commission had assured themselves that investigations in all these cases had been thoroughly carried out before sanc-

tion was accorded to these projects, the Planning Commission have stated.

“With the severe droughts in the late Sixties and early Seventies, there was immense and persistent demand 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 State Governments also stepped up their investigation activities and with earlier projects reaching an advanced stage, the new starts were planned to be made, so that the available personnel, equipment etc. specially those deployed on construction of dams and barrage are deployed on new projects without disbanding the infrastructure build up with great effort. Further, owing to the increase in price level, many projects which would have originally come under the medium category in earlier days, also became major projects. However, now the classification of major projects is being done on the basis of the culturable command area.

The Planning Commission, through the Advisory Committee, ensures that investigations are carried out thoroughly before a project is accepted for inclusion in the Plan. In some instances, if any further investigation are to be carried out for refining the designs of crop pattern or other features which may not affect the broad features of the project, these are indicated in the Communication sent to the State Governments.

2.19 At the commencement of the Sixth Plan in April, 1980, there was 176 major and 453 medium projects (i.e. a total of 629 projects which had spilled over from previous plans. Among these projects, about 20 major schemes were continuing from the Second Plan. The approach papers to the Sixth Plan had counted 82 major projects started before 1st April 1976 to be still incomplete. Asked to explain the reasons for such large spill-over of projects and whether it did not indicated the failure of planning, the Planning Commission have replied:—

“In 1976, there were 98 on-going major projects, and it has expected that 16 of them would be completed by March 1980 and 82 would spill over into the Sixth Plan. The

Sixth Plan provided for completion of 65 of these 82 projects. Out of these, 9 projects have been pending from the first plan and 11 from the second plan.

Large major projects should take normally 10 to 12 years for completion. Due to constraint of resources and various other factors, some of them have taken more than two decades. However, partial benefits have been realised as soon as the dams are completed and the canals opened.

The targets of development of irrigation from major and medium irrigation projects in various plans and the achievements are given in the table below:—

| | P O T E N T I A L | |
|---------------------------------|------------------------------|-----------------------------------|
| | Target (Million Hectares) | Achievement (Million Hectares) |
| First Plan | 3.4 | 2.5 |
| Second Plan | 4.2 | 2.1 |
| Third Plan | 5.2 | 2.3 |
| Annual Plan (1966-69) | 2.5 | 1.5 |
| Fourth plan (1969-74) | 2.8 | 2.6 |
| Fifth Plan (1974-79) | 5.8 | 4.12 } (1974-78) |
| 1978-79 | | 1.04 } 5.16 |
| 1979-80 | 1.13 | 1.02 |

From the above, it will be observed that the realisation in the Fifth Plan and thereafter has been satisfactory.

At the time of independence, there were only two major storage namely Mettur and Krishnarajasagar. It is only thereafter that a number of major storage works were undertaken and the country embarked on a large number of irrigation projects. There were difficulties of resource, foreign exchange, trained manpower etc. In spite of these difficulties, the country has achieved substantial results. Nearly 40 m. ha of potential has been added during these 32 years. There is no doubt room for improvement in the implementation of plans particularly in limiting the number of projects to be executed at a

time. But irrigation is a State subject and the needs, resources and capabilities vary from State to State. Emphasis is always laid on the completion of on-going schemes. Even in the Sixth Plan, out of a total outlay of Rs. 8391 crores for major and medium irrigation projects, over Rs. 6000 crores are provided for on-going schemes. The development of irrigation particularly during the last few years has been quite substantial in spite of various constraints. It cannot, therefore, be inferred that planning has been a failure."

2.20 Asked about the steps taken to ensure that the number of spillover projects was kept to the minimum, the Planning Commission have stated:

"The Planning Commission has requested the State Governments not to take up any new projects until the on-going projects are substantially completed. The Commission had also requested the State Governments to hold in abeyance work on new projects which are still in initial stages. The States have also been told that only expenditure on approved projects will be considered as Plan expenditure for purposes of Central assistance. Every effort is being made to reduce the number of new projects taken up by the States.

It is only by greater discipline and observance of the instructions contained in the letters and circulars issued from the Planning Commission and the Ministry of Irrigation that the situation can be expected to be remedied in the coming years."

2.21 The Committee enquired if there was any major irrigation project which had been completed within the stipulated period and approved outlay since inception of planning. In reply, Adviser, Irrigation stated:

"I am sorry, I do not think any project has been completed according to the schedule."

2.22 In reply to a written question whether there was a single irrigation, power or flood control project in the whole of India which had been completed within the time schedule from the date

of approval and within the estimates, the Planning Commission have stated:

“No project in the Irrigation, power or flood control sectors has been completed within the time schedule from the date of approval and within the estimates.”

G. Investments and irrigation potential created

2.23 The Committee enquired about the investments made in the irrigation sector and the potential created during the various plan periods, for major and medium and minor projects separately. The information furnished by the Planning Commission is reproduced below:—

| Plan | Investment (Rs. crores) | | | Cumulative potential (million hectares) | | |
|------------------------|--------------------------|-----------------|--------------------|--|-------|-------|
| | Major and Me- dium | Minor | | Major & Medium | Minor | Total |
| | | Govern- ment | Institu- tional | | | |
| Pre Plan | | | | 9.7 | 12.9 | 22.6 |
| First Plan (1951-56) | 300 | 76 | Negilgible | 12.2 | 14.1 | 26.3 |
| Second Plan (1956-61) | 380 | 142 | 19 | 14.3 | 14.8 | 29.1 |
| Third Plan (1961-66) | 581 | 328 | 115 | 16.6 | 17.0 | 33.6 |
| Annual Plans (1966-69) | 434 | 326 | 235 | 18.1 | 19.0 | 37.1 |
| Fourth Plan (1969-74) | 1237* | 513 | 661 | 20.7 | 23.5 | 44.2 |
| Fifth Plan (1974-78) | 2442** | 631 | 780 | 24.8 | 27.3 | 52.1 |
| Annual Plans (1978-80) | 2072 | 515 | 490 | 26.6 | 30.0 | 56.6 |
| Sixth Plan (1980-81) | 1225 | 284 | | 27.55 | 31.40 | 58.95 |
| 1981-82 | 1425 (Anticipated) | 296 | | 28.68 (Anticipated) | 32.90 | 61.58 |

*Does not include the outlay of Rs. 50.54 crores on unapproved Couvery Basin Projects.

** Does not include the outlay of Rs. 52.24 crores on unapproved Couvery Basin Projects.

Note: Besides the Government outlays and Institutional investments, Sizable investments are made by the farmers from their own resources. Data on such private investments however are not available.

2.24 Asked how the investments made and irrigation potential created compared with the outlay proposed in the various plans and the achievements anticipated during the various plan periods, the Planning Commission have furnished the following information :

| | Major and Medium Irrigation | | | | Minor Irrigation | | | (million hectares) | |
|------------------------|-----------------------------|--------------------|--------------------|--------------|------------------|--------------------|-----------------------|--------------------|--------------|
| | Plan provision | Actual expenditure | Potential | | Public Sector | | Institutional outlays | Targets | Achievements |
| | | | Target | Achievements | Plan provision | Actual expenditure | | | |
| | (Rs. crores) | | (Million hectares) | | (Rs. crores) | | | | |
| Pre Plan | | | 9.7 | 9.7 | | | — | 12.90 | 12.90 |
| First Plan | | 300 | 3.4 | 2.5 | | 76 | Negligible | 4.45 | 1.16 |
| Second Plan | 426 | 380 | 4.2 | 2.1 | 66 | 142 | 19 | 3.64 | 0.73 |
| Third Plan | 600 | 581 | 5.2 | 2.3 | 177 | 328 | 115 | 5.18 | 2.22 |
| Annual Plan (1966-69) | 402 | 434 | 2.5 | 1.5 | 310 | 326 | 35 | 4.25 | 1.99 |
| Fourth Plan (1969-74) | 951 | 1237(a) | 4.8 | 2.6 | 516 | 513 | 661 | 3.20 | 4.50 |
| Fifth Plan (1974-78) | 3095 | 2442(b) | 5.3 | 4.1 | 792 | 631 | 780 | 5.20 | 3.80 |
| 1978-79 | | 977 | | 1.8 | | 237 | 490 | | 1.30 |
| 1979-80 | 1096 | 1095 | 1.13 | | 234 | 278 | | 1.50 | 1.40 |
| 1980-81 | 1240 | 1225 | 0.94 | 0.94 | 282 | 284 | 265 | 1.50 | 1.40 |
| 1981-82 | 1400 | 1425* | 1.13 | 1.13@ | 299 | 296* | 275 | 1.55 | 1.50 |
| TOTAL | | 10096 | 38.80 | 28.68 | | 311 | 2840 | 43.37 | 32.90 |

(a) Excludes Plan outlay of Rs. 50.54 crores on unapproved Gauvery Basin Projects.

(b) Excludes non-Plan outlay of Rs. 52.24 crores on unapproved Gauvery Basin Projects.

*Anticipated expenditure.

@Anticipated achievement.

Minor irrigation outlays do not include investment made by private individuals for which figures are not available.

2.25 During the last three decades of planning, the progress achieved in the matter of development of irrigation potential amounts to 50 per cent of the ultimate potential of 113 M. ha. The target of extending irrigation facilities to an area of 11 M. ha. is proposed to be achieved by 2000 AD which calls for creation of 3 M. ha. potential per year in the coming years. Asked to state what institutional arrangements have been made or proposed for facilitating the realisation of this target and whether any estimate has been made of the financial resources required for the purpose, the Planning Commission have stated:—

“Already over 2 M.ha. of additional irrigation potential is being created every year. This has to be raised to a level of 3 M.ha. per year. The Irrigation Departments in the State Governments and also the Departments handling minor irrigation development are being suitably strengthened for achieving this revised programme. In addition, the machinery and procedures for providing institutional credit to private farmers for developing minor irrigation facilities are also being strengthened.

A rough assessment has been made of the financial resources required for this purpose. At 1979-80 prices, the cost of developing the balance potential may be of the order of Rs. 50,000 crores.”

Additional potential created through major and medium irrigation schemes during the Fifth Plan (1975-76) to 1978-79)

2.26 During evidence, the Committee enquired about the additional irrigation potential created during the Fifth Five Year Plan *vis-a-vis* the targets. The Secretary, Ministry of Irrigation replied:—

“For the period 1974 to 1979, the target fixed was eleven million hectares of potential to be created out of which 5.8 million hectares was to come from major/medium projects . . . achievement has been 5.158 million hectares.”

2.27 The Committee pointed out that under the first 20-Point programme announced in 1975, 5 million hectares were to be added during the four years 1975-76 to 1978-79. In reply to USQ No. 2419 answered in the Lok Sabha on 8 March 1982, the Minister of Irrigation had replied in the affirmative to the question whether the Prime Minister in her broadcast to the Nation on 14 January (1982)

had said that "the target of providing irrigation to five million hectares has been fulfilled". The statement of additional potential created, State-wise, during 1975-76 to 1978-79 for major and medium irrigation schemes appended to the reply showed that the achievement was 5.082 million hectares i.e. 4,780 m. hectares from continuing schemes and .302 million hectares from new schemes. The Secretary, Ministry of Irrigation, replied:—

"I will check up if that has been stated in the Parliament. If achievement of 0.802 million hec. for 1974-75 is deducted from the achievement of 5.158 m.hec., the potential achieved in the four years will be 4.356 million hec. During 1975—79 it is 4.356 million hec. i.e. 5.158 minus 0.802 which comes to 4.356 . . . Obviously, it seems to be a mistake in reporting . . . Probably the figure of 5.08 m. hectare which is for a period of five years, that has been quoted against four years. I am sorry for the error."

2.28 In a subsequent note on the subject, the Ministry of Irrigation have stated:—

"The error in the reply to the above unstarred question answered in the Lok Sabha on 8th March, 1982 came to notice during the oral evidence before the Public Accounts Committee. The 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."

Development of Irrigation potential in the Sixth Plan

2.29 The Economic survey for the year 1982-83 states:—

"Development of irrigation has commanded a high priority in the national plans, and is an important item in the revised 20-Point Programme. The total irrigation potential of 22.6 million hectares in existence in 1950-51 had increase in 56.6 million hectares in 1979-80. Additional irrigation potential of 2.3 and 2.5 million hectares respectively was created in 1980-81 and 1981-82. This may

be compared with an average of about one million hectares during 1950-51 to 1970-71. During 1950-51 major/medium irrigation sources accounted for 43 per cent of the total irrigation potential. This share increased to 47 per cent by 1979-80. In the additional potential of 34 million hectares created during this period the contribution of major/medium schemes was 16.9 million hectares and that of the minor schemes 17.1 million hectares."

The survey further states:

"Minor irrigation projects cost much less and promote rural capital formation because a part of the investment is funded through the farmers' own savings. Time-lag between investment decision and the flow of benefits is comparatively small. The problem of non-utilisation of the created minor irrigation potential often arises on account of factors like inadequate availability of power, diesel oil and poor maintenance of equipments etc. . . There is substantial scope for further raising the irrigation Potential through minor irrigation schemes particularly in the regions outside the Punjab-Haryana belt in the north and Tamil Nadu in the South. Minor irrigation needs to be given a high priority in the works undertaken under the Integrated Rural Development Programme, Drought-prone Areas Programme, Desert Development Programme, and the National Rural Employment Programme."

In a note regarding the outlays proposed in the Sixth Plan in respect of major, medium and minor irrigation schemes and the extent of benefits anticipated from these schemes, the Planning Commission have stated:

The following provisions were made in the approved Sixth Five Year Plan:

- | | |
|---|---------------------|
| (i) Major and Medium Irrigation Schemes | Rs. 8391.36 crores |
| (ii) Minor Irrigation Schemes* | Rs. 1811.30 crores. |

*In addition, institutional investment of Rs. 1700 crores is envisaged.

The benefits anticipated were as under:

- | | |
|---|-----------------------|
| (i) Major and Medium Irrigation Schemes | 5.7 million hectares |
| (ii) Minor Irrigation Schemes | 8.0 million hectares. |

The target for the Plan has since been raised to 14 million hectares. Taking into account the cost escalation and increase in potential target, an additional outlay of Rs. 2600 crores would be required as per assessment made by the Ministry of Irrigation.

The progress made in the first two years of the Sixth Plan is as follows:—

| Year | Million hectares | | |
|----------------------------|-----------------------------------|---------------------|-------|
| | Major and Medium Irrigation | Minor Irrigation | Total |
| 1980-81 | 0.94 | 1.40 | 2.34 |
| 1981-82 (likely) | 1.13 | 1.50 | 2.63 |
| TOTAL | 2.07 | 2.90 | 4.97 |

“2.30 In reply to a question about the steps being taken to develop minor irrigation facilities on a much larger scale because minor irrigation affected a large number of farmers, the Secretary, Ministry of Irrigation stated:

“We are aware that the Command Area Development approach that is being adopted for major and medium irrigation projects should also be adopted for Minor Irrigation projects. We have been urging the States. It may not be possible to create a command Area Development authority for each minor irrigation project . . . But we have been urging the States to have a command area approach even for the development of minor irrigation projects. In some cases some States have grouped a small number of projects so that they could be brought into the Command Area Development Authority. So far it has not been possible for the Command Area Development authorities to include minor irrigation projects.”

2.31 Asked to indicate the provision made for new projects to be approved during the Sixth Plan for substantial implementation in the Seventh Plan, the Planning Commission have stated:

“The lump sum provision in the Sixth Plan for new schemes is as follows:

| | |
|--------------------|------------------|
| New major schemes | Rs. 159 crores. |
| New medium schemes | Rs. 118 crores.’ |

H. Delays in the Completion of projects

2.32 The Sixth Five Year Plan document has pointed out that some of the irrigation projects have been lingering on for more than 15 to 20 years. These include Nagarjunasagar Project, (Andhra Pradesh), Gandak Project (Bihar), Kosi Project (Bihar), Malaprabha Project (Karnataka), Kallada Project (Kerala), Tawa Project (Madhya Pradesh), Rajasthan Canal Project and Kangsati Project (West Bengal). The Committee enquired about the reasons for delay in the completion of these projects. In reply, the Ministry of Irrigation have stated that:

Since the start of planning era in 1950, there has been great emphasis on development of river valley projects. In the Second Five Year Plan and the beginning of Third Five Year Plan, a number of major irrigation projects were taken up. The 8 projects mentioned above were all started during this period. The formulation, planning and implementation of these projects are of great complex nature and the technical and managerial resources available at that time naturally were limited. Even so, with a view to meet the needs of the country for increased food and fibre production, work was started on these projects. Although, investigations were carried out for fixing dam sites, and for dam or barrage foundations, detailed investigations on the canal systems were carried out later and in most of the cases, the estimates framed were based on preliminary investigations and cost studies of one or two small branches or distributaries. A per-acre cost was adopted for working out the total cost of the canal system. Also provision for drainage etc. were made on *ad-hoc* basis. It was only in the course of construction of the main dam and barrages that further detailed investigations were carried out for the canal systems, railway crossings, cross drainage structures etc. All this naturally led to the revision of the estimates formulated earlier.

During the sixties, there was large escalation in the cost of products due to large scale rise in the cost of labour, equipment and construction material. The provision for land was also found to be inadequate in most of the cases. The cost of rehabilitation of the people ousted from the reservoir area also went up.

There was also difficulty in procurement of construction equipment particularly where foreign exchange was involved. Spares were also difficult to obtain and the unit cost of the construction through machinery underwent changes. Shortage of explosives, steel and cement were also experienced resulting in further delay in the construction of the projects.

Irrigation projects are financed by the States. Most of the States had taken up a large number of projects to meet the demand from different regions and also to meet the requirements of drought prone areas, backward areas etc. Naturally, this led to thin spreading of the financial, managerial and technical resources resulting in further delays in the execution of the projects. Some delay could also be attributed to procedural difficulties, sanctions etc.

The mounting costs, frequent revisions of project estimates and consequent delays in the completion of irrigation projects have been causing great concern to the Government for a long time. In order to carry out scientific investigations into the causes, the Government of India as far back as in 1972 constituted a Committee of experts including the Central and State officers under the Chairmanship of Shri Naegamwala, the then Member, Central Water Commission. The Committee submitted a detailed report in April, 1973 after carrying out case studies of some important projects and detailed discussions with the state Governments. Copies of the Report of this Committee were forwarded to the State Governments for initiating remedial action as recommended by the Committee

The recommendations of this Expert Committee were considered in the first Conference of the State Irrigation Ministers held in July 1975. The Conference recommended that "State Governments should set up broad-based organisation for investigation and formulation of new projects and provide adequate funds for comprehensive investigations of new projects and formulation thereof based on adequate data."

Subsequently, the Working Group constituted by the Planning Commission in May 1980 for formulation of the proposals for the Sixth Five Year Plan 1980-85 under the

Chairmanship of the Secretary, Ministry of Irrigation also went into this aspect, namely, the delays and cost escalation in the various irrigation projects. The causes identified by the Naegamwala Committee as well as the Working Group referred to above can broadly be summed up as below:—

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

2.33 As to the steps taken to expedite the completion of these projects, the Ministry of Irrigation have stated:

Proliferation of Projects

At the time of the formulation of the Five Year and Annual Plans both the Ministry of Irrigation and Planning Commission have been insisting on the State Governments not to take too many projects in hand resulting in thin spreading off various resources. However in actual practice, this position still continues, Even so, while recommending the

outlays for the projects, emphasis is always given on provision of adequate outlays for completion of on-going projects within a time bound programme. In fact one of the main strategies adopted during the Sixth Plan is the completion of on-going projects. In pursuance, the Planning Commission, just before the formulation of the Sixth Five Year Plan indicated 1st April 1976 as a cut off date and wanted that as many of the major Irrigation projects as were under execution at that time should be completed within the Sixth Plan period. Out of 82 such major irrigation projects, 65 are proposed to be completed during the Sixth Plan. One of the important recommendations of the Working Group in this regard was "it is therefore necessary to ensure that out of the available resources, maximum allocation will have to be made for on-going projects on priority and that no diversion of resources to other non priority projects takes place. While taking up new projects, accent has to be given for providing maximum resources to the short gestation medium projects and for modernisation of old canal systems and other projects which will enable more efficient water use."

Large escalation in costs

Since the sixties, there has been a continuous large scale escalation in costs/prices of materials, labour, equipment, land etc, while the precise rate of escalation cannot be estimated at the time of plan formulation, there is a need to provide for the anticipated escalation in the plan so that the physical targets and the construction programmes of the projects proposed in the Plan are achieved. However, so far, in the Plans, provision for such escalation is not made. Consequently, in real money terms, the resources available for each individual project get reduced resulting in further thin spreading of financial resources, which in turn amounts to further escalation in costs over the dealed time frame.

Proliferation of Projects

Right from the First Conference of the State Irrigation Ministers held in July, 1975, the State Governments have been advised to set up Cost Control Cells for all major projects to keep a continuous watch over construction costs. The

progress in this regard has also been reviewed in the subsequent Conference. However, most of the State have yet to set up such Cells. In most cases investigations were carried out only for the main dam and other appurtenant structures but for the canal distribution system, only a flat rate on the basis of area commanded was adopted for working out the total cost of the system.

Delays in decision taking

In major projects, one of the contributory factors is delay in taking decisions at various levels. Realising this aspect, the Third Irrigation Ministers' Conference held in November, 1977 "recommended that a review of delegation of financial powers may be taken with a view to increasing the delegation to lower levels of engineering administration, and suitable machinery should be created in the States for taking expeditious decisions relating to implementation of projects." While some State Governments have implemented this recommendation, this is yet to be implemented by majority of the States. This will also involve an overall change in the existing procedures for according financial sanctions etc.

The Working Group constituted by the Planning Commission in May 1980 to formulate the Sixth Five Year Plan also emphasised that adequate powers should be delegated to the Chief Engineers and other officers in charge of the projects. Control Boards have also been set up on several major projects in order to expedite the major decisions on various aspects of the projects.

Difficulties in land acquisition

The necessity of meeting and streamlining the procedure for land acquisition which at present is time consuming has been felt for quite sometime. Accordingly, the Government of India had appointed Land Acquisition Review Committee to examine the provisions of the Land Acquisition Act of 1894. This Committee made a number of recommendations. These were also endorsed by the Irrigation Commission as well as Naegamwala Committee. Implementation of these recommendations lies exclusively within the purview of the State Governments. Even now, there are quite a few projects where long delays are

taking place on account of difficulties in Land Acquisition. A proposal to amend the existing Land Acquisition Act, 1894 is also under the consideration of the Government of India.

Changes in scope of projects during the implementation .

As already pointed out earlier, on account of inadequate investigations, some changes during actual implementation of the projects become necessary. In order to avoid major changes, first irrigation Ministers' Conference held in July, 1975 recommended to the State Governments to associate the Central Water Commission right from the stage of investigations and preparation of feasibility reports in respect of projects costing more than Rs. 30 crores. The State Governments however, did not implement this recommendation. The Ministry of Irrigation therefore set up a Committee to formulate detailed guidelines for the preparation of detailed project reports. Report of this Committee was circulated to all the State Governments in January 1981. The Planning Commission has also issued revised circular indicating the technical and financial aspects as in the above report which should be dealt with by the State Governments in their projects reports. Similarly, earlier projects did not include the component of drainage arrangements and flood protection to command areas. However, or late on the insistence of the CWC and the Planning Commission, provisions of drainage and flood protection in the command areas of irrigation projects are made as an integral part of the projects.

Lack of construction, planning and monitoring Organisations

As far back as in 1975, the first Conference of State Irrigation Ministers identified lack of adequate monitoring and evaluation as one of the important factors hindering the implementation of the plans. The Conference recommended setting up of an effective Monitoring Organisation at project, State and Central levels. In accordance with this recommendation, the Central Monitoring Cell was set up in CWC in August 1975 which was subsequently, strengthened and at present it monitors 66 selected major irrigation projects in the country. Although the progress of setting up Monitoring Organisation at the Project and the State levels has been constantly reviewed

at subsequent Conferences of Irrigation Ministers, adequate and fullfledged Organisations in all the States have not yet been set up. However, this is being vigorously followed by the Ministry of Irrigation.

Lack of Detailed Plans and Estimates for Distribution system and Structures thereon

It has been seen that in many cases, there were no detailed investigations done before taking up work on execution of canal system. Due to lack of detailed plans for distribution system, the work of their execution lagged behind and the accrual of benefits was delayed. During the investigation stage, the tendency is to concentrate attention on investigation for major structures like dams or barrages and relatively very little attention is paid to investigations for canal systems. The need for detailed and thorough investigations has been repeatedly stressed on the State Governments, who have been asked to establish broad-based, multi-disciplinary organisations for investigation of new schemes.

Updating of Estimates

Realising the fact that there has been no serious effort towards updating of cost estimates at regular intervals, the Ministry of Irrigation and the Irrigation Ministers' conference have been stressing on the State Governments the needs to set up Cost Control Cells on major projects who would keep continuous tracks of actual costs and suggest measures for effective savings. It was also indicated that such Units can be assigned the task of updating of cost estimates at regular intervals.

The Working Group constituted by the Planning Commission in its Report in November 1980 went into this problem and suggested the following actions:

- (i) A detailed physical programme should be prepared spelling out year-wise targets, which should be scrutinised at the highest level for every major project, which would also include State Planning and Finance representatives.
- (ii) There should be an effective system of reviewing and updating the cost of the project every year. It should

be made obligatory to review the cost of the project every year. Such review should be based on the trend of cost of work as available during the year. The State, Planning and Finance Departments must be effectively involved in such a review. The actual Plan allocation to the scheme should invariably be based on such revised cost keeping the target date of completion unaltered.

Various factors responsible for delay in costs of the projects and the various steps taken by the Planning Commission and the Ministry of Irrigation for various projects as outlined earlier are also applicable in the case of these 8 projects.

In the Sixth Plan emphasis has been laid on expeditious completion of as many on going major Schemes as technically and financially feasible. Out of the eight projects, full spillover expenditure has been provided in the Plan for six projects, namely, Nagarjunasagar, Gandak, Kosi, Tawa, Kangsabati and Rajasthan Canal, Stage-I."

(a) *Cost Overruns*

2.34 A statement showing the estimated and actual of all major on-going projects as well as new projects taken up during the Fifth and Sixth Five Year Plans (so far) is reproduced in Appendix I. It is seen therefrom that the latest cost estimate in respect of these projects is of the order of Rs. 10,022 crores as against the original sanctioned cost amounting to Rs. 3,074 crores, i.e. an increase of 232 per cent. 32 of these projects have shown cost overruns of 500 per cent or more. These are:—

Andhra Pradesh

1. Nagarjunasagar
2. Sriramsagar Stage I
3. (Pochampad Stage I)

Bihar

4. Gandak
5. Kosi Barrage & Eastern Canal
6. Bagmati Irrigation

7. Western Kosi Canal

8. Sone HLC

9. Rajpur Canal

Gujarat

10. Mahi Kadana

11. Sabarmati

12. Panam

Haryana

13. Loharu Lift Irrigation

Karnataka

14. Malaprabha

15. Upper Krishna (Stage I)

Kerala

16. Periyar Valley

17. Pamba

18. Kallada

19. Kuttiadi

20. Chittarpuzha

21. Kanhipuzha

22. Pazhassi

Maharashtra

23. Wama

24. Kukadi (Stage I)

25. Khadakwasla (Stage I)

26. Upper Tapi

Rajasthan

27. Rajasthan Canal Stage I

28. Rajasthan Canal Stage II

29. Jakham

Uttar Pradesh

30. Gandak

31. Sarda Sahayak

32. Tehri

2.35. A statement showing the originally approved cost of major irrigation projects that have been lingering on for more than 15 to 20 years, the latest cost estimate, the expenditure incurred till end of 1979-80, and the outlay approved for such projects during the

Sixth Plan, as furnished by the Planning Commission, is reproduced below:—

MAJOR IRRIGATION PROJECTS LINGERING FOR MORE THAN 15 to 20 YEARS

(Rs. Crores)

| Sl. No. | Name of Scheme | Estimated cost | | Expenditure to end of 1979-80 | Spillover cost as on 1-4-1980 (as per 6th plan discussion) As now indicated) | Approved Sixth Plan Outlay (1980-85) | Expenditure during | | |
|---------|-----------------|------------------------|-------------|-------------------------------|---|--------------------------------------|--------------------|-----------------------|---------------------------------|
| | | As originally approved | Latest cost | | | | 1980-81 (Actual) | 1981-82 (Anticipated) | 1982-83 (Target Plan Provision) |
| 1. | Nagarjuna Sagar | 91.1 | 537.0 | 360.0 | 173.0 177.0 | 173.0 | 39.54 | 40.0 | 42.0 |
| . | Gandak | 36.6 | 415.81 | 230.89 | 184.99 184.92 | 185.0 | 26.55 | 31.0 | 37.5 |
| 3. | Kosi | 24.8 | 149.70 | 91.80 | 57.90 57.90 | 57.9 | 7.38 | 7.3 | 9.0 |
| 4. | Malaprabha | 19.19 | 192.0 | 104.35 | 78.65 87.65 | 50.0 | 10.89 | 10.0 | 10.0 |
| 5. | Kallada | 13.3 | 176.0 | 34.3 | 141.7 141.7 | 120.0 | 10.96 | 20.0 | 20.0 |

| | | | | | | | | |
|----------------------------|--------|---------|---------|--------|--------|--------|--------|-------|
| 6. Tawa | 20.2 | 96.08 | 82.24 | 10.78 | 10.78 | 5.45 | 4.75 | 3.50 |
| | | | | 13.84 | | | | |
| 7. Rajasthan Canal Project | | | | | | | | |
| Stage I | 66.00 | 208.20 | 191.40 | 9.50 | 9.50 | 6.25 | 4.50 | 6.10 |
| | | | | 16.40 | | | | |
| Stage II | 89.12 | 286.00 | 60.54 | 225.46 | 150.00 | 15.21 | 27.00 | 21.40 |
| 8. Kangsabati | 25.26 | 84.00 | 65.93 | 18.07 | 10.0 | 3.26 | 5.0 | 5.0 |
| TOTAL | 386.07 | 2144.71 | 1221.45 | 869.00 | 766.18 | 125.49 | 149.55 | 154.5 |
| | | | | 923.00 | | | | |

(b) *Time over-runs*

2.36. The Sixth Plan document refers to the following 8 irrigation projects which have been lingering on for 15 to 20 years. The Committee enquired about the exact dates of approval of each of these project and commencement of work thereon. The Planning Commission have furnished the following information:—

| S.No. | Name of Scheme | Date of approval by Planning Commission/Ministry of Irrigation. | Date of commencement of work |
|-------|-------------------------------------|---|------------------------------|
| 1 | Nagarjunasagar (Andhra Pradesh) | 22-9-60 | 1955 |
| 2 | Rajasthan Canal Project (Rajasthan) | | |
| | Stage I | 4-7-57 | 1958 |
| | Stage II | 17-5-72 | 1972 |
| 3 | Gandak (Bihar) | 13-7-61 | 1961 |
| 4 | Kosi (Bihar) | 25-4-58 | 1955 |
| 5 | M. Japrabha (Karnataka) | 5-8-63 | Octo. 1960 |
| 6 | Kallada (Kerala) | 4/7-2-66 | 1961 |
| 7 | Tawa (M.P.) | 5-8-60 | 1956 |
| 8 | Kangasabati (West Bengal) | 28-11-61 | 1956 |

2.37. The Committee pointed out during evidence that there had been a number of instances where work on the project had been started long before sanction was accorded by the Planning Commission. For example, the Nagarjunasagar project was approved by the Planning Commission/Ministry of Irrigation in 1960 whereas work on the project was commenced in 1955. Similarly, on the Kosi project the work had been commenced in 1955 whereas the project was approved in 1958. The Secretary, Planning Commission replied:—

“Without disagreeing with the sentiments that have been expressed in this regard. I want to say, it is deplorable that it is so. I am not justifying. But the point is these are the continuous processes. It is not as if the State without sending estimate or telling the Irrigation Ministry or the Planning Commission jumps off and starts projects, the projects are listed, investigated. The estimates are prepared by the technical authorities in the States, who

I would not say are incompetent or anything like that. This is the first point that I would raise.

More and more, over the years the irrigation plans have been financed by the State funds. Till the Cadgil formula came into being the assistance was tied to specific sectors it was not tied on to the project, etc., it is a different thing. Total assistance related to Plan outlay. The States postulate schemes. They investigate the schemes. In investigating the schemes they do so in consultation with the Irrigation Ministry, with the Planning Commission. They prepare estimates. They have their own engineering staff. These estimates are sent to the Central Water Commission it is not as if the work has been started without the particular project having been accepted as worthy of inclusion in the Plan or without any kind of estimate. I do not defend that what ever has been done, it is right. Without the formal seal of approval the work has been started, it is wrong. Nevertheless the processes are going on. Discussions go on between the States and the Central authorities. I entirely submit to the view of the Committee, which is the right view that there should be a certain discipline and proper procedure in regard to these things."

2.38. Of 74 major projects started between 1976 and 1980 full details such as detailed project reports have been received for 64 projects and only 49 have been approved by the Planning Commission. While broad details have been made available for the balance of 10, detailed project reports are still awaited from the State Governments. The Committee enquired how so many projects could be started without the approval of the Planning Commission|Central Water Commission. The Planning Commission have replied:—

"Irrigation is State subject and Central assistance is in the form of block loans|grants not necessarily tied to any individual project or sector. Therefore, the States are able to spend on unapproved projects. When the Working Group of the Planning Commission recommends allocation for any of such unapproved projects in the Plan document, it is on the stipulation that the project would be got cleared from Planning Commission."

2.39 Asked to furnish details of projects in respect of which even the PR, has not been received by the Centre so far the progress made

in their execution and up to date expenditure on these projects, the Planning Commission have stated:—

“The progress of expenditure and the position of PR in respect of the 10 project are given below:—

| (Rs. in crores) | | | | |
|-----------------------|---|-----------------------|---------------------------|--|
| 1. No. | State/Name of project | Latest estimates cost | Expdr. till 3/82 (antcd.) | Remarks |
| <i>Andhra Pradesh</i> | | | | |
| 1. | Improvement of Nizamsagar | 15.12 | 13.91 | Report still not received. |
| <i>Bihar</i> | | | | |
| 2. | Konar Diversion | 22.76 | 11.61 | Report under Examination. |
| <i>Karnataka</i> | | | | |
| 3. | Hippargi Burrage | 75.51 | 3.57 | Report not received. |
| <i>Haryana</i> | | | | |
| 4. | Partshare cost of storage on Kotla, Bindwas, Ottu lake & Massai Barrage | 10.00 | 4.16 | Report under examination. |
| 5. | Sultej Yanuna Link | 130.00 | 38.54 | Report under examination. |
| <i>Madhya Pradesh</i> | | | | |
| 6. | Bander Canal | 2.26 | 1.93 | Report not received. |
| <i>Maharashtra</i> | | | | |
| 7. | Istapuri | 32.24 | 1.00 | Report under examination. |
| <i>Punjab</i> | | | | |
| 8. | Extension of non-perennial irrigation to UBDC | 6.20 | 5.71 | Report not received. |
| <i>Uttar Pradesh</i> | | | | |
| 9. | Increasing Capacity of Zamani a Pump Canal | 10.89 | 4.28 | Replies to comments of GWC not received. |
| 10. | Bewar Feeder | 9.67 | 2.96 | Replies to comment of GWC not received. |

2.40 It would be seen that most of the States have taken up a large number of projects to meet the demands from different regions and also to meet the requirements of drought prone areas, backward areas etc. and that this has led to thin spreading of the financial, managerial and technical resources resulting in delays and cost escalation. The Committee enquired about the steps taken to discourage States from taking up too many new projects. The Secretary, Ministry of Irrigation stated in evidence:—

“... We try to restrict new projects, but the States do not always abide by the directive or guidelines of the Planning Commission or the Ministry concerned”.

2.41 The Committee enquired whether the State Governments had been told of any stage that unless the required funds were provided for ongoing projects, new projects would not be approved by the Planning Commission. In reply, the Secretary, Ministry of Irrigation stated:—

“... we also believe that there should be certain stricter discipline in the inclusion of new major projects. Today in the Annual Plans we are recommending that funds for certain ongoing projects must be provided. But the result is that they have taken up certain new projects and for new projects also they have to make some provision. That is why the position becomes so very tight. We feel that a certain system must be evolved to take care of all these things. The States must give complete programme regarding completion of projects ongoing projects, on hand. This is to be done before a new project is sanctioned or accepted by the Planning Commission. Along with that, they should say whether they are able to ‘fund’ these projects. They should complete it within a reasonable time. Such a certificate from them would somewhat improve the present arrangement. I don’t think this is a complete solution, but this is the best we can think of, under the circumstances.”

2.42 Asked whether the Planning Commission had assured that only such projects for which a full detailed survey had been carried out, were sanctioned, the Secretary Planning Commission stated in evidence:—

“The process of approved by the Planning Commission is preceded not only by a survey and the preparation of a

detailed investigation by the State Governments concerned but also by a detailed investigation by the Central Water Commission and the Ministry of Irrigation....It is only on the basis of that that the final approval of the Planning Commission is given."

2.43 In reply to a pointed question whether the committee could take it that unless the approval of the Planning Commission was there, no work on any project has been or should be started, the Secretary, Planning Commission replied:—

"Unfortunately, that is not so....It is quite true that in a number of cases, the work has been started in anticipation of the approval of the Planning Commission....These are projects which are discussed, which are there and which are listed out. When I said, "in anticipation", but before the formal sanction comes through, the work has started. It is so in some cases, not in all cases."

2.44 Further asked whether the States had taken up any projects without discussion with the Irrigation Ministry or the Central Water Commission, the Secretary, Ministry of Irrigation replied:—

"...They have submitted the project reports to the Irrigation Department and the Central Water Commission. But before the projects are processed, before they are examined to the satisfaction of the Central Water Commission in consultation with the States and they are put up before the Technical Advisory Committee and the Planning Commission and before they have taken the approval, they have gone on with the projects on their own."

2.45 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. 5,951 crores (including institutional outlays of Rs. 2840 crores) on minor irrigation. The cumulative target for creation of irrigation potential during this period was 59.57 m.h. (29.10 m.h. under major and medium 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.

2.46 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 the 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."

2.47 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 this 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.

2.48 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.h. would be of the order of Rs. 50,000 crores. This works out to nearly Rs. 7000 per hectare. As the total shortfall during the 31 years of planning was of the order of 20.59 m.h. 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 short-falls 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.

2.49. 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—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.

2.50. 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. 13680 crores i.e. an increase of 290 per cent over the original estimate of Rs. 4025 crores. 32 of these projects have shown cost overruns of 500 per cent or more.

2.51. 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.

2.52. As many as 8 major projects, viz. Nagarjuna Sagar (Andhra Pradesh) Gandak (Bihar), Kosi (Bihar), Malaprabha (Karnataka), Kalunda (Kerala), Tawa (Madhya Pradesh), Rajasthan Canal Project Stage-I, Stage-II (Rajasthan) and Kangasabati (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 on these projects amounted to Rs. 1221.45 crores and the spill-over cost as per latest indications would be Rs. 923.30 crores.

2.53. The Committee observe that while full spill-over expenditure has been provided in the Sixth Plan for Nagarjuna Sagar, Gandak, Kosi, Tawa, Kangasabati and Rajasthan Canal, Stge-I, the other projects viz Malaprabha, Kallada 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.

2.54. During the Sixth Five Year Plan a total provision of Rs. 10,202.66 crores has been made—Rs. 8,391.36 crores for major and medium irrigation and Rs. 1,811.30 crores for minor irrigation schemes. In addition, institutional investment of Rs. 1,700 crores is envisaged for minor irrigation schemes. The physical target of 13.7 million hectares (5.7 m.h. for major and medium irrigation and 8 m.h. for minor irrigation) is stated to have since been raised to 14 million hectares. The Committee understand that taking into account the cost escalation and increase in the potential target an additional outlay of Rs. 2,600 crores would be required as per assessment made by the Ministry of Irrigation.

2.55. 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.

2.56. 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 programmes 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.

2.57. The reasons for large scale delays and huge cost escalation in various irrigation projects as identified by the Naegamwala 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 thin 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;
- (vi) 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 organizations in the States;
- (ix) lack of detailed plans and estimates for the distribution systems and structures thereon; and
- (x) failure to update the estimates and keep the State Governments informed of the rise in cost of projects.

2.58. 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 have 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 cement, steel, coal etc. to enable completion of the projects within the time schedule laid down and within the approved estimates.

2.59. 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.

2.60. 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 new 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 interse priorities of the projects so that it is possible to choose the right ones within the constraints of resources.

2.61. 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 feed-back 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 Governments at the highest level.

2.62. 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 anticipated 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.

2.63. 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.

2.64 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 investigations needed therefore. 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 measures.

2.65 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.

I. Strengthening of investigating machinery

2.66 The Committee desired to know the time taken by the Central Water Commission in clearing proposal for a major irrigation project after its receipt by the Commission. The Planning Commission have in a note stated:

“During the last three years (1978-81), 36 irrigation projects were recommended by the Central Water Commission for consideration of the Advisory Committee of the Planning Commission. A study of these 36 projects shows that the

following is the average time taken in clearing the projects by the Central Water Commission:

| | | |
|---------|-------|-----------|
| 1978-79 | . . . | 42 months |
| 1979-80 | . . . | 34 months |
| 1980-81 | . . . | 28 months |

The main reasons for delay in clearing major irrigation projects are:—

- (i) Lack of adequate field investigations and data;
- (ii) Lack of detailed analysis of rates adopted for estimates;
- (iii) Lack of hydrological studies required for realistic estimates of water yield and flood;
- (iv) Ecological and Environmental aspects not having been adequately dealt with;
- (v) Inadequate details regarding norms for rehabilitation.

If the project reports are prepared in conformity with the guidelines issued by the Central Water Commission from time to time, there should be no inordinate delays in clearing the projects. This would avoid unnecessary correspondence with State Governments resulting in considerable delays. But this is not the case. States are in a great hurry to submit the projects without proper investigations, without adequate hydrological studies and without realistic estimates and without settlement of inter-State aspects where they exist. Other aspects requiring compliance can be played down but on certain basic issues, there can be no compromise.

As the project reports as received are not usually worthy of acceptance, voluminous comments are required to be sent. There is considerable delay in receiving replies to these comments and in most cases the replies are found to circumvent the main issues which result in further correspondence."

2.67 The Committee enquired if the time taken in clearing the projects could be reduced. The Secretary, Ministry of Irrigation stated in evidence:

"Quite a lot of time is taken to clear the projects from the technical and techno-economic angle.... We are trying

to see how it can be streamlined. If the States do the investigation in sufficient detail, we will be able to expedite their clearance. But somehow, for various reasons, it has not been possible for the States to do that. All the same, there is substantial improvement in the preparation of projects. We have published in the form of a booklet the steps by the CWC and the Ministry of Irrigation guidelines so that it may help the States that if the project costs more than Rs. 30 crores, during the stage of investigation, the States may associate the CWC with the project so that the time required for complying with the comments of the CWC is reduced. In this way, we are trying to make a positive impact on the States. Sometimes the reaction of the States to the association of the CWC with the investigation of the project has not been that adequate. We are pursuing this with the State Governments. The States say 'whenever we have any difficulty, we will associate the CWC'. I feel there is some need to gear up the process; but the basic gearing up will have to come from the States in terms of a well-prepared project."

The witness added:

".....I must say that the projects which are being received are not complete in as far as they do not strictly follow the guidelines which have been laid down. Their estimates are not based on the actual costs which are obtained on other projects being implemented in the State; sometimes soil survey is not carried out, etc. Now, those are the aspects which are being discussed in the CWC. Now, we have decided that Member, CWC will have discussions with the State Governments so that wherever necessary modifications are made. But this whole process of project preparation has got to be improved by the State Governments. They have, no doubt, strengthened the organisation but the quality requires to be improved.

We have another system evolved whereby the State Government has to give priority. Many of the States have to day many projects going on and we have been feeling strongly that there is need for restraint on taking up new projects so that on-going projects which have started yielding benefits are completed on time. This is how we try to expedite the clearance of the project so that it does not

affect adversely the irrigation programme. Now, Sir, topographical surveys are required for three main purposes. First is the dam-site vicinity survey and submergence survey. Those surveys are being done. But topographical surveys are required to be done for fixing the command limit. I am sorry to say in several projects these surveys are not there."

2.68 In this context, the Committee drew attention to the criticism that investigation machinery in the States was not manned by competent persons and enquired about the steps being taken in this regard. The witness replied:

"I do not deny that the survey staff which have been posted are not the most competent staff. In fact, there is a common cadre for construction, designs, investigations and planning and the people who are posted for investigations are not the best. I fully share this feeling. We have drawn the attention of the State Governments at various forums that these investigation staff should be given incentives in terms of sumptuous allowances. The placement policy of the staff also should be such that a man who has rendered his services in surveying and investigation work must only be considered for promotion to the next higher post. So, the placement policy, personnel policy should be re-oriented so that officers who have been posted for survey and investigation works are given incentives and they are given certain sumptuous allowance because they have to stay away from the families. All these matters have been discussed in various forums. I think the State Governments have also increased the incentive allowance to the survey staff. In the Central Government also, we have taken up the matter. We have been constantly pursuing the matter with the Finance Ministry and we have been able to get some better incentives. But still the incentives are not adequate. We continue to pursue the matter further."

2.69 In a further note furnished to the Committee on the subject, the Planning Commission have stated as follows:—

"Generally, survey and investigation works are in far off, distant and difficult locations. The work is also of an arduous nature. Facilities by way of housing, medical attention, schooling, etc. are limited. In view of this, most of the staff are reluctant to go for investigation

work, let alone competent men. Apart from this, the more competent men are often posted for the execution of works with a view to showing results and utilising budgetary outlays.

A solution to this difficult problem is in providing incentives to investigation staff by way of housing, transport, medical facilities, education facilities for their children etc. It may also be necessary to provide separation allowance in case of the families if they are to be kept at a distant place for the sake of education of children. Also the staff incharge of investigation should be rotated periodically so that every person has to spend some part of his career in investigation work. Those who do outstanding work in investigation should also be suitably rewarded by promotion, commendation certificates etc."

2.70 The Committee enquired whether it would be desirable to have a Central agency to assist the States in preparing project reports on survey, investigation, designing and appraisal. The witness replied:

"We in CWC work as a consultancy organisation for all the States. Wherever such assistance is asked for, it is given. Sometimes if the workload is more, if some assistance is asked for detailed designs, if we find that there is shortage of staff, we get staff sanctioned at the cost of the States. We charge consultancy fee. It is more appropriate that the State organisation for investigation is strengthened and manned by capable staff. This is one of the points we have been taking up with the State. In the investigation, by and large, the trend is changing recently. The investigation of projects was not being given that much attention, in so far as deployment of personnel is concerned...."

He added:

"We are trying to persuade the States to keep us associated right from the formulation of projects, so that we will be able to tell them these are the additional details and these are the studies which you may have to do. In addition to this, these are the areas where they have to improve the capabilities because the technology is improving fast. So, we conduct regular refresher courses. There are six courses conducted in the Central Water Commission every year for the last more than 6 years."

In reply to another query from the Committee, the witness stated:

"We feel that a better sort of planning could be possible if an integrated view is taken. We are trying to persuade the States to go in for an integrated planning. We are also, taking positive steps to develop the implementation capability of the States about which I have already indicated.

We have been trying to provide better personnel for the investigation job. There is a definite improvement in this regard. But I do not say that I am satisfied with this improvement. Something more should be done. In that direction I would feel that closer association with the Central Water Commission is required. If the projects are to be taken up by the Centre alone, this might create difficulties. For example, if we have to investigate a project in Bihar, a person from Delhi cannot go there and investigate it properly. So, I think it is best done by the States. But I feel that there should be greater involvement of the Centre."

He further continued:

"We in CWC act as a consultant. On design matters we also take up assignments on behalf of the States. We carry out certain designs when they request us. It is essentially on their request. We do have some projects which were taken for investigation. It is relatively small part of our activity. One of the indications which I had given earlier is whenever project report is prepared, the State Government should associate the Central Government at investigation stage so that the project does not get delayed in CWC."

2.72 The Irrigation Commission (1972) had recommended that early steps should be taken to set up an Indian Service of Engineers. Asked about the present position in the matter, the Planning Commission have stated:

"The matter has been under consideration since August 1961. It will take some more time for a final decision to be taken and efforts are being made by the Department of Personnel and Administrative Reforms to obtain the view of some of the State Governments whose reactions are still awaited."

2.73 In reply to a further question, the Secretary Ministry of Irrigation stated:—

“This question of inadequate investigation and surveys being taken up after the project is started, was a major problems in 50s and 60s. But from the experience that was gained, lot of effort had been put in on a number of fronts..... The investigation units of various State Governments have been strengthened. Now I think, most of the States have got Chief Engineers-in-charge of investigation units. Every year, adequate funds are being allocated by the Planning Commission for irrigation sector. In fact, that is the first charge. Whenever there are working group discussions in the Planning Commission they first ask about the shelves of projects. If there is no shelf, then they tell them, “You must prepare your projects.” This aspect is now being much more emphasized not only by provision of funds but also there are staff training institutes which have been started in various States. Also at the Centre, we are conducting courses as to what are the different techniques for investigation and what are the latest techniques, such as aerial photography, remote sensing geo-physical....studies from photo interpretation. All these things are now being advocated so that not only the time is saved but money also is saved. Certain weak spots which were not identified with the region are being identified. The methods of investigation are known right in the beginning so that all attention is focussed on studying certain weak spots for a particular project, may be dam or whatever it is, and adequate or appropriate treatment is evolved.

So, I think, this subject is now getting sufficient attention. But still I must say that so far as the association of the Central Water Commission is concerned, the State Government have been quite averse to associating the Central Water Commission. We have pursued it very much with the State Governments that we would like to assist them. But still the State Governments are averse to associating the Central Water Commission. Perhaps, they have got the fear that there may be certain inter-state aspects which will become known to the Central Government and their projects might be delayed. This might be one of the reasons. We have not been able to make good progress in associating the Central Water Commission with the investigation of projects.”

2.74 The Committee desired to know as to what extent modifications/revisions had been responsible for delays and cost escalations in the case of major projects. The witness stated:

“That is not the only cause for cost escalation. The price escalation is a phenomenon which is the result of many factors such as inadequate investigations, delays in implementation, rise in cost of labour materials, equipment as also inadequate provisions. After all, some items are not provided for in the original estimates. It so happens. For instance, drainage is not provided for in many projects. Besides, our design criteria have also changed over the years. Formerly, our canal systems used to extend upto 150 to 250 hectares blocks and the farmers were supposed to provide the field channels within the block. Then, the idea changed. We saw to it that for those farmers who will not be able to provide that, we did it upto 40 hectares. The latest thinking of the Planning Commission is that we must go upto eight hectares. Once we extend the canal, the technical provisions and the project cost, also increases. The Neagamwala Committees report has gone into to see what is the percentage of contribution involved in each case with reference to certain specific projects. That will mean giving particular guidelines so that we go into details of each project to see what are the reasons for the cost escalation of each project. The cost escalation for each project may be different from the reasons given for some other projects.”

2.75 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.

2.76 There has been general criticism that persons entrusted with responsibility for planning, investigating and designing of projects are not most competent. The Committee would stress that career 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 and Administrative Reforms and commend to the States for adoption so that this significant lacuna in the planning process could be removed.

J. Allocation of Resources

2.77 The Committee desired to know the percentage share of financial resources for irrigation and multipurpose projects *vis-a-vis* the total outlay in each of the five year plans and asked whether this could be related to the relevant sectoral rate of growth during each plan period as expected and as actually achieved. In reply, the Planning Commission have stated:—

“Table (below) provides the percentage share of financial resources allocated for irrigation in all the successive plans, *vis-a-vis* the total public sector plan outlays. As is evident, the percentage share on irrigation has almost remained stationary over the first five plans. Furthermore, the actual expenditure in most cases is higher than what has been allocated during plan formulation.... Baring the Third and Fourth Plan, in almost all cases, the actual realisation was higher or almost the same as stipulated in the Plan. It is not possible to relate the rates of growth of foodgrain production and the share of public sector outlay going for irrigation firstly because the foodgrain production comes largely from areas not under irrigation (nearly 70 per cent of the areas producing foodgrains are rainfed) and secondly because it will be a specification error to try to relate percentage shares of expenditure with the growth rates in the volume of physical production”.

Percentage share of Irrigation Outlay/Expenditure (Major, Medium & Minor) in the total Public Sector outlay and rate of growth of foodgrains production

(Rs. crores)

| Plans | Actual Expenditure (at current prices) | | Plan Outlays (at constant prices) | | | Rate of growth in Foodgrain Production | | | |
|-----------------------------|---|---------------------------|--------------------------------------|---------------------------|------|---|--------|----------|------|
| | Irrigation | Total Public Sector | %Irrigation | Total Public Sector | % | Target | Actual | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1. First Plan (1951-56) | | 376 | 1960 | 19.2 | .. | 2356 | .. | 3.52 | 5.30 |
| 2. Second Plan (1956-61) | | 522 | 4672 | 11.2 | 492 | 4800 | 10.25 | 2.23 | 3.35 |
| 3. Third Plan (1961-66) | | 909 | 8576 | 10.6 | 777 | 7500 | 10.36 | 4.78 (-) | 0.46 |
| 4. Fourth Plan (1969-74) | | 1750 | 15779 | 11.1 | 1467 | 15902 | 9.23 | 6.04 | 0.89 |
| 5. Fifth Plan (1974-79) | | 4287 | 39426 | 10.9 | 3887 | 39322 | 9.89 | 4.46 | 4.07 |

*Three year moving average have been used for the base year in the case of targets and both base and terminal year in case of achievements.

2.78 From 1969-70 the Central assistance has been in the form of the block loans and grants covering, among other things, irrigation projects also, but without being related to individual projects. Asked about the total Central assistance given since 1967-70 for irrigation projects as a whole, the Planning Commission have furnished the following note:

“It is true that since the beginning of Fourth Five Year Plan 1969-70, the States have been given Central assistance in the shape of block loans and block grants for the State Plan as a whole. The total Central assistance for each State was determined according to the Gadgil formula during the Fourth Plan and Fifth Plan. One of the components of this formula was major continuing irrigation and power projects for which 10 per cent of the total available assistance was made available to the States. This assistance was worked out for the plan period as a whole and was not later related to either specific irrigation and power projects for the five-year period or for any particular year. The total outlay in the five-year period for such projects was worked out and the amount available under this criterion was distributed among States on pro-rata basis. It is, therefore, not possible to give the figures of Central assistance for irrigation projects made available under the Gadgil formula, though a part of the Central assistance notionally did flow to the States for this purpose. It may, however, be mentioned in this connection that there has been a system of earmarking of plan outlays for specified sectors, programmes, projects and schemes including certain irrigation projects and a shortfall in approved Plan outlays attracts a proportionate cut in the entitlement of Central assistance.

The Gadgil formula was modified at the time of the finalisation of the Sixth Plan and 10 per cent of Central assistance for continuing irrigation and power projects was eliminated and instead further 10 per cent assistance was made available for backward States whose per capita income was below the national average.

In addition to the Central assistance to the States under the Gadgil formula, certain States were provided assistance for certain irrigation projects during the Fourth Plan period and subsequent years in view of the constraints of resources experienced by them and the need to maintain the tempo of progress in respect of these projects. During

the Fourth Plan period, non-plan assistance of Rs. 82.96 crores was made available for selected irrigation projects as under:

| | (Rs. crores) |
|------------------------------------|--------------|
| 1969-70 | 11.27 |
| 1970-71 | 5.11 |
| 1971-72 | 6.32 |
| 1972-73 | 37.32 |
| 1973-74 | 23.02 |
| Total Fourth Plan | 82.96 |

During 1973-74, certain States were also provided assistance under Advance Action for Fifth Plan for certain irrigation projects amounting to Rs. 50.62 crores. During 1975-76, and 1976-77, certain States were also provided advance Plan assistance for selected irrigation projects:

| | (Rs. crores) |
|-------------------|--------------|
| 1975-76 | 55.80 |
| 1976-77 | 39.90 |

This assistance was adjusted against the State's normal Central assistance for the Fifth Plan.

The advance assistance provided to States for Irrigation Projects in 1977-78 and for minor irrigation in 1977-78 and 1978-79 is indicated below:

| | (Rs. Crores) |
|---|--------------|
| Irrigation projects (1977-78) | 172.37 |
| Minor Irrigation (1978-79) | 21.38 |

Since 1975-76, some of the States have, apart from the normal Central assistance for the Plan, been given additional Central Assistance for externally, aided projects in the

Irrigation and C.A.D. Sectors. The year-wise details are indicated below:

| | (Rs. Crores) |
|-------------------|--------------|
| 1975-76 | 4.71 |
| 1976-77 | 2.75 |
| 1977-78 | 6.27 |
| 1978-79 | 25.97 |
| 1979-80 | 65.81 |
| 1980-81 | 177.79 |
| 1981-82 | 114.72 |
| | 319.59 |

2.79. The Committee during evidence enquired if any instance had come to the notice of the Planning Commission where funds allocated for specific projects had been diverted to other projects. The representative of Planning Commission stated:

“For most of the on-going important projects, the funds are not only allocated for each project but are also earmarked and communicated to the States. But it has come to our notice that, in a few cases, the States do divert the funds to other projects. I will mention one such instance. This year we have earmarked funds for the Nagarjunasagar Project. This is one of our priority projects which we want to be completed in the Sixth Plan period because it has already been delayed. Even so, a part of the funds earmarked nearly Rs. 4½ to 5 crores, has been diverted to other irrigation projects within the State. We have written to the State that such diversion should not take place, but the State has been explaining that they had certain difficulties in spending all the money and, therefore, they were diverting....”

2.80. The Committee enquired if action has been taken against any State Government for diversion of funds, the witness replied:

“Not in the irrigation sector.”

2.81. Asked if the Planning Commission have any punitive authority to exercise in such cases, Adviser, Monitoring Planning Commission replies:

“...the only authority it has is to make a pro-rata cut in Central assistance if there is a shortfall in earmarked outlays.”

2.82 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 State 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.

2.83 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.

K. Centrally sponsored Schemes

Command Area Development

2.84. One of the strategies of development of irrigation sector in the Sixth Plan is the strengthening of Command Area Development Organisation and authorities. In a note on the subject, the Planning Commission have stated:

“Command Area Development is a Centrally Sponsored scheme covering 76 major medium irrigation projects with 15 m.ha. of cultivable Command Area (CCA) and spread in 16 States and the UT of Goa. 45 Command Area Development Authorities (CADA) covering 71 projects have

been set up by State Governments. The remaining 5 projects (3 in Tamilnadu, 1 in Assam and 1 in Manipur) are being implemented by the State Government Department concerned. However, in all these 76 projects, Central assistance in the shape of grants and loans are given as follows:

A. Grants

- (i) Half of the cost of all establishment required for project preparation, planning, implementation, supervision and monitoring of CADP in the States/UTs., including establishment of CAD authorities and Training Centres.
- (ii) Half of the cost of expenditure incurred for topographical, soil and other surveys required for preparation of CAD project reports, designing and planning work of field channels, lining of field channels, land leveling and shaping, realignment of field drains, farm roads and warabandi etc.
- (iii) Half of the cost of design, planning and enforcement of warabandi system in outlet commands including rostering of irrigation channels.
- (iv) Half of the crop compensation to be paid to farmers for 2/3rd of the value of standing crops/Rabi crops to be foregone for doing land levelling in unavoidable cases.
- (v) Half of the cost incurred for Adaptive trails, Demonstration and Training on the schemes to be got pre-approved from Government of India.
- (vi) Half of the cost for giving subsidy to be adjusted against loans to small and marginal farmers, cooperatives and community works on the IRDP pattern, in vogue on the following works:
 - (a) Field channels including lining and laying of underground type pipe conveyance system.
 - (b) Ground water development for conjunctive use.
 - (c) Field drains.
 - (d) Land levelling and shaping.
 - (e) Sprinkler & drip irrigation.

- (vii) 25 per cent of the cost of construction of new field channels to carry irrigation water from Government outlet to individual farm holdings. The construction of field channels would include necessary and required control and other structures and lining including laying of underground pipeline or overhead troughs on pillars or arches, in sandy soil reaches or heavy filling reaches.
- (viii) Half of the cost of systematic evaluation studies of on-going CAD projects to ascertain the merits and deficiencies of their implementation to be entrusted to independent agencies like State Planning or Evaluation Directorates, Institutes, already existing in the States, if any, and towards either setting up a new Directorate or strengthening existing ones.

B. Loans to the State Government matching basis i.e. 50:50

- (i) Construction of field channels (25 per cent of cost).
- (ii) Purchase of equipment and machinery for land and ground water development.
- (iii) Providing equity support to Land Development Corporations, Farmers' Service Societies etc.
- (iv) Creation of the Special Loan Account for financing ineligible farmers for the execution of on-Farm Development.

A decision to include new projects under CADA has also been taken during this year. This has been conveyed to the States asking for their detailed proposals in this regard."

2.85. The Committee desired to know the quantum of grants and loans released to the State Governments for Centrally Sponsored Schemes of Development of Command Areas and Soil Conservation in the catchment areas of projects. The Planning Commission have stated that between 1961-62, when the scheme was launched and

1981-82, the Central Government had released a total amount of Rs. 97.96 crores as given below:

(Rs. in crores)

| | Grant | Loan | Total |
|-------------------|-------|-------|-------|
| 1. States (18) | 42.29 | 40.49 | 82.78 |
| 2. Chandigarh U.T | 0.57 | * | 0.57 |
| 3. D. V. C. | 14.61 | .. | 14.61 |
| | 57.47 | 40.49 | 97.96 |

*50 per cent loan component of D.V.C. is being borne by the Corporation.

Expenditure incurred on Headquarters Organisation comes to Rs. 0.01 crores, thus making a total of Rs. 97.97 crores.

2.86. The Committee desired to know the deficiencies that had come to light in the execution of Centrally Sponsored Schemes, particularly the Command Area Development Scheme. The Planning Commission have replied:

“The strategy of identification of priority watersheds and treating such watersheds with integrated management plan has been found effective. However, certain deficiencies have been experienced in implementation and these do come in the way of achieving the desired objective within a short time-frame. The main deficiencies are given below:—

- (i) Slow pace of programme implementation. Only 6.89 per cent of the total priority area has been treated and covered about 7 per cent of total catchment areas.
- (ii) Lack of adequate financial and organisational support for maintenance of the works carried out under this scheme.
- (iii) Motivational problems to overcome the resistance of people to participate in collective and cooperative programmes.
- (iv) Lack of extension support to translate the recommended follow-up and operational programmes into practice.

- (v) Indiscriminate exercise of rights and concessions in the forests located in critical areas hinder effective treatments of lands in time.
- (vi) Inadequate system for collecting the collateral data and storing the same for carrying out representative concurrent appraisal and provision on programme corrections.
- (vii) Inadequate multi-disciplinary capability of organisations for planning, implementing and monitoring, the integrated plan.

2.87. Asked about the precise steps taken to overcome these deficiencies, the Planning Commission have stated:

“The Central Government has a responsibility to see that these deficiencies are overcome. However, the scheme is operated through the joint efforts of the States and the Centre. For overcoming the difficulties too, such joint efforts are needed and are being made all these deficiencies are, by and large, due to the financial constraints. The Central Government, however, has attempted to enhance the provisions over the successive plan period. It will be seen that against an expenditure of Rs. 11.09 crores incurred during the 3rd Plan and a total amount of Rs. 90.91 crores spent till 1979-80, the 6th Plan provision is of Rs. 71.80 crores. This amounts to an increase in the annual expenditure to the tune of 186 per cent of the annual expenditure rate of Rs. 5.05 crores for the period upto 1979-80. However, in view of the quantum of work to be executed and escalation of labour wages, salaries and cost of material much more allocation needs to be provided for expeditious treatment of the identified areas.

Out of the total catchment of 77.67 million ha. as per available priority delineation survey and estimates, 23.7 million ha., representing approximately 31 per cent of the total catchment area, needs to be covered by soil conservation programmes. Against this, an area of 1.64 million ha. spread over selected priority watersheds having a total area of 5.5 million ha. has been treated. This amounts to 23 per cent of the total priority watershed area of 23.73 million ha. Again, till 1979-80, an area of 1.43 million ha. was treated. Average annual progress was 0.80 million ha. spread over 0.25 million ha. During the 6th Plan, an area of 0.6 million ha. will be treated or priority watershed

area of 1.8 million ha. will be covered. The annual programme implementation, thus works out to treating an area of 0.12 million ha. or covering 0.36 million ha. of priority watershed area. The increase in annual implementation rate is, therefore, of the order of 44.0 per cent of the average rate for the period between 1961-62 and 1979-80.

Participation of the people and their willingness to cooperate in taking up collective and cooperative progress and operating and maintaining the created assets are absolutely necessary for the programme to be successful. Similarly, for providing a sufficient time for recuperation of the catchments following the implementation of the programme some restraint in the exercise of the social rights and privileges in respect of use of land are necessary. For these, policy directions are needed besides creation of general consciousness. In order to achieve these objectives, the States have been urged to introduce some legislation in the light of the model bill circulated by Ministry of Agriculture during 1959 and recirculated in 1967 and 1974. As a result, 14 States and two Union Territories have so far enacted such legislation which provide for bringing together the prospective beneficiaries at various forums and for initiating dialogues and developing a consensus in programme formulation and implementation. Similarly, the States have been urged to set up a high level body namely, the State Land Use Board under the Chairmanship of the Chief Minister for providing policy directions and helping in achieving coordination among the concerned departments in the matter of health and care of inelastic soil resource bases. So far, 20 States and 6 Union Territories have set up such boards. The Centre also is setting up an appropriate agency at the national level to provide expert advice to the Government in the matter of policies relating to care and health of soil and also to oversee the activities of the State Land Use Boards.

Under the approved schemes, States, are being provided financial support to develop appropriate multi-disciplinary organisations and establish a system for data collection which will help proper monitoring of the programme. Within the prevailing conditions, reasonable progress has been made in these directions."

2.88 Among the several strategies of development of irrigation in the Sixth Plan is the strengthening of Command Area Development Organization—a Centrally sponsored scheme covering at present 76 major/medium irrigation projects with a 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 Areas and soil conservation in the catchment areas of project. 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 multi-disciplinary capability of organisations for planning, implementing and monitoring the integrated plan have come to notice during the course of execution of these programmes.

2.89 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.

L. Supply of Inputs

2.90 The Committte enquired as to what extent the availability of inputs to match the Plan targets of outputs was ensured as part of the planning process for irrigation. In a note, the Planning Commission have stated:—

“Main difficulty in regard to inputs is experienced with respect to cement and availability of wagons for transporting coal for preparing tiles for lining of canals. So far as cement is concerned, a method of earmarking quantities required for the irrigation sector has been evolved and with this, it has been possible to ensure adequate

supply of cement with certain limitations attributable to the overall shortfalls in the production of cement. During periods of dire necessity, import is also arranged. So far as availability of wagons is concerned, a continuous watch is kept on the demand and availability and whenever there is any shortfall, the matter is immediately taken up with the Railway Ministry for remedial action."

2.91 The Annual Report of the Ministry of Irrigation for the year 1981-82 states that the Ministry of Irrigation had been reviewing the essential materials like cement, coal and steel etc. and coordinated efforts for procurement of the allotment of central quotas with concerned Ministries. Asked in this context whether the Ministry had been able to ensure the supply of proper inputs, the Secretary, Ministry of Irrigation stated as under:

"Sir, the question of shortage of cement was taken up at the cabinet level and Government decided to give priority to irrigation and power projects and, as such, this year 6 million tonnes of cement was earmarked—this earmarking procedure has been continuing—but I must point that we have not been able to get more than 60 to 65 per cent of the quantity allocated. Coal requirement is from States which burn bricks, viz., Haryana, Punjab, Rajasthan and Gujarat. About 60 to 70 per cent of their coal requirements are being met."

2.92 In reply to a further question the witness stated:—

"Special allocation has been made to irrigation and power sectors and that has improved the situation. Of course, it has not improved to the extent it should have."

2.93 In reply to a question whose responsibility it was to ensure availability of inputs like technical personnel, cement, steel, equipment etc. and also the foreign exchange required for buying the machinery, the Secretary, Ministry of Irrigation, stated:—

". . . In regard to scarce materials such as cement, coal etc. we try to help them by allocating them in adequate quantities and if foreign exchange is required, we scrutinise the requirements and then we recommend the foreign exchange for implementation of the projects."

2.94 In a subsequent note the Planning Commission have furnished the following data with regard to allocations and despatches of Cement for Irrigation and Power Projects during 1979—1982:—

(In lakh tonnes)

| Year | State Quota | | | Central Quota | | | Total | | |
|-----------------------|-----------------|-----------------|------|-----------------|-----------------|------|------------------|-----------------|------|
| | Allo- cation | Des- patches | %age | Allo- cation | Des- patches | %age | Allo- cations | Des- patches | %age |
| 1979 | 41.22 | 27.44 | 66.6 | 3.78 | 1.56 | 41 | 45.00 | 29.00 | 64 |
| 1980 | 51.69 | 37.89 | 73 | 6.79 | 3.70 | 54 | 58.48 | 41.59 | 71 |
| 1981 | 56.10 | 47.71 | 71 | 13.90 | 7.90 | 57 | 69.84 | 48.61 | 69 |
| 1982 (upto August) | 38.31 | 27.94 | 73 | 6.27 | 3.71 | 59 | 44.58 | 31.65 | 71 |

(The figures of despatches indicated above do not include despatches of imported cement as the department-wise break-up is not available).

2.95. The demand for and allocation of Steel to major and medium Irrigation Projects for the period from 1980-81 to 1982-83 had been as under:

| Year | Demand | Allocation |
|--------------------------------------|-------------------|---|
| 1980-81 (April 80 to March 81) | 5.64 m. ton | 1.79 lakh m. tonnes* |
| 1981-82 (April 81 to March 82) | 6.41 lakh m. ton. | 4.24 lakh m. tonnes (Including JPC allocation & allocation arranged directly from producers and through imports) |
| 1982-83 (April 82 to March 83) | 3.65 lakh m. ton | 1.94 lakh m. tonnes (Including allocation from JPC and direct- ly from producers). |

*According to the decision of the Steel Priority.

2.96 As regard the supply of coal the Ministry of Irrigation have in a note stated as follows:

“Several Project Authorities in the States of Gujarat, Har-
yana, Punjab, Rajasthan and Uttar Pradesh had reported
shortages of coal which is required for manufacturing
bricks for canal lining. The main difficulty being experi-
enced was non-availability of rakes/wagons for move-
ment of coal. The difficulties being faced by the Irriga-
tion Project Authorities due to shortage of coal were dis-

cussed in the Conference of State Ministers of Irrigation held in November, 1980 at Bangalore and a Resolution was adopted by the Conference *inter-alia* urging the Government of India to assign the same priority for allocation of Railway wagons for Coal movement for irrigation projects as is assigned to power projects which is next to defence and Food. . . .

. . . The Ministry of Irrigation took up the matter with the Cabinet Committee on Infra-structures on 9th February, 1981 and the Cabinet Committee in its meeting held on 12-2-81 decided to allocate 1500 wagons per month for movement of coal to the following five needy states as per break up given below:—

| | | | |
|------------------------|----------------------|------|-----------------------------------|
| 1. Gujarat | 250 wagons per month | | |
| 2. Haryana | 375 | -do- | |
| 3. Punjab | 125 | -do- | |
| 4. Rajasthan | 500 | -do- | |
| | | | (500 for RCP & 250 for CAD works) |
| 5. U. P. | 257 | -do- | -do- |
| | 1500 Wagons | -do- | |

It was decided to continue the above programme for a period of six months in the first instance. *i.e.* upto June, 1981...

Committee (JPC 1979) the quantity of M. S. Rounds and Bars to be allocated on main producers will be restricted to 25 per cent of the demand to be supplied by the main producers. The balance quantity was to be procured directly by the State/Project authorities from the Mini Steel Plants and Re-rollers for which billets were being made available to re-roller by JPC. This was applicable to the year 1980-81. Presently the position of steel was eased.

The allocation of wagons to the above States was again discussed in the meeting held in the room of Secretary (Coordination), Cabinet Secretariat on 29-7-81 and

allocation of 15 rakes per month was made for movement of coal in the above States as per break-up given below:—

| | |
|------------------------|--------------------------|
| 1. Gujarat | 2 rakes per month |
| 2. Haryana | 3 rakes per month |
| 3. Punjab | 1 rake per month |
| 4. Rajasthan | 6 rakes per month |
| 5. U.P. | <u>3 rakes per month</u> |

15 rakes per month

But according to the replies received from the various project authorities, the actual receipt of rakes fall far short of the programme, as will be observed from the following statement showing the position in regard to allotment and actual receipt of rakes for movement of coal to various Irrigation Projects for the period March, 1981 to June, 1982. . . .”

Position regarding allotment and actual receipt of rakes for movement of coal to Various Irrigation Projects for the period from March, 81 to June, 1982.

| S. No. | Name of State | Allotment by Ministry of Irrigation. | Allotment by Railways | Actually received | |
|--------|-----------------------------|--|-----------------------|-------------------|-------------------------------------|
| 1. | Uttar Pradesh | @ . . 3 rakes per month. | 48 | 5 | 4 |
| 2. | Rajasthan RCP-CAD | @ . . 3 rakes per month. | 48 | 32 | 30 |
| | RCP | -do- | 48 | 24 | 24 (Information only upto No., 81). |
| 3. | Haryana | March to July' 81. @5 rakes per month. | 25 | 15 | 15 |
| | | August' 81 to June, 1982. @3 rakes per month. | 33 | | |
| 4. | Punjab | @1 rake per month. | 16 | Nil | Nil |
| 5. | Gujarat | @2 rakes per month. | 32 | Nil | Nil |

2.97 Asked about the measures taken to remedy the situation, the Secretary Planning Commission stated in evidence:

"In regard to every input, the exercise is something that is taken into account in the economy as a whole. Production in the economy and production of various goods in the economy is by and large inter-linked-cement, steel, power and all the basic ingredients. The total projection of the Plan, the requirements of various inputs in the various sectors & the infrastructural requirements are calculated by the working groups set up by the Planning Commission in consultation with the various Departments and a total exercise is made. It is this total exercise, if I may say so, that forms the basis for the production plans. In the production sector, after all, the projection for all the related inputs will have to be taken into account, namely the requirement of cement etc., in the various sectors including the irrigation sector. Apart from irrigation, there are several other sectors which use large quantity of cement. The production plan will have to take into account all these requirements. On this basis, the figures are arrived at and production plans are prepared. The production in one sector, in many cases, depends upon the behaviour or the performance of other sectors. . . .

Once the calculations are made, we cannot assume automatically that the actual production in the various sectors, that the performance in the various infrastructural sectors which go to feed the sectors will be exactly as assumed. Therefore, monitoring of each under the scheme by the persons responsible for the performance by these sectors is necessary, and called for and is done. Obviously, this has to be done by several different people. What is required is coordination.

. . . the CWC takes note of the requirements of various irrigation projects and other projects under the Commission and it coordinates with the concerned authorities. But this is conditional upon the behaviour of the production sector.

In case of cement, it is duty of the Department of Industrial Development to monitor and distribute. It may be that for various reasons, in a year, the production of cement falls short of the target. There may be a number

of reasons. There are other cases. In 1979-80, it was a disaster. Again 1980-81 was a bad year with regard to power production. A large number of production utility plans in various sectors had to be curtailed very significantly in the area of steel, fertilizer and so on. As a result of this, the production of cement was also affected.

Then the question of management or coordination between the various sectors comes up. Here, you have to take into account apart from the sectors to which distribution is directly monitored or looked after by the Department, the private sector. There is a sector which takes for its own use where there is no distribution. The needs of these things are to be taken into account. This is done by the Industrial Department."

2.98 In reply to a further question, the Secretary, Ministry of Irrigation stated:

"... what really happens is that when a project is sanctioned and aken up for implementation the detailed progress from year to year, the construction programmes and the programmes for procurement of materials in time are not being made and this is what we emphasised in the last Irrigation Ministers' Conference also. We passed a resolution that detailed plans will be prepared and the programme for procurement of materials also will be laid down. For instance, steel is available, but the indents are not placed on time. If we place indents at the last moment, the material will come very late. We have to indent well in time and that material has to be included in the country's rolling programme or has to be re-rolled so that we get a particular category of steel. So, the whole question of preparing of detailed plans and estimates on time is necessary.

Secondly fixing up of agencies in time. Thirdly preparing inventories of materials that are required from time to time and putting them out on time. This is where the real deficiencies occur and the State Governments have not been able to plan in all cases quite in time. That is the reason for delay. So far as the Central Government is concerned, whenever the State Government tells us that they require steel, then we definitely take up with the Steel Ministry."

2.99 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 years 1980-81, 1981-82 and 1982-83, the allocations on the main producers were only to the extent of 1.79 lakh metric tonnes, 4.24 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.

2.100 The Committee consider that this situation needs to be remedied on an emergent basis. While it is necessary in the first instance 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 Central Water Commission which is entrusted with the responsibility of monitoring the progress of 66 major irrigation projects must act as the nodal agency for coordinating the supplies and ensuring their smooth flow to the respective project areas.

M. Provision for cost escalation and cost control

2.101 The Maegawvala Committee had observed that as an instrument of planning, it would be unrealistic if no arrangements are made to take notice of the crucial factor of inflation. It had, therefore, suggested that to cover the increase owing to economic

changes over the long period, an appropriate indicator of price rise (i.e. an adjustment factor) should be constructed and the increase so obtained added to the estimate as a supplementary provision for adjustment cost estimate of plan projects.

2.102 In a note of the subject, the Planning Commission have stated that this recommendation was not accepted for reasons detailed below:—

“Since planning began, the estimate of resources as well as cost of programmes/projects has been worked out in terms of basic prices and price stability is assumed throughout the planning period. The progress of the plan has to be monitored in terms of increase in real income and investment and therefore, there is no escape from making this assumption. Moreover, due to conceptual and operational difficulties, it is not been possible to build cost escalation in the Plan estimates. Some of these are spelt out below.

It is not possible to predict with any degree of precision the behaviour of prices from year to year and the Plan period as a whole. The past trend does not provide any usual guide in this matter. For example, the average wholesale price index (1970-71 as the base) was 174.9 in 1973-75, 173.0 in 1975-76 176.6 in 1976-77 and remained constant at 185.5 in the next two years. Similarly, the average All India Consumer Price Index (1960-100) was 317 in 1974-75, 313 in 1975-76 and 301 in 1976-77 and moved up to 324 in 1977-78 and 331 in 1978-79. During the Fifth Plan period, thus a fair measure of price stability was witnessed. In the following two years, 1979-80 and 1980-81, however, there was sharp increase in the wholesale price index to 217.6 in 1979-80 and 257.3 in 1980-81. Since then there has been deceleration in the growth rate of prices. The price behaviour has been different in different Plan periods.

It is not possible to forecast again with any fair degree of accuracy the behaviour of relative prices and movement of prices of various inputs. The Indian experience shows that sometime agricultural prices go up and industrial prices do not move to the same degree and sometimes a fall in agricultural prices is offset by increase in price of manufactured goods. Thus, consistent trend in relative prices is not visible in our economy.

So far as Plan estimates are concerned, it is not so much the changes in the wholesale price index or the consumer price index but the investment deflator which is more relevant. The past experience shows that there is no consistency in the trend of these three indices—wholesale price index, CPI index and price of investment goods (investment deflator). The investment deflator becomes available after a lag of about two years. In the circumstances, it is not possible to anticipate the behaviour of the investment deflator in the going years at the time of formulation of the Five Year Plans.

The investment deflator is also not uniform for different projects and sectors. This varies from year to year, from sector to sector and from project to project depending upon the composition and character of Investment and changes in the prices of inputs.

Every successive Five Year Plan has aimed at price stability from economic and social point of view. Building in the price rise in the Plan estimate is likely to generate the psychology of inflation and inflationary expectations. Even if there is no inflationary potential in the economy, this very policy may generate inflationary pressures. Under the circumstances, any guess in regard to the behaviour of prices and cost escalation would be a risk venture.

While theoretically, conceptually and operationally it is not possible to build in price rise in Plan estimates, the fact is recognised that there is always a possibility of cost escalation of projects. These are taken care of through the instruments of annual plans which allows the adjustment in the phasing of outlays of various projects and programmes keeping in view the availability of resources and the cost escalation and change in cost estimates from year to year."

2.103. Asked whether cost central cells had been set up for all major projects so as to help in controlling costs and keeping the estimates up-to-date, (as recommended by the Naegamvala Committee) the Planning Commission have stated that State level Cost Engineering Cells/Cost Control Cells have been set up in a few States viz. Karnataka, Gujarat, Bihar, Punjab and Uttar Pradesh and in Union Territory of Goa, Daman and Diu. Such cells have been set up at the project level in Karnataka, West Bengal, Haryana, Madhya

Pradesh, Gujarat and Tamil Nadu. The effort is to persuade the States to set up such Cells in all major projects. This requires urgent attention by the State Governments particularly to keep the estimates up-to-date.

2.104. 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 it would be "a risky venture". While the Committee would not like to go into the merits of this issue, they consider 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.

2.105. The Committee find that in pursuance of the recommendations of the Naegamwala 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 up-to-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.

CHAPTER III

UTILISATION OF IRRIGATION POTENTIAL

A. Targets and Achievement

3.1 The Sixth Five Year Plan gives the following data regarding benefits from major, medium and minor irrigation schemes to end of 1979-80 and the targets of additional benefits during the Sixth Plan:—

(000 hac. gross.I)

| | | Ultimate Irrigation Potential | Irrigation benefits to end of 1979-80 | Targets of additional benefits during Sixth Plan. | | |
|--------------------------------|--------------------------------------|-------------------------------------|--|---|----------------|------------------|
| | | | Poten- tial | Utili- sation | Poten- tial | Utili- sation |
| Sixth Plan ument, 162-63 | (I) Major and Me- dium Irrigation | 58475 | 26612 | 22645 | 5741 | 5600 |
| | (II) Minor Irriga- tion | 54857 | 30000 | 30000 | 8000 | 8000 |

3.2 The following Table shows the irrigation potential created and utilised in the successive Five Year Plans:

| Plan | Cumulative potential* (million hectares) | | | Gross Irrigation Utilisation as per M/o Irri. & Planning Commission | | | Gross Irrigation area (as per land Use Statis- tics Eco- nomics & Statistics Provision prepared by the Minis- try of Agriculture |
|--|---|-------|-------|--|-------|-------|--|
| | Major & Medium | Minor | Total | Major & Medium | Minor | Total | |
| Pre Plan | 9.7 | 12.9 | 22.6 | 9.7 | 12.9 | 22.6 | 22.56 |
| First Plan (1951-56) | 12.2 | 14.1 | 26.3 | 10.99 | 14.06 | 25.05 | 25.64 |
| (Second Plan (1956-61) | 14.3 | 14.8 | 29.1 | 12.96 | 14.75 | 27.71 | 27.98 |
| Third Plan (1961-66) | 16.6 | 17.0 | 33.6 | 15.18 | 17.00 | 32.18 | 30.90 |
| Q5(a) Adv. Inf. pt. 13 Adv. Inf. Plg. Com. & Irri. | 13.1 | 19.0 | 37.1 | 16.75 | 19.00 | 35.75 | 35.48 |
| Annual Plans (1966-69) | 20.7 | 23.5 | 44.2 | 18.69 | 23.50 | 42.19 | 40.28 |
| Fourth Plan (1969-74) | 24.3 | 27.3 | 51.6 | 21.19 | 27.30 | 48.49 | 46.03 |
| Fifth Plan (1974-78) | 26.6 | 30.0 | 56.6 | 22.65 | 30.00 | 52.65 | 50.39 |
| Annual Plan (1978-80) | 27.57 | 31.50 | 59.07 | 23.62 | 31.50 | 55.12 | N.A. |
| Sixth Plan (1980-81) | 28.68 (anticipated) | 32.90 | 61.58 | 24.37 | 32.85 | 57.22 | N.A. |

Note: Irrigation potential is the theoretical gross area that can be irrigated by the infrastructure constructed and is, therefore, the cultivated area to be irrigated multiplied by the cropping intensity. Potential is counted as utilised when farmers actually convey water from the outlet and apply it in their fields.

3.3 The Economic survey, 1982-83 (p. 9) states:—

“It is estimated that about 22 per cent (4 million hectares) of the additional major/medium irrigation, potential created during 1950—81 upto 1979-80 remain unutilised. In the subsequent years also, there has not been any major improvement in this regard. This is a matter for concern, because the cost of creating additional irrigation potential has gone up substantially. For example, 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.”

3.4 Referring to the gap between potential created and its utilisation, the Committee desired to know why the potential created has not been fully utilised for long periods. In a note on the subject, the Planning Commission have stated:

“The potential created has not been fully utilised mainly because of the difficulties faced by farmers in the levelling of their lands, construction of field channels and supply of other inputs for irrigated agriculture.”

3.5 Asked as to what steps have been taken to ensure optimum utilisation of the available potential in areas covered by various major and medium irrigation projects. The Commission stated:

“Mainly with a view to overcoming the above difficulties, Government has started the command area development programme during the Fifth Five Year Plan. The command area programme envisages:

- (i) Modernisation and efficient operation of the irrigation system, as well as development of main drainage system.
- (ii) Construction of field channels.
- (iii) Construction of field drains.
- (iv) Land shaping and land levelling with consolidation of holdings.
- (v) Lining of field channels/water courses.
- (vi) Exploitation of ground water, installation of tubewells etc.

- (vii) Adoption and enforcement of a suitable cropping pattern.
- (viii) Enforcement of an irrigation rostering system.
- (ix) Preparation of a Plan of inputs like credit, seeds, fertilisers, pesticides etc.
- (x) Making arrangements for timely and adequate supply of various inputs; and
- (xi) Strengthening of existing extension training.

So far, command area development authorities have been set up in 71 projects and proposals are under consideration for setting up such authorities in a few more projects. The Central Government is giving assistance to States on a matching basis for some of the items of work taken up by CADA. Institutional finance is also being made available to the farmers for works like land shapping, land levelling, exploitation of ground water etc. Assistance is also being given for crop planning, water management and marketing of produce. These measures have helped in improving the utilisation but as the pace of development of the potential has been increasing, the gap between the potential and the utilisation has remained large. States, have, therefore, been advised during the plan discussions, and the regional conferences to improve and extend the command area activities both in the approved projects and also in other major and medium irrigation projects."

3.6 The Committee pointed out that according to the Sixth Plan document, irrigation potential created upto the end of 1979-80 was for the order of 56.6 million hectares (gross), of which 30 million hectares was accounted for by minor irrigation and 26.6 million hectares by major and medium irrigation. The actual utilisation was 52.6 million hectares, i.e. 30 million hectares (cent percent) in case of minor irrigation and 22.6 million hectares under major and medium irrigation. The Committee desired to know the reasons for non-utilisation of full irrigational potential. The Secretary, Planning Commission stated:

"When we say irrigation potential, it is in terms of area irrigated in that year. Suppose the area has been irrigated twice a year, then it is called the gross area..... For

example, if there is a project which is working with an 120 per cent intensity of irrigation, we increase it by 20 per cent when one more hectare of land comes under the facility of irrigation. That is how, the figure is comparable. Potential is the total irrigable area."

3.7 The Committee enquired if the Planning Commission and the Ministry of Irrigation had taken up with the State Governments the question of non-utilisation of the full irrigation potential. The Secretary, Ministry of Irrigation stated in evidence:—

".....In so far as the medium and major irrigation projects are concerned, we are also aware that in some States there is a lag in utilisation, and in some States there is a substantial log. We take up these things with the State Governments at the annual Plan discussions, and other times when we meet them for review of their performance, mid-term review or the regional meetings. In the 4th Irrigation Ministers' Conference and earlier conferences we had brought this to the notice of the States and urged them to take steps to see that the utilisation improves. Some projects have some difficulties pertaining to non-availability of water in the year in question. We try to solve these difficulties to the extent possible. We have created Command Area Development authorities for 71 major and medium projects. We are also urging them to give greater attention to utilisation"

3.8 In reply to a further question, the representative of the Planning Commission stated:—

"During 1979-80, in the command area for a number of major and medium irrigation projects and in the command area of minor irrigation projects, the land which had been irrigated earlier was not so irrigated. The same land which might have been irrigated for two crops was irrigated for one crop. Obviously, we go only by the actual area irrigated. So, there will be a difference between the actual area irrigated and the potential utilised in that year."

3.9 The Adviser, Planning Commission further stated:—

"Not only they are different in 1979-80 but historically also there is a difference. The differences between the two

estimates are understandable. The estimates of area irrigated released by the Ministry of Irrigation have been higher than those given by the Directorate of Economics and Statistics, Ministry of Agriculture. The Irrigation Ministry's estimates are based on the best performances of the preceding three years' average and the estimates of the Directorate of Economics and Statistics are based on actual land records which give complete utilisation pattern of available irrigated land area. Statistically, the Agriculture Ministry picks up the actual utilisation figures whereas the Ministry of Irrigation takes the best performance.

The Plan document clearly says that we have taken the Agriculture Ministry's estimates because this gives the actual realisation. Based on the land utilisation concept of the irrigated areas, the gross irrigated area in 1979-80 has been estimated at 50 million hectares and an additional potential of 15 million hectares is likely to be created over the Sixth Plan. The utilisation of incremental irrigation potential is estimated at 13.8 million hectares. If we take 1984-85 figures and minus 1979-80 figures, the additional potential to be created both according to the Agriculture Ministry's requirements and Irrigation Ministry figures, are almost identical. The incremental additional potential figure identical, the Plan estimates of investment figures will not create any problem. The estimates of Irrigation Ministry is higher as compared to that of Agriculture Ministry, because of the way the calculations are done—one is actual and the other is the best of the three preceding years."

3.10 The Committee pointed out that the land use statistics furnished by the Ministry of Agriculture indicated that the gross irrigated area actually utilised was 50.39 million hectares while the figure given in the Plan document was 52.6 million hectares. Asked to explain the reasons for discrepancy, the representative of the Ministry of Agriculture stated:—

"We are getting information from the States Revenue authorities who maintain records. In most of the cases they carry out field to field enumeration and thereafter they prepare the land record for each village, which is consolidated at the District level and finally at the State level and then it is supplied to us. These are called Land

Utilisation Statistics. According to these figures for 1979-80 net irrigated area for all India totalled 40.50 million hectares and gross irrigated area at 50.39 million hectares. For 1980-81, complete information has not come, but tentatively it is likely to be 41.12 million hectares net irrigated area and 51.06 million hectares gross irrigated area. This information is supplied to the Ministry of Irrigation. They are continuously having our information in their records. They have their own concepts with regard to irrigation potential created, irrigation potential utilised. Even on utilisation, as far as we understand, the best utilisation in the last three or five years is taken as the level of utilisation because many times the utilisation itself differs from year to year according to the availability of water in the reservoirs and tanks etc."

3.11 The Secretary, Ministry of Irrigation, however stated:

"In so far as the figures available with the Irrigation Department are concerned, we have figures of gross utilisation with us and upto the end of 1979-80 the total utilisation was 52.645 million hectares, which will correspond to the figures of 50.39 in the land irrigation statistics and this corresponds with the statistics in the Agriculture Department....."

"There we have two difficulties. For example, for year-wise utilisation whenever we try to get a utilisation figure we take the maximum irrigation in the last five years, because that indicates the potential for that project. For example, in a particular project if there is a good rainfall in the area, the people don't ask for irrigation. In that case in some States actual irrigation that has been done is reported. Particularly in Gujarat and Maharashtra States if there is a good rainfall, in theory, the irrigation figure reported becomes zero in a particular season. That is why we have adopted a system by which we take the maximum area irrigated in the past five years as the utilisation."

3.12 The Committee enquired whether the discrepancy in the figures supplied by the Ministry of Agriculture (Department of

Statistics) and those supplied by the Ministry of Irrigation had been reconciled by the Planning Commission. The Secretary, Planning Commission stated:—

“The Planning Commission goes by the statistics provided by the States in regard to the potential created and the potential utilised. They are furnished by the States to the Ministry of Irrigation. I do not deny there is a discrepancy. But we must bear in mind that the figures given to the Ministry of Agriculture are the figures of areas actually irrigated from year to year on the basis of the land revenue data.”

3.13 The Committee called for a joint note by the Planning Commission and the Ministry of Irrigation explaining the difference in the figures of gross irrigated area as furnished by the Ministry of Agriculture on the one hand and the Ministry of Irrigation on the other. The same is reproduced below:—

“A statement indicating the gross irrigated area, state-wise, for the years 1978-79 and 1979-80 is placed below. The statement indicates the figures as reported by the Ministry of Irrigation/Planning Commission and by the Ministry of Agriculture (Land Utilisation Statistics). From this, it will be observed that the Land Utilisation Statistics are higher in some States than the figures of the Ministry of Irrigation/Planning Commission based on progress reports and lower in a few other States. But there is an overall difference of 2.2 M. ha. in 1978-79 and 2 M. ha in 1979-80.

A study of these figures indicates that the States have 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 discrepancy between the two sets of figures are due to a variety of reasons, some of which are detailed below:—

1. Even for a fully completed scheme utilisation vary from year to year. 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;
2. The utilisation may be the sum of the maximum attained in different seasons upto the period of reporting;

3. Necessary deduction might not have been made for areas irrigated by minor irrigation schemes within the command of a project;
4. Where there is conjunctive use of surface and ground water, the report may contain figures under both major/medium and minor;
5. The norms adopted for assessing minor irrigation benefits may require a review and change;
6. The depreciation for works going out of use due to silting, reduction in capacity of storage and various other reasons might not have been adequately reported.

In view of the various factors mentioned above, it is difficult to reconcile the figures. The entire question needs to be thoroughly examined state-wise by the concerned State Governments to arrive at a common acceptable basis for reporting.

Land use statistics are available after a lag of 3 to 4 years, whereas current estimates have to be made for planning purposes. While efforts should be made to reduce the discrepancies, it might be difficult to eliminate difference altogether."

GROSS IRRIGATED AREA

| 1 | 2 | As per M/Irrigation/ Planning Commission | | As per Ministry of Agriculture (Land Utilisation Statistics) | |
|-----------|------------------|---|---------|--|---------|
| | | 3 | 4 | 5 | 6 |
| I. STATES | | 1978-79 | 1979-80 | 1978-79 | 1979-80 |
| 1. | Andhra Pradesh | 4,396 | 4,462 | 4,698 | 4,230 |
| 2. | Assam | 307 | 346 | 572 | 570 |
| 3. | Bihar | 3,860 | 4,055 | 3,707 | 3,390 |
| 4. | Gujarat | 1,923 | 1,993 | 1,936 | 2,150 |
| 5. | Haryana | 2,822 | 2,887 | 2,979 | 3,130 |
| 6. | Himachal Pradesh | 94 | 96.5 | 156 | 160 |
| 7. | Jammu & Kashmir | 400 | 412 | 405 | 390 |
| 8. | Karnataka | 1,993 | 2,067 | 1,718 | 1,690 |

| 1 | 2 | 3 | 4 | 5 | 6 |
|-----|--------------------------|--------|--------|--------|---------|
| 9. | Kerala | 724 | 748 | 354 | 350 |
| 10. | Madhya Pradesh | 2,496 | 2,669 | 2,413 | 2,230 |
| 11. | Maharashtra | 2,157 | 2,223 | 2,306 | 2,390* |
| 12. | Manipur | 25 | 34.3 | 75 | 70 |
| 13. | Meghalaya | 21 | 23.7 | 50 | 50 |
| 14. | Nagaland | 39 | 42 | 54 | 60 |
| 15. | Orissa | 1,985 | 2,092 | 1,586 | 1,650 |
| 16. | Punjab | 5,147 | 5,218 | 5,506 | 5,700 |
| 17. | Rajasthan | 3,100 | 3,146 | 3,451 | 4,080 |
| 18. | Sikkim | 8 | 9 | 10 | 10 |
| 19. | Tamil Nadu | 3,030 | 3,052 | 3,819 | 3,980 |
| 20. | Tripura | 36 | 38.4 | 29 | 30 |
| 21. | Uttar Pradesh | 12,856 | 13,781 | 10,575 | 11,050 |
| 22. | West Bengal | 2,745 | 2,828 | 1,541 | 2,900** |
| 23. | Sub-Total: | 50,164 | 52,228 | 47,940 | 50,260 |
| | States U.T's | 103 | 110 | 150 | 140 |
| | G. Total | 50,267 | 52,338 | 48,090 | 50,400 |

* TRS Estimates

** Irrigation Deptt. figure.

Minor Irrigation

3.14 The Committee enquired about the lag in utilisation of minor irrigation potential and the reasons therefor. The Secretary, Planning Commission stated:—

“Potential created gets utilised. Potential utilised is not reported on the basis of individual count. It is reported on the basis of sample survey, with the result that it is sometimes difficult to count every tubewell or dug well that is available. In minor irrigation, utilisation is equal to the potential created. Capability of a particular tubewell could be much larger than what is actually irrigated.”

3.15. Asked how the area irrigated by tubewells was calculated, the representative of the Planning Commission stated:—

“There are State tubewells in the Command (area). They have separate information insofar as irrigation done in respect of State tubewells (is concerned). In respect of private tubewells, there is a possibility of some duplication.”

He added:

“...In respect of private tubewells on the basis of sample surveys done on them, the area irrigated is being reported. That is the practice followed. Especially in respect of private tubewells, there could be a supplemental irrigation, if such tubewells are located in the Command Area and there is a possibility of duplication.”

3.16. The Committee drew the attention of the witnesses to the Report of the C&AG for the year 1980-81 (Civil), Government of Uttar Pradesh (p. 144) where it has been pointed out:—

“The departmental norms regarding the number of running hours and the area to be irrigated by each tubewell are 3,000 hours (that is, 34.2 per cent of the total number of hours) per year and 120 hectares respectively.

However, during 1974-75 to 1980-81, the tubewells ran for only 17.8 per cent of the total number of hours due mainly to closure on account of hydel defects (41.6 per cent), other mechanical and civil defects (4.3 per cent) and no demand for water 36.3 per cent). The total area irrigated during this period was 63.8 lakhs hectares (that is, 53.2 per cent of the envisaged 119.98 lakh hectares). There was a declining trend after 1976-77 both in the annual average number of running hours per tubewell (from 2,297 in 1976-77 to 1,016 in 1980-81) and the area irrigated per tubewell (from 77 hectares in 1976-77 to 45.8 hectares (from hectares in 1980-81) mainly due to increased in hydel defects. The Department stated (in September 1981), that due to restricted supply of power, it had not been possible to utilise the full capacity of the tubewells.”

3.17. Asked whether any norms had been prescribed with regard to area to be irrigated by a tubewell, the Secretary, Ministry of Irrigation stated:—

“The capacity of tubewell for irrigation could be calculated

on the basis indicated, but when the potential is indicated, normally these States tubewells, due to power cut are probably able to run only for 1,000 to 2,000 hours. But with a continuous supply, the figure may be different. In respect of private tubewells i.e. on the basis of sample surveys done, one tubewell irrigates 3 or 4 hectares of area. Then that sample has been extrapolated and used to indicate the potential created by the private tubewell... This is the yard stick multiplied by the number of private tubewells."

3.18. Asked whether the Ministry of Irrigation had any information about the number of tubewells remaining out of order in a particular year, a representative of the Ministry of replied:—

"We do not keep that information as to how many tubewells are working and how many not. The power supply is most uncertain."

3.19. Asked whether it was not necessary to have an uniform pattern of reporting by the States insofar as minor irrigation facilities were concerned, the Secretary Planning Commission state:—

"...there should be uniform pattern of reporting by the States so that it enables us to react immediately."

3.20. In a note subsequently furnished to the Committee on the subject, the Ministry of Irrigation have stated:

"The bulk of minor irrigation programme, comprises private schemes like dugwells, borewells, tubewells, pump-sets, small tanks in the hilly area. Since such schemes are large in number and dispersed throughout the country, it is not practicable to collect and compile scheme-wise details for such schemes. Therefore, benefit in terms of area, is arrived at by multiplying the number of physical units completed by a standard yardstick or norm which represents the average area benefitted per unit of work in the region concerned. In case of state works, however, the benefits in terms of area are worked out by taking into account the water availability from the schemes, intensity of irrigation and cropping pattern proposed and the standard duty factors applicable to the region concerned. Thus to have uniformity in reporting, only likely level of utilisation in respect of such works has been reported in the plan documents in the potential to be created. The figures reported are based on the statistics furnished by State Governments

through quarterly progress reports, annual plan discussions in the Planning Commission and other meetings held from time to time. The figures which are compiled and reported by Planning Commission in consultation with Ministry of Irrigation, are also circulated to States in the all India level meetings for verification and reconciliation. In working out the level of utilisation the likely lag in utilisation is also taken into account.

3.21 The Economic survey for the year 1961-82 had pointed out that although substantial increase has been effected in irrigation potential during the last decade, for various reasons its full benefit is not reflected in the intensity and diversification of cropping, inadequate maintenance, seepage, lags in construction of field channels, deficiencies in water distribution and water management systems and delay in development of appropriate cropping patterns are some of the important factors which have adversely affected the existing irrigation system and hence the intensity of cropping. In this context, the Committee desired to know the steps that have been taken by Government to remove these deficiencies and the measure of success achieved.

In reply, the Planning Commission have stated:

“State Government have been advised to provide at least Rs. 75 per hectare (excluding establishment) for proper maintenance of irrigation projects. They have also been advised to post competent men for the running and maintenance of the canal systems. As regards construction of field channels, State Governments have been authorised to construct field channels at project cost upto 5/8 hectare blocks. Beyond this upto the field level, they can take up construction of field channels under the command area programme with assistance from the Centre. In some of the States like Andhra Pradesh and Karnataka, field channels are being constructed at project cost upto the last survey number.

As regards water distributed and management, State Governments have been requested to introduce the system of warabandi or rotational supply for timely and assured quantity of water to the farmers in accordance with a predetermined schedule. Under the command area programme, assistance and guidance is also being given to the farmers for developing appropriate cropping patterns.

Another major step for improving the performance of irrigation systems is to modernise the existing systems for construction of barrages in the case of the Krishna and Godavri delta systems. A large modernisation programme has also been taken up in Punjab and Haryana. Similar proposals are being formulated for the Ganga Canal System in UP. Barrages are also being built for the Mahanadi Delta System in Orissa. Many other State Governments are formulating modernisation proposals. The Central Water Commission has issued guidelines for formulation of those modernisation schemes and are trying to get State Governments to submit such schemes|proposals soon.

The steps taken are showing results but in a limited way. It is only when large scale modernisation and efficient water management is undertaken that better results can be expected."

3.22. As per the Sixth Plan document, the irrigation potential created till the end of 1979-80 was 26.61 million hectares under major and medium irrigation and the actual utilization of the potential was 22.64 million hectares does the total shortfall in utilization was nearly 4 million hectares vis-a-vis the potential created. As regards the potential under minor irrigation it has been claimed that the potential of 30 million hectares has been fully utilised.

3.23. The State-wise figures of creation and utilization 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, Madhya Pradesh, Manipur, Meghalaya, Nagaland, Orissa, Punjab, Rajasthan, Tamil Nadu 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 Economics and Statistics, Ministry of Agriculture, indicate the pattern of utilization of available irrigated land area based on land records, the Ministry of Irrigation 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 Irrigation|Planning Commission and lower in a 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 medium irrigation schemes and also the area irrigated by minor irrigation schemes. The Planning Commission are of the view that the entire question needs to be thoroughly examined State-wise by the concerned State Governments to arrive at a common acceptable basis for reporting.

3.24. Whatever be the basis of 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 Irrigation|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 a possibility of duplication while calculating the area under irrigation. As the Command Area projects cover a total of 15 m. h. 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

3.25. Another aspect of the utilisation of the minor irrigation potential is with regard to irrigation by tube-wells. It was admitted in evidence that no information was available as to the actual area irrigated by tube-wells, both by State tube-wells and by private tube-wells, because of frequent power cuts and poor maintenance. Further, no data is available as to how many tube-wells have been working during a particular year, 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 tube-wells 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. . .

3.26 The Committee recommend that the Planning Commission should set up a group of experts in agricultural economic 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 utilization 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 finalized as expeditiously as possible so that the projections for the Seventh Five Year Plan may be put on a realistic basis.

3.27. So far as the under utilization 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 utilize 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 interdisciplinary 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 receive adequate attention.

3.28 The Planning Commission is stated to have advised the State Governments to provide at least 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 hectare blocks. Central assistance is also available in the Command Area projects for construction of field channels. State Governments 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 pre-determined schedule. These should be ensured.

3.29. 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. 8,000 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 utilization of irrigation potential created at enormous cost. The Committee consider that a determined and sustained effort needs to be put in for large scale modernization 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 integrated plan of action in this regard should therefore be drawn up without delay in consultation with the State Governments.

B. Transmission losses

3.30. The Supplementary Report of the C&AG for the year 1975-76 had pointed out that the extent of loss of water during transmission and distribution was not measured in any projects, where such data were available, the loss was found to be in excess of what was envisaged in the project reports and that there was scope for improving the standard of maintenance and repair of the canal systems. In this context the Committee enquired if any comprehensive assessment had been made with regard to the actual extent of loss of water during transmission and distribution and if so, how it compared with the loss envisaged in the project reports. The Planning Commission have stated:

"The losses in canal systems depend upon the type of canal whether lined or unlined. In the case of unlined canals, losses are generally assumed in the designs at 2.44 cusecs million sq. m. (8 cusecs per million sq. ft.) while in the

case of lined canals, the figure is taken as 0.61 cusecs/million sq. m. (2 cusecs per million sq. ft.), based on the previous experience in the country.

However, on some of the projects where actual measurements have been made, the losses have been more, as indicated in the table below:—

| Canal | Losses observed cusecs million sq. m. | Cusecs/million sq. ft. |
|---|---------------------------------------|------------------------|
| Chambal Right Main Canal | 4.57 | 15 |
| Tawa | 6.96 | 22.8 |
| Mahanadi Canal System (M.P.) | 12.10 | 39.7 |
| Nagarjunasagar Left Bank Canal | 6.46 | 21.2 |
| Nagarjunasagar Right Bank Canal | 5.09 | 16.7 |
| Periyar Main Canal (Lined) | 1.07 | 3.5 |
| Periyar Franch Canals (Lined) | 7.33 | 3.25 |
| Periyar Branch Canals (Lined) | 0.99 | 3.26 |
| Periyar Vaigai Distribute and water courses (unlined) | 0.82 | 2.7 |
| Girna/Jamda LBG | 3.35 | 11.0 |
| Mula Right Bank Canal | 7.3—7.6 | 24—25 |
| Nira Right Bank Canal | 1.8 | 6.0 |
| Purna (Bamath Branch) | 4.6 | 15 |
| Mula Sonai Distributory | 2.7—5.8 | 9—19 |

3.31. In this connection, the following observations contained in the Economic Survey for the year 1982-83 are pertinent:

“Another aspect of better capacity utilisation relates to the gross availability of water in the system and the economic life span of a project. Conveyance losses in the canal systems are very high, and it was estimated in 1960 that over 6 million hectares of additional land could be irrigated by lining the canal systems. The situation does not seem to have improved much since then. Similarly, live storage capacity and withdrawal of water from the reservoirs could be optimised through control on siltation which would also enhance the economic life-span or

the projects. It is necessary to strengthen the infrastructure to monitor the performance of each major|medium project in respect of important elements like annual inflow of water, rate and location of silt deposits, annual drawoff of water, conveyance losses etc.”

3.32. 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 design at 8 cusecs per million sq. ft. 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., 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 Vigai Distributories 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 and could be irrigated by lining the canal systems. The colossal loss to the country involved in such large scale wastage of the precious water resources can be easily imagined. The Committee would like to express their deep sense of concern over this situation. The Committee desire that this aspect should be given utmost attention is the action plan suggested elsewhere in this Report.

C. Siltation of Reservoirs

3.33. In his booklet entitled “Civilisation in a Hurry”, Shri Ramachandra Singh Deo, Ex. Irrigation Minister, Government of Madhya Pradesh has stated:—

“Contrary to laymen’s belief no large reservoir site can be artificially created. They are Nature’s gift and national assets and must be used with utmost care and planning. The life of a reservoir depends on the annual rate of

deposit of silt in the basin. Thus it follows that greater the annual deposit of silt, the shorter the life of a reservoir. Reservoir silting is a colossal problem. What is astonishing is that while planning the development of our water resources at the current pace we have been ignoring the saddest limitation of our reservoirs in the matter of saltation of their basins. In the short range impact it may happen that the rate of silting may be so rapid and the service value of the reservoir is rendered so small, as to amortise the cost of development. In the long run we will have lost a reservoir site for all times and with it all the benefits enjoyed... In India on a rough estimate we are losing a staggering 2 MAF live storage capacity annually in our major and medium dams, corresponding to a loss of seven lakh acres of irrigation potential every year. It costs about a minimum of Rs. 6,000/- to create a potential for irrigating one acre of land. Accordingly we are losing over Rs. 400 crores in the form of Capital assets annually."

3.34. In reply to a question on the subject, the Planning Commission have furnished the following data with regard to the rate of sedimentation of reservoirs of major projects:—

Date of sedimentation of Reservoirs

| Sl. No. | Name of Reservoir | Year of Impounding | Original capacity (m cu m); m, a, ft. | Design* life (Years) | Year of Observation/survey. | Annual rate of siltation (ha.M/1000 sq. Km.) | | Life as* assessed now. (Years) |
|---------|-------------------|--------------------|---------------------------------------|----------------------|-----------------------------|--|----------|--------------------------------|
| | | | | | | Assumed | Observed | |
| 1. | Bhakra | 1959 | 9868 | 403 | 1978-79 | 4.29 | 5.95 | 291 |
| | | | 8.00 | | | | | |
| 2 | Tungabhadra | 1953 | 3758 | 311 | 1978 | 4.29 | 5.98 | 245 |
| | | | 3.05 | | | | | |
| 3 | Matatila | 1956/1962 | 985 | 357 | 1971 | 1.33 | 4.33 | 108 |
| | | | 0.80 | | | | | |
| 4 | Panchet | 1956 | 1581 | 216 | 1966 | 6.67 | 10.48 | 138 |
| | | | 1.28 | | | | | |
| 5 | Maithon | 1956 | 1196 | 210 | 1979 | 9.05 | 12.39 | 153 |
| | | | 0.97 | | | | | |
| 6 | Mayurakahi | 1955 | 608 | 872 | 1970 | 3.75 | 16.48 | 198 |
| | | | 0.49 | | | | | |
| 7 | Shivajisagar | 1961/1966 | 2987 | 5000 | 1971 | 6.67 | 15.24 | 2200 |
| | | | 2.42 | | | | | |
| 8 | Hirakud | 1957 | 8105 | 386 | 1979 | 2.52 | 6.6 | 147 |
| | | | 6.57 | | | | | |
| 9 | Gandhisagar | 1960 | 7734 | 930 | 1976 | 3.61 | 9.64 | 348 |
| | | | 6.27 | | | | | |

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

3.35. The Planning Commission's note states *inter-aila* :—

“Recognising the fact that the sedimentation rates in the reservoirs were generally higher than assumed in the design, thus reducing the useful life of reservoir, the Government of India in the Ministry of Irrigation set up a high powered “Reservoir Sedimentation Committee” in 1978 to go into the question indepth, prepare a status report, suggest measures for improvement of sediment measuring techniques and recommend norms for planning of future projects. After collecting lot of field data and deliberating over the last four years, the Committee has given its report to the Government of India recently. This report is under examination in the Ministry of Irrigation. While analysing the reasons for substantial difference between the estimated and actual rate of siltation in the reservoirs, this Committee has identified that apart from the fact changes taking place in the watersheds resulting in higher rate of soil erosion, the technique of measuring the bed load transported by the streams requires upgrading. The Committee had also highlighted the inadequacy of the number of sediment observation sites along the various streams. Out of more than 1150 guage and discharge sites functioning, only at about 460 sites, sediment observations are done.

3.36. Some of the conclusions|recommendations made by the Committee are :—

- (i) Enactment of a law in the various States on soil and water conservation for which a model Bill has been proposed.
- (ii) Frequent and systematic surveys of sedimentation in reservoirs at regular intervals to build Data Bank.
- (iii) Evolving bed load measurement techniques suited to local conditions, instead of assuming bed load as on *ad hoc* percentage of suspended silt load.
- (iv) Ploughing should not be allowed in the foreshore area of reservoir; Also not allowing more than 50 percent of the foreshore area for agricultural use; reserving the remaining 50 per cent of the foreshore for green forestry”.

3.37. 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, Bhakra and Gandhisagar dams which was originally assessed as 386, 403 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 lakhs acres of irrigation potential every year. We are loosing over Rs. 400 crores in the form of capital assets annually."

3.38. 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 indepth. 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 recommendation of the Reservoir Sedimentation Committee would be examined expeditiously and indepth with a view to taking urgent remedial measures.

D. National Water Policy

3.39. The Working Group set up by the Planning Commission in May 1980 had suggested that 'a national view may be taken by the States and optimisation attempted through a system approach. At present, no attempt has been made by them to prepare an irrigation plan in the best national interest'. Asked whether any guidelines have since been issued by the Planning Commission Ministry of Irrigation to the State Governments in this regard, the Planning Commission have stated:

"In a few cases, inter-state disputes have arisen. In a few States, the optimum development of the water resources at a particular site or of the river system may not be fea-

sible. It is because of this that a National Water Plan has been proposed which envisages the optimum development of the water resources in the best national interest.

The Ministry of Irrigation has already formulated a National Water Plan for the development of the peninsular river systems. State Governments have been requested to extend full cooperation in the detailed investigation of this plan. In accordance with the recommendation of the National Development Council, a National Water Resources Council is also being set up with the Prime Minister as Chairman and Chief Ministers of States and certain Ministers as members to formulate a national water policy and advise State Governments on its implementation.

3.40. The Committee drew the attention of the Planning Commission|Ministry of Irrigation to the following observations contained in the booklet "Civilisation in a Hurry" by Shri Ramchandra Singh Deo, Ex-Irrigation Minister, Government of Madhya Pradesh :—

"In the matter of hydel power generation we must re-examine our present policies. Hydel power generation often leads to wastage of water. Needs of cultivators for water and those of industries for power never match. With the best of intentions therefore hydel power houses have to be operated to meet the call of the power grid in times of crisis. This results in release of precious water. Spillage at the Kota Barrage on Chambal is an instance of how the Chambal Command often suffers when water had been released from storage for power generation down the river. In a single year Chambal power house released water as much as one MAF (1/3rd of the normally store 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 often do not match with the irrigation needs downstream. In hydel projects we lose precious water that would otherwise have irrigated large areas of land. Power can be generated from other sources but there is no alternative for irrigation. Power generation must play a secondary role. We are already short of water for irrigation and transferring our water reserves for power generation

will prove extremely harmful to our economy. We may construct hydel projects only where water can be fully used for irrigation."

3.41 Commenting on the above observations, the Planning Commission have stated as follows:—

"Shri Singh Deo has also referred to the question of coordination between power releases and irrigation requirements. This is always ensured. In exceptional cases, there might be some spillage. However, while planning construction of the reservoir systems, integrated benefits from both hydro power and irrigation are always kept in view."

3.42. The Ministry of Irrigation have offered the following comments:—

"Optimal utilisation of all available scope for water resources potential is necessary for the overall development of the country. Though irrigation is accorded priority for use of available water, hydel power generation is equally important to meet the peak load demand of power systems. 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. This is possible with intelligent operation of the multi-purpose projects."

3.43. During evidence, the Committee drew the attention of the representative of the Planning Commission to the following recommendation made by the Second Irrigation Commission, 1972:—

"Domestic requirements should have highest priority for allocation of water, followed by industry and then by irrigation. As between irrigation and power generation, priority should be given to irrigation."

3.44. The Committee enquired whether Government had considered the feasibility of laying down a clear cut policy for the agriculture|irrigation sector just as there was an industrial policy import|export policy etc. The Secretary, Ministry of Irrigation Stated:—

"Domestic water requirement will require a significantly small part of the total water resources of the country.

95 per cent of water would be utilised for irrigation, 5 per cent would be utilised for domestic requirements. I do admit that there should have been an enunciation of a policy."

3.45. The Committee pointed out that in the statement showing action taken on the recommendations of the Second Irrigation Commission, it had been stated:—

"This policy is generally being adopted by the States who are incharge of operation and administration of the water resources system."

3.46. The Committee enquired whether Government had taken a conscious decision in the matter for adoption by the States. Secretary, Ministry of Irrigation, replied:—

"No specific policy has been laid down but some specific cases are there. Take the case of Bombay City where the demand of water supply has a priority over irrigation. That is actually happening."

3.47. During evidence the Committee enquired whether any formal decisions had been taken by Government on the recommendations of Irrigation Commission (1972). The Secretary, Ministry of Irrigation, replied:—

"My information is that there has been no formal order accepting recommendations, which could be quoted..... The report of this Commission was circulated to the States. Their suggestions were invited."

3.48. In reply to a pointed question whether the Committee could take it that for practically 10 years no formal decision was taken by the Ministry of Irrigation with regard to the recommendations contained in the Report, the Secretary, Ministry of Irrigation stated:—

"They have been circulated to the States for adoption. By implication the recommendations were accepted. But no such formal order has been passed."

3.49. 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 as 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."

3.50. 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 utilization 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.

3.51. 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 recommendations. All that appears to have emerged after 10 years in 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.

CHAPTER IV

FINANCIAL AND ECONOMIC RETURN FROM IRRIGATION

A. *Economic Benefit-cost Ratio*

4.1 In reply to a question, the Planning Commission have stated that the following criteria are adopted for determining the benefit-cost ratio of irrigation projects:—

A. "Benefits—Primary (Direct):

I(1) Value of total agricultural production before irrigation.

(2) Cost of cultivation.

- a. Expenditure on seeds.
- b. Expenditure on manure.
- c. Expenditure on hired labour, human and bullock.
- d. Fodder expenses.
- e. Depreciation on implements.
- f. Share and cash rent.
- g. Land revenue.

(3) Net production before irrigation (1)—(2).

II(1) Value of agricultural production after irrigation.

(2) Cost of cultivation.

(3) Net production after irrigation.

B. Annual Costs :

- (1) Interest on capital.
- (2) Depreciation.
- (3) Administrative expenses etc.

C. Benefit-cost-ratio—Net Benefits

Annual costs.

"The concept of minimum economic internal rate of return that is expected at present, the Planning Commission have replied:—

"The concept of minimum economic internal rate of return is not being applied."

4.3 The irrigation Commission (1972) had recommended adoption of benefit-cost ratio criteria in addition to examine financial return in sanctioning the irrigation projects. The Commission had further stated that, 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. Asked whether these recommendations had been accepted, the Planning Commission have stated :—

“While assessing the benefit-cost-ratio, the cost of the ayacut development is not being taken into account. A committee to review the criteria adopted for determining the benefit-cost-ratio of irrigation projects was constituted by the Planning Commission in December, 1981 following discussions in the Fifth State Irrigation Ministers' Conference (1980).”

4.4 The Committee desired to know the Planning Commission's assessment of the system of computation of costs and benefits both in financial and economic terms as part of project planning. The Commission have, in a note furnished to the Committee, stated as under :—

“Computation of costs and benefits in financial terms as a part of the project planning is available from the feasibility report prepared by the respective project authorities or their consultants. These estimates are based on in-house data, firm quotations, extra-polation based on the recent completion cost of similar projects, local land prices, PWL unit rates etc. With regard to the operating costs, these are based on the norms of consumption of inputs valued at the prices prevailing at the time when the estimates are firmed up. The expected sales realisation of output of the project are valued at the prices prevailing when the estimates are prepared.

In the economic analysis, all internationally traded inputs/outputs are valued on the basis of their respective border prices. The impact of transfers such as duties, taxes and subsidies is also eliminated. The non-traded inputs are valued on the basis of their true resource cost. By and large the estimates pertain to a point of time. No provision is made for future escalations. Detailed engineering throws up changes in the cost estimates due to factors

such as changes in scope, import content, change of technology notwithstanding the price increase. Scope for refinements in techniques of estimation exists."

4.5 The Committee enquired if the techniques of project appraisal were refined from time to time on the basis of feed back obtained on the projects cleared. The Planning Commission have stated:

"Based on the experience of the projects cleared, the problems encountered during implementation, details of time and costs overruns etc. are taken into account at the time of approval of the project so that mistakes once committed are not repeated in future. The details of cost and time overruns also assist the Project Appraisal Division to carry out a more meaningful sensitivity analysis."

4.6. Since the performance of projects, financial and physical, *vis-a-vis* project report anticipations, is by and large unsatisfactory and the financial returns have been particularly poor, the Committee desired to know what precautions should be built into the project planning and implementation in order to make the projects a success and whether there a regular system had been devised to assess actual economic return from an irrigation project and comparing it with the project report anticipation. The Planning Commission have, in a written reply, stated :

"...the performance of irrigation sector could not be considered unsatisfactory. However, there is always room for improvement. In the investigation stage sufficient funds should be made available and more personnel need to be employed. The States should give adequate time to the investigating authorities for framing the project proposals and give appropriate incentives to the investigating staff..... The Geological Survey of India must be strengthened so that they complete the task allotted to them in time and the continuance of their services will be available for any additional work which may be necessary as a result of analysis and studies. Similarly, the Central designs organisation of the State Govt. should be suitably strengthened and provided with expert staff.

There should be freedom for the State Irrigation Department and the Project Authorities to train and deploy additional staff for the various management processes like in-

ventory control, purchase management and construction management, cost control management information system etc.

There also appears to be justification for introduction of simpler and more modern methods of accounting, audit, payment and other procedures. If we merely try to continue the earlier system and procedures it may not be possible to achieve the results even after strengthening the various units. It may perhaps be worthwhile for each irrigation project to be placed under a very senior officer with full powers vested in him so that he can take appropriate necessary action.

There is no regular system of assessing actual economic return of irrigation projects."

4.7 The Committee enquired about the norms of international lending institutions in relation to assistance for irrigation projects and how the actual economic benefits compared with the cost benefit ratio as envisaged in the project report. In a note, the Planning Commission have stated :

"...the cost benefit ratio is 1:1.5 in the case of irrigation projects. This ratio is relaxed in certain categories of projects... I.D.A. is the principal international lending institution which is assisting the country in relation to irrigation projects. It is understood that the economic rate of return is the principal criterion underlying the choice of projects for such assistance.

Project Appraisal Division carries out ex-ante appraisal of projects. No information on comparative picture of the actual and the estimated benefits is available in the Division. Post-facto evaluation of any irrigation project has not been carried out by the PAL."

4.8. Asked how in the absence of a regular system of assessing actual economic return of irrigation projects, it was ensured that the project report anticipations actually materialised, the Planning Commission replied :—

"It is necessary to periodically evaluate the actual economic returns from irrigation projects. This could be done by periodic economic evaluation of the project after the project

is completed. Such evaluation may be done once over every years. After 2 or 3 of such evaluations have been done, it may have to be examined whether further evaluations are necessary."

4.9 As regard 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.

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

4.11 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.

B. Productivity

(a) Yield per hectare

4.12. The Sixth Plan document has pointed out:—

“In spite of the large investment made in the irrigation sector and the phenomenal growth of irrigation during the past 30 years, the returns from the investment both in terms of yield as well as finance are very disappointing. Irrigated land should yield at least 4 to 5 tonnes of grains per hectare per year. However, at present it is hardly 1.7 tonnes on an average. Actual yield levels are lower than the levels of 4 to 5 tonnes achieved in National Demonstrations and by experiments in water management projects where appropriate water management and other cultural practices were maintained at optimum levels. Intensive education programme for the farmers through demonstration and extension services is necessary in Water management at farm level and other cultural practices.”

4.13. Appendix II gives the following data for the year 1977-78:—

- (i) Average yield of paddy in National demonstrations under irrigated conditions (Statement ‘A’).
- (ii) Average yield of wheat in National demonstrations under irrigated conditions (Statement ‘B’).
- (iii) Estimates of all India average yield of irrigated rice; (Statement ‘C’).
- (iv) Estimates of all India average yield of irrigated wheat (Statement ‘D’).

4.14. Asked to explain the reasons for low productivity in irrigated areas, the Secretary, Ministry of Agriculture stated in evidence:—

“I feel that, in this statement, there is a *prima facie* fallacy, and the fallacy is that, whereas four to five tonnes per hectare have been taken to the production per year, the yield per hectare of irrigated area which has been indicated as 1.7 tonnes is in relation to one crop. If in a particular irrigated area which has a double crop—and I presume that an irrigated area under demonstration will have a double crop—we are growing both wheat in the

rabi and rice in the kharif, then the total production will be much more than 1.7 tonnes it could be even more than three tonnes per hectare. Therefore, my feeling is that we are comparing in this particular statement two figures which are not comparable. Whereas four to five tonnes indicate the total production in the whole year which consists of two crops, 1.7 tonnes indicate the average production in the irrigated area for one crop. I have, in my own way, calculated the yield per hectare in case we have two crops, as has been assumed in the four to five tonnes per hectare, and I have found that, if we have in a particular irrigated area rice and rice rotation, rice followed by rice, then actually the national average would come to 3.5 tonnes per hectare and the highest yield would be Karnataka where they are producing 5.06 tonnes of paddy followed by paddy...if we take two crops instead of one, we would be very much near four to five tonnes per hectare which has been mentioned. This figure of four to five tonnes might have been taken from national demonstration plots where controlled system of agriculture is being followed, where the area is irrigated, where there is double crop, where the farmer is being assisted by a large number of subject-matter specialists and also assisted financially and also by way of supply of high-yielding varieties, and so on. Therefore, my submission is that the figure four to five tonnes is for two crops whereas 1.7 is for one crop; secondly, the figure four-to-five has been derived from a controlled system of agriculture. If we take the national average, it is bound to be lower than that, but not as low as is indicated here."

4.15. In reply to a question whether the figures given in the Plan document did not depict the correct position, the Secretary, Planning Commission stated:—

"These figures are based on the statistic of 'Area', and Production of Principal Crops in India 'put out by the Ministry of Agriculture, Directorate of Economics and Statistics. ... 4.5 is not a cumulative total of more than one crop. This is the point that I want to emphasize. All that I am saying is comparing 1.7 to 4.5 we are not comparing like with unlike. 4.5 is a figure based on the average yield of paddy in national demonstration farms and average yield of wheat in demonstration farm. This has been compared with the average yield of irrigated paddy and irrigated wheat. It is not as if 4.5 is a inflated figure."

4.16. The Secretary, Ministry of Irrigation added:—

“...This figure of 4.5 is the figure that is obtained in the national demonstration farm and conditions in the national demonstration farm are more akin to ideal conditions or optimum conditions while the conditions which prevail in our country are somewhat different. There are irrigated areas, partially irrigated areas and irrigated does not mean that full requirements of water are provided. Even where one watering is provided, it is called ‘irrigated’ Here I think this 4.5 we should consider as an ideal figure which we have to reach.....I am afraid the target was not 4.5 per hectare; otherwise our food production would not have been 130 or 135 million tonnes; it would have been 200 million tonnes.”

4.17. In a note on the subject, the Planning Commission have opined:—

“...The reference to 4 to 5 tonnes of yield is....clearly to the National Demonstration plots where crops are grown under optimum conditions of irrigation with appropriate management practices under intense supervision and under ideal experimental conditions in water management projects. It may be appreciated that at farm level there are several constraints as compared to National Demonstration Plots. Indeed the difference between National Demonstration output and farm level output highlights the potential that exists and the need for removing the constraints in respect of management practices, input use and credit etc. This is fully borne out by our performance in respect of wheat where the average yields. (quintals per hectare) under National Demonstration were 44.52 in Punjab, 47.50 in Haryana, 46.51 in Rajasthan and 17.46 quintals per hectare was the average yield for the irrigated areas.

In both single cropped and multiple cropped irrigated areas, there is scope for improving further the yield levels of grain crops through good management. In the command areas, the optimum yields can be obtained by following the recommended practices as under:

- (a) The water should be used as per the requirement of the crop plant;

- (b) The quality seeds should be used for obtaining desired yields;
- (c) Optimum levels of fertilisers on the basis of experiments conducted in the areas should be supplied for optimum expression of the yield; and
- (d) Plant protection care as recommended on the basis of the local experiments should be taken."

4.18. Referring to the observation that levels of yield per acre for many parts of the country are far below than what can be attained with known technology, the Committee enquired whether any in-depth studies had been carried out to find out the optimum levels of productivity in areas where adequate irrigational facilities have been provided and if so, how these compared with actual production per hectare and what steps are proposed to be taken to bridge the gap. In a note, the Planning Commission have stated:

"As far as we know, there has been no in depth study for finding out the productivity level in irrigated areas vis-a-vis unirrigated areas. However, the National Demonstrations conducted in 47 districts of the country provide some idea of the yield which can be obtained with respect to major crops in irrigated areas. The national averages of yield in national demonstrations in respect of some major crops are compared below with the national average of yield levels actually obtained in irrigated areas:—

National Average Yield in Irrigated Areas 1978-79.

| Crop | (Q/hectare) | |
|-------|-----------------------------------|------------------------------------|
| | National demonstration (Quantals) | Average of State yields (Quantals) |
| Wheat | 35.97 | 18.69 |
| Rice | 34.82 | 17.82 |
| Maize | 36.54 | 15.46 |
| Jowar | 35.24 | 12.33 |

The government are taking a number of steps to increase the

productivity and production in irrigated areas. These measures include:

- (i) Increasing the area under high yielding improved varieties of different crops;
- (ii) Expansion of the commodity nurseries;
- (iii) Free distribution of seed minikits;
- (iv) Adequate and balanced use of fertilisers;
- (v) Adoption of plant protection measures;
- (vi) Large scale demonstrations to acquaint farmers with the improved farm management practices; national demonstrations, operational research projects and lab to land programmes by the scientists as a first line demonstration;
- (vii) Transfer of technology through the newly organised extension system of training and visits;
- (viii) Training of extension workers and farmers in the new production technology;
- (ix) Provision of financial assistance by way of subsidy on different items under Central Sector and Centrally sponsored schemes;
- (x) Intensification of research;
- (xi) Increased supply of institutional credit; and
- (xii) Fixation of support price for different crops as incentive to the adoption of improved methods of production."

4.19. The Committee desired to know whether data regarding yields per hectare in the Command areas were maintained to facilitate monitoring and evaluation. The Secretary, Ministry of Agriculture replied:

"Regarding the yield per acre collection, we, in the Department of Agriculture, I must say, are not collecting or having a separate collection exercise for Command Areas as such and, I am sorry to say, that not merely for Command Areas but within the irrigated and unirrigated areas also, there is no conscious or deliberate attempt to have two separate yield figures and have two sets of exercises. According to the present system, about 2½ lakh plots are selected every year and these plots are selected at random in each village. For each type of crop two plots

are selected and in each plot, a small rectangular square of 5 metres area is selected and at the time of harvest; the expert staff goes to the field and after harvesting the crop, they weigh the crop and then relate it to the area and on the basis of compilation and statistical analysis, they derive the State-wise yield figures."

He further added:

"There is no separate exercise done at present for Command Areas nor, as I said, for irrigated areas as such...it is not a satisfactory state of affairs. It needs strengthening of the field staff. I think, this is a step which should be taken for discriminating between irrigated yields and unirrigated yields. As regards the Command Area as such, it should be left to the administrators of the Command Areas to do a special exercise within the areas."

4.20. The Committee enquired if detailed cropping patterns were being prescribed and whether it was ensured that the cropping pattern actually followed in the different Command Area was the same as prescribed in the project report. In reply, the Secretary, Ministry of Agriculture stated:

"So far as the cropping pattern is concerned, not only in the irrigated areas but even in the dry land, we are thinking of weaning the farmer away from the traditional crops, which are more drought-prone and vulnerable, in favour of short duration crops and seeds, which will help them to meet the situation of droughts and floods. In regard to command areas, when the command area project was with the Department of Agriculture, we suggested to the State Governments that some sort of technical committee should be appointed, both at the State and the Command area level, where the Department of Agriculture, the Agricultural Universities and agricultural scientists of the ICAR who are regionally located should come together and even at the project preparation stage should prepare some sort of micro cropping pattern to suit the requirements of the farmers, which should be in consonance with the availability of water and the soil moisture conditions. On the basis of these, originally projects were prepared in the command areas. Continuous monitoring has to be done by the State Governments. Some incentives have to be given to the farmers in the form of extension services and economic incentives to take them away from the

crops which are prone to droughts, or highly consumptive of water to crops which are less consumptive of water so that larger areas can be irrigated. It has been found that in most of the irrigated areas, those who are nearer the point where water is released, they generally by hook or crook, take away most of the water and grow crops like paddy. As a result, in some areas there is over-irrigation, salinity and water-logging and there is switch over from dry crops like maize, bajra, millets, oilseeds to paddy. In order to combat this situation, some State Governments have introduced the Localisation of Crops Act, under which a penalty is imposed on the farmers who do not grow crops, which are prescribed, but grow crops like paddy, which are highly consumptive of water. This has figured in the report of the C&AG also. In some States the penalty which is imposed is generally vague. It should be made more effective. Further, farmers should be given demonstrations and they should be supplied with high yielding varieties of seeds so that they are convinced that by growing these other crops they will be able to get better yield and that perhaps they will be less vulnerable to drought than when they grow paddy. In this particular year, when we were told that perhaps the monsoon may not be as good, I made a suggestion to the State Governments that they should prepare a contingency cropping pattern, which would take the farmers away from growing paddy in the upland areas with erratic rainfall conditions, where they can better grow maize, barley, arhar etc. I am glad to say that State like Bihar and Orissa have made a very successful attempt to grow pulses and oilseeds and hybrid bajra in areas where farmers used to grow paddy. So far as the command area is concerned, this has to be done by the Command Area Administrator, in consultation with the scientists of the agricultural universities. There is also need for greater continuous monitoring of the administration of cropping pattern, so far as command areas are concerned."

4.21. In a further note on the subject, the Planning Commission have stated:—

"The cropping pattern proposed by the States are in consultation with the State Agriculture Departments. At the Centre, these are also looked into by the Water Management Wing of the Ministry of Irrigation. The actual crop-

ping pattern that gets evolved in the project after its completion (wholly|partially) is determined by a number of factors, an important one being the productivity of the crops to the cultivator. The C.A.D. authorities can and do adopt a perssuasive and educative approach in this regard. The State Government|Command Area Development Authorities maintain the record of areas grown to each crop. The yield per acre is determined on the basis of crop cutting experiments. The programme of crop cutting experiments, as it exists today, is not specifically designed for ascertaining the yields in Command areas. During discussions with the State CAD authorities in various forums, they have been advised to take up such crop cutting experiments for their command areas so that information on productivity in the command areas is available."

4.22. The Committee find that the levels of yield achieved in the national demonstration farms 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.

4.23. There is thus tremendous scope of increasing the yield per hectare in irrigated areas 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.

4.24. 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 atleast 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.

4.25 The Committee are surprised to learn that net increase in yield in the command of an irrigation project is not assessed. In the absence of such an assessment the committee wonder how actual benefit derived could be ascertained and compared with the project anticipation. Henceforth such data should be compiled regularly.

4.26 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.

4.27. 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.

(b) Scope for augmenting food production

4.28 The Committee enquired whether the production of foodgrains had been commensurate with the additional resources provided by way of irrigation facilities, supply of inputs, research and extensionary agricultural credit and other facilities and whether the Planning Commission|Ministry of Irrigation|Ministry of Agriculture had made any assessment of the level of food production that could have been achieved had the entire irrigation potential targetted for been realised? In a note, the Planning Commission have stated :

“Table I Provides the actual and targetted foodgrain production, the actual and targetted irrigation and the rainfall index. In relating the area under irrigation and the foodgrain produced we have the following difficulties :

- (1) Foodgrain production comes partly from irrigated and partly from rainfed areas. (2) Irrigation is not the only factor to be taken into account in assessing foodgrain production and productivity trends. Other major inputs like fertilisers and seeds are also relevant. Besides, a**

large part of foodgrain production will be affected indirectly by rainfall as part of the irrigation is also sensitive to rainfall conditions. Therefore, only a rough and ready model can be built to answer this specific question. In this model it is assumed that irrigation and fertiliser used are very highly correlated and, therefore, their separate effects will be difficult to identify. . . According to these estimates, the total foodgrain production in the year 1978-79 would have been 24 million tonnes more if the full irrigation target had been realised.

An alternative attempt has also been made to estimate the loss in the production of foodgrain arising because of shortfall of irrigation by using simple macro arithmatic relations. The results derived therefrom (table II) confirm the estimates given in the earlier paragraph based on the use of regression analysis.

Although the estimates of yield per hectare of total cropped area are available, there are no estimates exclusively for the irrigated area at "all India level". Therefore, the reliance has been on the yield estimates of irrigated land of a few states, mainly Punjab, for deriving the representative estimate for India. To be precise, 2 tonnes to 2.3 tonnes per hectare is assumed as yield for the irrigated area and .5 to .7 tonnes per hectare for the rainfed area. On this basis, column 4 and 5 provide the estimate of a potential loss of foodgrains between 23 to 30 million tonnes over the five year plans. As has already been mentioned, this compares very well with the 24 million tonnes estimated in the earlier paragraph. For the purpose of this estimate, a rough land distribution of 37 million hectares of irrigated and 92 million hectares of rainfed land, observed for the year 1978-79 have been used.

However, all these calculations of potential loss in foodgrains production would suffer from a bias towards exaggeration since they are based on the assumption that corresponding supply of fertiliser, 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 review of the earlier plans, however, this would appear to be an unrealistic assumption. Therefore, the figure of 23 to 30 million tonnes of potential unfulfilled foodgrain production is very much on the high side."

TABLE - I

Foodgrains Output & Irrigation

| Plan | Foodgrains Production (Million tonnes) | | Foodgrains Production under Alternate Assumptions | | Rainfall Index Actual | Irrigated Area targets | Achievement (Irriga- tion) | |
|-----------------------|---|---------|--|--|-----------------------------|------------------------------|-------------------------------|-------------|
| | Actual | Targets | Irrigation targetted & rainfall actual (Mill. tonnes) | Irrigation targetted & rainfall normal (Mill. Tonnes) | 1970=100 | | Potential | Utilisation |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Pre-Plan 1950-51 | 50.8 | | | | 91.53 | | 22.62 | 22.60 |
| First Plan (1955-56) | 66.9 | 62.5 | .. | .. | 109.32 | 30.45 | 26.26 | 25.25@ |
| Second Plan (1960-61) | 82.0 | 76.20 | .. | .. | 94.92 | 34.10 | 29.09 | 27.90 |
| Third Plan (1965-66) | 72.35 | 101.61 | 97.52 | 115.01 | 74.60 | 39.47 | 33.61 | 31.95@ |
| Fourth Plan (1973-74) | 104.67 | 129.0 | 129.76 | 129.76 | 100.00 | 45.10 | 44.20 | 43.00 |
| Fifth Plan (1978-79) | 131.90 | 125.0 | 155.82 | 155.82 | 100.00 | 55.20 | 54.46 | 50.46@ |

@Estimated.

TABLE - II

Estimated Shortfall in Foodgrain Production on Account of Shortfall in Achievement of Irrigation Potential Targets

| Plan periods | Additional Irrigation Potential (Mill. hect.) | | | Resultant shortfall in Foodgrain Production (Mill. tonnes) | |
|-----------------------|--|----------|-----------|---|----------------|
| | Targetted | Achieved | Shortfall | Upper limit | Lower limit |
| 0 | 1 | 2 | 3 | 4 | 5 |
| First Plan (1951—56) | 7.85 | 3.66 | 4.19 | 7.54 | 5.74 |
| Second Plan (1956—61) | 7.84 | 2.83 | 5.01 | 9.02 | 6.86 |
| Third Plan (1961—66) | 10.38 | 4.52 | 5.86 | 10.55 | 8.02 |
| Fourth Plan (1969—74) | 11.49 | 10.59 | 0.90 | 1.62 | 1.47 |
| Fifth Plan (1974—79) | 11.00 | 10.26 | 0.74 | 1.33 | 1.01 |
| | | | 16.70 | 30.06 | 22.88 |

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The period of the three Annual Plans (1966—69) has been considered as a part of the Fourth Plan period for this calculation.

4.29 The Committee enquired during evidence if any indepth studies have been carried out to find out the optimum levels of productivity in areas where adequate irrigational facilities have been provided. The Planning Commission have replied as under:

“As far as we know, there has been no indepth study for finding out the productivity level in irrigated areas *vis-a-vis* unirrigated areas.”

4.30 Asked whether such an indepth study was not called for, the Planning Commission have stated:—

“The indepth study to find out productivity level in irrigated areas is necessary at the regional and State levels for different crops and for different agro-climatic conditions. Such a study would need to be undertaken by a multidisciplinary group by institutions like ICAR and Agricultural universities. Presently the Ministry of Irrigation is also looking after the CAD activity, therefore, it will be appropriate that the study is co-ordinated by the Ministry of Irrigation.”

4.31 The Committee enquired as to what would have been the anticipated food production in the country if the targetted potential of irrigation under the Plans had been achieved. A representative of Planning Commission stated in evidence:—

“We have made a study of the food production targetted and achieved in the last five plans and similarly the gross irrigated areas in order to have an estimate of their relationship. This relationship becomes vitiated and cannot be exact because nearly 70 per cent of the area under foodgrains comes from rain-fed lands and hence they are affected by the weather and not by irrigation. So we have to eliminate the whether cycle effect in order to get exact relationship between foodgrains production and irrigated area. We have also tried to isolate the fertilizer in order to study this effect. It is a statistical problem because irrigation and fertilizers are so closely related and it is very difficult to partially isolate, the partial multicollinear effect of irrigation and fertilizer separately. The analysis shows that if we eliminate the effect of rainfall over the period, the elasticity of foodgrains increase to the increase in the irrigated areas comes to a little less than

unity. That means, if 100 per cent is the increase in irrigated area, the increase in foodgrains production is 90 per cent. On that basis we have made an analysis of the total shortfall in additional irrigated area to be completed by the Sixth Plan. While it was targetted to be 45 million hectares, it came to 28.37 million hectares. Therefore, the shortfall for the whole period is 42 percent. Similarly, we find that the shortfall for food production from the targetted level was 38 per cent. On this basis and assuming an elasticity of .9 and normal rainfall in 1978-79, the foodgrain production would have been 155 million tonnes as against 132 million achieved that year. Therefore, this is the shortfall. The 132 million tonnes that we achieved in 1978-79 is because of very good weather. Therefore, the actual shortfall comes of 155 million tonnes minus 132 million tonnes (23 million tonnes) if the trend value for 1978-79 is estimated. This short fall of foodgrain production is taken after due adjustment. we eliminate weather factor. Therefore, the short-fall in foodgrains target is completely explained by the shortfall in the irrigated area only in a partial equilibrium sense."

4.32 In reply to a further question, the representative of the Planning Commission stated:—

"Over the last Five Plans, without breaking it up Plan-wise, the foodgrains production loss because of shortfall in realisation of irrigation targets seems to be in the region of 13 million to 30 million tonnes."

4.33. A study made by the Planning Commission with regard to the shortfall in production of foodgrains consequent upon the non-materialization 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."

C. Financial Losses

4.35. The Supplementary Report of the C&AG for the year 1975-76 had pointed out that just before Independence i.e. 1945-46, the net gain to the Exchequer from Irrigation schemes after meeting working expenses, interest charges and deducting loss on unproductive works was Rs. 7.92 crores i.e. a return of 5.3 per cent. on the investment of Rs. 149 crores. Just after Independence, irrigation works in the country as a whole yielded a net annual profit of over Rs. 1 crore after meeting the cost of maintenance and interest charges. In the subsequent periods, the irrigation and multipurpose projects incurred losses.

4.36 In this context, the Committee called for data regarding losses/gains, if any, from the Irrigation projects from the year 1975-76 onwards. The same is reproduced below:—

| Rs. Crores | | | | | | |
|---------------------|-------|-------------------------|-----|--------------------------------------|-----|--------|
| | | Irrigation (commercial) | | Multi-purpose river valley projects. | | Total |
| 1975-76 | · (—) | 117.89 | (—) | 36.62 | () | 145.58 |
| 1976-77 | · (—) | 135.48 | (—) | 44.66 | (—) | 180.14 |
| 1977-78 | · (—) | 192.45 | () | 48.55 | (—) | 241.00 |
| 1978-79 | · (—) | 253.01 | (—) | 66.39 | (—) | 319.40 |
| 1979-80 | · (—) | 266.21 | (—) | 63.74 | (—) | 329.95 |
| 1980-81 | · (—) | 339.19 | () | 64.03 | (—) | 403.22 |
| (Revised Estimates) | | | | | | |
| 1981-82 (B.E.) | · (—) | (—) 356.14 | (—) | 68.61 | (—) | 424.75 |

4.37 Asked about the reasons for the high incidence of losses, the Planning Commission have stated:—

“The main reason for the losses in the irrigation projects is that water rates are not being revised in keeping with the increasing cost of irrigation. The trend in irrigation losses has been a matter of serious concern for the Central Government. The causes of irrigation losses have been analysed from time to time and the State Governments have been requested to take effective measures to minimise these losses. Every Five Year Plan has gone into this matter and in view of heavy investment being made on irrigation projects, the successive Five Year Plans have stressed the need for adopting suitable measures for reducing progressively the losses on irrigation works and ultimately eliminating these altogether. These included delay in completion of schemes, utilisation of irrigation potential already created, constructions of field channels, water courses, land levelling and land shaping etc., inadequate supply of water to the farmer due to deficient canal system, unsuitability of cropping pattern originally envisaged in some of the projects, creation of water logging and sanitary problems due to irrigation facilities in certain project areas, reluctance on the part of the farmers to adopt improved cropping practices and more importantly low irrigation rates. The successive Finance Commissions have also gone into the question of irrigation losses and have made several suggestions from time to time for implementation by States. The Irrigation Commission (1972) also examined this matter in detail and suggested number of steps to improve financial return on investment for irrigation projects. The Committee on Taxation of Agricultural Wealth and Income (Raj Committee) also recommended that water supplied by public irrigation projects should be priced like any other input so as to cover the cost. The Sixth Plan document has also categorically recommended that the losses should be progressively eliminated through suitable revision of the existing rates and during the plan period at least the working expenses should be covered.

Some of the States have revised the water rates but these are not adequate to cover losses. There is urgent need for the States to review this question thoroughly and revise the water rates. Planning Commission and Ministry of Irrigation have been taking up this question with the State

Government in many forms like National Development Council Meetings, annual plan discussion, State Ministers Conference, Regional Conferences, etc.

Except two States namely, Orissa and Rajasthan, none of the other States is likely to cover even the working expenses in 1982-83. This situation was brought to the notice of the National Development Council in its meeting held in March 1982. Specific attention was invited to the deterioration in State finance on account of several factors including the mounting of irrigation losses. The National Development Council recognised the crucial role of the improved functioning of public enterprises in realising objectives of the Sixth Plan. The Council also recognised that the financial results of the major enterprises particularly State Electricity Boards, Road Transport Corporations and *irrigation works* needed urgent improvement for orderly implementation of the Sixth Plan.

The above facts will show that the mounting irrigation losses for the last several years have been a matter of serious concern for the Central Government. Various Commissions and Committees have gone into this matter and successive Five Year Plans have stressed on the State Governments to improve the financial viability of the irrigation projects. The factors underlying these losses have been analysed carefully and corrective measures suggested to the State Governments. These attempts have **not met** with the satisfactory response from the States who find it difficult to adjust irrigation rates so as to cover even the working expenses. It is proposed to pursue this matter further in the forth-coming discussions with the States in connection with the Mid-Term assessment of the Sixth Five Year Plan including financial resources. The Eighth Finance Commission is also likely to go into this question and make its recommendations. Irrigation is a State subject and the Central Government and the Planning Commission have to operate within the existing constitutional framework."

4.38 Asked whether the Five Year Plans envisaged any return from irrigation investment as part of raising the Plan resources, the Planning Commission have in a note, stated:—

".....the answer is in affirmative. The successive five-year plans have pointedly emphasised the need for making

the working of the irrigation schemes economically viable particularly through adjustments and revisions in irrigation/water rates. The position as indicated in successive five-year plans in this matter is set out below:—

First Five Year Plan

As projects now under construction are considerably more costly than projects executed in the past and also the cost of maintenance and operation is higher than before, State Governments should re-examine the water rates, etc. which they recover from cultivation for supplies of irrigation waters.

(Chapter XXVI Irrigation and Power Page 357)

Second Five Year Plan

The Plan document while indicating the amounts/areas of additional resource mobilisation by the States had made specific reference to irrigation rates and envisaged additional resources to be raised by States from this source at Rs. 11 crores in the Plan period.

(Chapter IV Finance and Foreign Exchange Page 89).

Third Five Year Plan

Water rates should ordinarily cover working expenses and debt charges and outside scarcity areas schemes should not involve loss to general revenues."

(Chapter XXIV Irrigation and Power Page 388).

Fourth Five Year Plan

The present rates seldom cover the operation and depreciation charges. State Governments should give serious consideration to upward revision of the rate so that they cover at least the maintenance operation and depreciation charges and also yield some interest on capital.

(Chapter 11, Irrigation and Flood Control Page 258).

Fifth Five Year Plan (1974—79)

The Plan document *inter alia* stated that in the case of States there is need as well as scope for raising further resources,

from the agricultural sector since large public investments have been made for the development of agriculture but there had been no commensurate increase in the contribution of agriculturists towards financing these investments. It further stated:

There is also need for revision of irrigation rates and electricity tariffs. The State Governments are incurring heavy losses on irrigation works... In certain States, receipts from irrigation are not sufficient even to cover working expenses, leave apart interest payments and depreciation provision. This, in effect, amounts to subsidising of farmers who benefit from the irrigation facilities provided by Government. It is the more affluent farmers who benefit more from the subsidy. It is therefore, imperative to adopt suitable measures for reducing progressively the losses on irrigation works and ultimately eliminating these altogether.

At the time of adopting the Fifth Five Year Plan (1974-75) the National Development Council had passed a Resolution on Power and Irrigation Schemes, some relevant extracts from which are as follows:—

Heavy investments have been made by the country in Irrigation and Power Systems and it is certain that these sectors will, in the foreseeable future, continue to absorb a large share of Plan resources. It is, therefore, a matter of prime importance that these sectors should no longer be a burden on the State's finances but should contribute something to them.

The National Development Council hereby resolves that irrigation systems should cover working expenses and yield, if possible, something more and that power systems should cover working expenses and yield reasonable returns on investment by taking steps expeditiously to:

1. Make maximum use of the capacity already created in the power and irrigation systems.
2. Reduce costs by cutting overheads and operating expenses, minimising losses and thefts and improving collection of dues.
3. Complete Projects on schedule through efficient project management.
4. Raise rates where necessary.

Sixth Five Year Plan (1980—85)

The Sixth Five Year Plan (1980—85) has again emphasised the need for raising additional resources by covering up the losses on irrigation projects. The Plan document observes:—

The State Governments are incurring huge losses on irrigation works. This, in effect, amounts to a subsidy to the farmers who benefit from irrigation facilities created by the Government. It is necessary to reduce progressively, and over a period of time, eliminate these losses through suitable revision of the existing rates. The minimum objective should be to set rates at levels such as to cover the working expenses on the existing irrigation works during the Plan period. This would bring additional resources absorb a large share of Plan resources. It is, therefore, to the tune of Rs. 325 crores over the Plan period.”

4.39 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. 151.6 crores in 1975-76 to Rs. 424.75 crores in 1981-82 (Budget estimates), both in respect of irrigation (commercial) and multi-purpose river valley projects. 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 multi-purpose river valley projects continue to mount.

4.40. 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 is fact amounted to subsidizing 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 objective 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.

CHAPTER V

MONITORING OF PROJECTS

A. Monitoring Mechanism

5.1. The Sixth Five Year Plan document states that adequate organisation and systems at present do not exist for monitoring and evaluation of plan projects and programmes at different levels. At the central level, monitoring systems have been established and are in operation in respect of major projects in certain key sectors only like chemicals and fertilisers, steel, petroleum, coal, power and irrigation.

5.2. The implementation of the Plan both by the State Governments as well as the Central Ministries, would need to be effectively monitored with a view to ensuring that for each scheme various targets relating to time and cost, production of goods and services, social and economic benefits relating to the individual projects in the industrial, agricultural education, irrigation family planning, health or any other sector of the economy are achieved.

5.3. The strategies of development in the irrigation sector during Sixth Five Year Plan include aiding and strengthening of monitoring organisation at the State level. Asked about the steps taken in this regard, the Planning Commission have in a written reply, stated as follows:—

“The Central Government has set up a monitoring organisation in the Central Water Commission in which at present 3 Chief Engineers, 6 Superintending Engineers and 12 Deputy Directors with supporting staff are deployed. They are monitoring 66 projects in 16 States. They visit the projects as frequently as possible, analyse the situation and prepare status reports and indicate any bottlenecks encountered for appropriate action by the project and State authorities.

The State Governments have been advised in the last six years continuously to establish monitoring organisations at the project level and State level. There are at present 13 monitoring organisations at the State level. In Karnataka and Jammu and Kashmir units in the Planning Departments are carrying out the task. In Manipur, the monitoring has been started very recently. 55 project level units have been set up. Suitable

proforma for reviewing progress of projects have been devised and furnished to the States. Training courses have been conducted by the C.N.C. on the use of FERT and CPM techniques in monitoring."

5.4. In reply to a question regarding the Planning Commission's assessment of the efficacy of the present monitoring system at the Central level and the steps that need to be taken in this regard, the Commission have stated:

"The monitoring of progress of implementation of Plan projects/programmes within the Planning Commission is undertaken by (i) monitoring Calls in the subject divisions; and (ii) the Monitoring and Information Division. The Monitoring Cells undertake basic monitoring work in the concerned sectors and relate them closely to Plan formulation process. The Monitoring and Information Division coordinates the monitoring work in respect of selected projects/schemes covering 20 sectors (including irrigation—major and medium). The Division compiles, every quarter, a review of production performance (physical) against target and progress of implementation of projects (with cost of Rs. 10 crores and above) against time and cost schedules. These activities are supported by a system of Performance Review Meetings which are taken by Secretaries of the concerned Ministries usually every quarter. The Planning Commission is represented at these meetings. The problems in production/achievements and slippages in the projects under construction as well as the nature of corrective measures are discussed at these meetings.

Further, at the time of formulation of the Annual Plan, the Planning Commission undertakes in consultation with the Central Ministries, State Governments and others concerned, a critical review of the performance in the implementation of the Plan programmes, projects and schemes in the preceding year so that the Plan for any year is prepared on as realistic a basis as possible. A process of Quarterly Performance Review Meetings by Member and Sixth Monthly Review of Plan progress has also been initiated. Specific inter-sectoral and critical problems of implementation alongwith suggestions for remedial measures and follow up action are discussed in depth in the Performance Review Meetings. Member, Planning Commission also takes meetings with the State Governments/ Electricity Boards on Power Plan implementation.

However, the responsibility for implementation and monitoring primarily rests with the Central Ministries and the State Governments concerned. In sectors, such as industry, power and transport, project formulation techniques, as well as methods of appraisal, monitoring and evaluation are more advanced. At the Central level, monitoring systems have been established and are in operation in respect of major projects in certain key sectors like Chemicals and Fertilizers, steel, petroleum, coal, and power. For other sectors, there is need to develop organised monitoring arrangements."

5.5. Questioned on the subject, the Secretary, Irrigation stated in evidence:

"Sir, during certain reviews before 1976 it was found that there are a large number of implementation deficiencies in the irrigation projects. Then it was decided that monitoring organisation at the Central level should be created. A monitoring organisation was created in 1976 to monitor important projects. Today we are monitoring sixty-five projects. We also found that with the States there were deficiencies in monitoring and we have taken it up with the States. We found in some cases States have created monitoring cells but have given them additional duties in addition to monitoring. We have been taking up these issues with the States. We are pursuing the States to have similar monitoring organisation at the State headquarters so that the total picture of the project comes to them in a concise form and they can take proper action."

5.6. In reply to a question whether the Central Government was in a position to extend any financial assistance to the States for setting up/strengthening the monetary organisations at the State level, the Secretary, Ministry of Irrigation, stated:—

"The monitoring organisations at the project level and the State level are to be funded by the State Government. We had put up a proposal to the planning Commission that there should be matching assistance of 50 per cent for this, but that has not been agreed to."

Control Boards

5.7. The Second Irrigation Commission had in its Report recommended as under:—

"We consider that all large inter-State projects and any State project costing Rs. 500 million or more should have a Control

Board. Even for projects costing less than Rs. 500 million but which are of a complicated nature, a Control Board would be desirable. To be effective Control Boards should be delegated the maximum powers and should in turn, be liberal in delegating powers to the Chief Engineers of projects in the interests of efficiency.

In States where several projects are under construction, a single Control Board with standing committees for each project would suffice. This would help to promote the best use of manpower and equipment.

Where a major project receives special financial assistance from the Union Government, the centre should be adequately represented on the Control Board."

5.8. The above recommendation of the Irrigation Commission had also been endorsed by the Naegamwala Committee. The Committee, therefore, enquired whether the Control Boards had been set up as recommended by the Irrigation Commission. The Planning Commission have, in a note, stated:—

"The following Control Boards have been set up for the projects which are handled by the Ministry of Irrigation:

1. Setwa River Board
2. Bansagar Control Board
3. Mahi Control Board

The Government of India is represented on the following Control Boards set up by the State Government.

1. Tehri Control Board
2. Ramganga Control Board
3. Rajasthan Canal Board
4. Gandak Control Board
5. Kosi Control Board
6. Patteru Control Board
7. Thoubal Control Board
8. Salaur Control Board

The following inter-State Control Boards have been bilaterally set up by the States, and there is no representative of Government of India on them:

1. Galludih Joint Control Board set up in August, 1981 between Bihar and Orissa for the Subarnarakha Project.
2. Damanganga Control Board between Gujarat and Dadra and Nagar Haveli for the Damanganga Project.

The Government of Madhya Pradesh has set up a Control Board for all major projects in the State.

In the case of other projects, the State Governments have not indicated to the Government of India the reasons why Control Boards have not been set up."

5.9. Asked whether the expenditure on monitoring arrangements was treated as plan expenditure and whether a part of the Central assistance could be earmarked for this purpose. the Planning Commission have stated:

"The expenditure on monitoring arrangements is treated as Plan expenditure. The Working Group for Major and Medium Irrigation for the Sixth Plan, in its Report (November, 1980) made a proposal for providing Central assistance on a matching basis but the policy was not to increase the number of Centrally sponsored programmes."

(b) *Delegation of Powers*

5.10. The Third Irrigation Ministers' Conference held in November, 1977 recommended that a review of delegation of financial powers may be made with a view to increasing the delegation to lower levels of engineering administration and suitable machinery should be created in the States for taking expeditious decisions relating to implementation of projects. The Committee enquired if the matter had been reviewed by the Planning Commission/Ministry of Irrigation and if so, what action had been taken by the State Governments in pursuance of the above recommendation.

The Planning Commission have stated:

"The recommendations of the 3rd Irrigation Ministers' Conference in respect of review of delegation of financial powers were circulated to the States.

This was followed up, vide Item 3 of the Agenda for the Fourth Conference of Irrigation Ministers which reads as under:—

“...The delegation of powers to the construction agencies at different levels should be made very effective. This delegation of powers should cover all aspects of construction like sanctioning of works, sanctioning of investigations for taking up works from year to year, sanctioning of staff communication facilities, housing, purchase of vehicles, equipment, both transport and inspection, acceptance of tenders, adopting methods of construction, allotment of work on tenders work orders and K-2 forms, etc.

This was further stressed by the Working Group constituted by the Planning Commission for drafting the programme of major and medium irrigation in the Sixth Plan which in its report in November 1980 stated “a comprehensive review of implementational methods adopted including delegations of powers with a view to making them more effective is also called for.”

The question of increased delegation of powers to engineers was taken up with the States from time to time during formal/informal meetings with the Officers of the State Irrigation Departments. The States review such delegations of powers from time to time in accordance with the needs of the situation.”

5.11 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 & 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.

5.12 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 Plans 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.

5.13 The second Irrigation Commission had recommended the setting up of a 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 manpower and equipment. It was further recommended that these Boards should be delegated maximum powers and the Boards in turn should in liberal in delegating powers to the Chief Engineers of projects in the interest of efficiency. The Committee find that in pursuance of this recommendation, Control Boards have been set up for three projects handled by the Ministry of Irrigation viz. Betwa River Board, Bana-Sagar 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 Boards.

5.14 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.

CHAPTER VI

CONCLUSION

6.1 Out of a total irrigation potential of 113 million hectares, the achievement so far is 61.58 million hectares, 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 million hectares and another 39 million hectares have been added during the last 32 years of planning. The growth rate of a little over 1 million hectares per year needs to be stepped upto 2.5 to 3 million hectares per year so as to achieve the target of 113 million hectares by the turn of the century. Considering the pace of development since the First Five Year Plan, the task is indeed formidable.

6.2 The share of irrigation in the total outlay of the successive Five Year Plans has been of the order of about 10 per cent only. This would need considerable augmentation if the target of adding another 51.5 million hectares during the next 20 years is to be achieved.

6.3 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 haywire. 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.

6.4 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 (1970-71) 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.

6.5 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 per cent utilisation of the minor irrigation potential of 30 million hectares appears to be preposterous. The experience of the common cultivator with regard to operation of tube-wells 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.

6.6 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 exists for providing employment opportunities and augmenting food production in areas so far bereft of irrigation facilities.

6.7 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 schemes is being derived by relatively well-to-do farmers. There is no reason why this section of the rural population should continue to be subsidized 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.

6.8 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 inter-disciplinary 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 clearance of individual plan projects besides technical guidance and coordinating supply of inputs.

6.9 We have a centralised planning in a federal set up. There has therefore necessarily to be a coordinated approach by the Centre and the State Governments to ensure that the National plans are translated into reality and the plan targets are adhered to. In this connection, the role of unitary and independent audit in our federal polity 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 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 Programmes 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.

6.10 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 achievements and reasons for the shortfall in achievements as well as the deficiencies in implementation during the mid-term and after every five year plan to apply on course corrections and formulate the next plan in the light of these. These detailed appraisal reports should be made public.

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

New Delhi;
April 8, 1983
Chaitra 18, 2005 (S)

SATISH AGARWAL
Chairman
Public Accounts Committee

APPENDIX I

(vide Para 2.30)

Statement showing Estimated Cost (Original and latest) of approved
On-going and new major irrigation schemes of the Sixth Plan.

ANDHRA PRADESH

(Rs. in cores)

| Sl.No. | Name of the scheme | Estimated cost | |
|---|---------------------------------------|--------------------------------|-------------------------|
| | | As Orig- ally appro- ved | Latest appro- ved |
| A. ON-GO;NG MAJOR SCHEME | | | |
| 1. | Nagarjunasagar | 91.12 | 537.00 |
| 2. | Sriramasagar Stage I | 40.10 | 368.00 |
| 3. | Godavari Barrage | 26.59 | 66.00 |
| 4. | Vamsadhara Stage I | 8.7764 | 37.5708 |
| 5. | Tungabhadra H.L.C. Stage II | 11.95 | 48.00 |
| 6. | Somasila Stage I | 17.20 | 59.86 |
| TOTAL | | 195.7364 | 1116.4308 |
| B. NEW MAJOR SCHEMES OF SIXTH PLAN | | | |
| 1. | Srisailem Right Bank Canal | 220.22 | 220.22 |
| TOTAL—(A+B) | | 415.9564 | 1336.6508 |

ASSAM

(Rs. crores)

| S.No. | Name of the scheme | Estimated Cost | |
|------------------------------------|----------------------|----------------------------------|--------------|
| | | as origin- ally app- roved | Latest |
| A. ON-GO;NG SCHEMES | | | |
| 1. | Dhansiri | 15.38 | 22.49 |
| B. NEW SCHEME OF SIXTH PLAN | | | |
| | Ghampamati | 15.32 | 16.82 |
| Total—(A+B) | | 31.15 | 39.31 |

BIHAR

(Rs. in crores)

| Sl.No. | Name of the scheme | Estimated Cost | |
|----------------------------|--|-------------------------------|---------|
| | | As originally approved | Latest |
| <i>A. On-Going Schemes</i> | | | |
| 1. | Gandak | 36.5 | 415.81 |
| 2. | Kosi Barrage & Eastern Canal | 24.81 (Irrign) 44.76 (I&P) | 149.70 |
| 3. | Bagmati Irrigation | 5.78 | 75.51 |
| 4. | Western Kosi Canal | 13.49 | 161.80 |
| 5. | Sone High Level Canal | 8.84 | 47.69 |
| 6. | Rajpur Canal | 4.67 | 25.17 |
| 7. | Dargawati Reservoir | 25.30 | 50.00 |
| 8. | Barnar Reservoir | 18.03 | 15.88 |
| 9. | Upper Kiul Reservoir | 8.07 | 20.42 |
| 10. | Bateswarasthan Pump Ph. I | 13.88 | 27.75 |
| 11. | Buisagar Dam (Share Cost) | 22.83 | 31.90 |
| | TOTAL : A | 172.26 | 1021.57 |
| <i>B. New Schemes</i> | | | |
| | TOTAL : (A + B) | 172.26 | 1021.57 |

GUJARAT

(Rs. in crores)

| S. No. | Name of the scheme | Estimated Cost | |
|---|-------------------------------------|-------------------------------|--------|
| | | As originally approved | Latest |
| <i>A. On-Going Major Scheme</i> | | | |
| 1 | Ukai | 47.07 (Irrign) 58.21 (I&P) | 132.07 |
| 2 | Kodana | 16.27 | 95.02 |
| 3 | Sabarmati | 17.58* | 64.32 |
| 4 | Panam | 10.67* | 41.96 |
| 5 | Damanganga | 24.40@ | 108.84 |
| 6 | Mahi Bajaj Sagar (Gujarat Share) | | |
| 7 | Mahi Stage I | 24.61 | 41.22 |
| 8 | Kakrapar | 18.65 | 21.76 |
| 9 | Sukhi | 23.11 | 32.49 |
| 10 | Karjan | 37.20 | 89.60 |
| 11 | Heran | 25.26 | 50.53 |
| 12 | Sipu | 18.80 | 25.54 |
| | TOTAL —A. | 281.23 | 742.29 |
| <i>B. New Major Schemes of Sixth Plan</i> | | Nil | |
| | | 281.23 | 742.29 |

@Includes cost for Dadra & Nagar Haveli and Goa, Daman & Diu for irrigation, water supply and power sectors.

*Includes cost for water supply also.

HARYANA

(Rs. in crores)

| Sl. No. | Name of the scheme | Estimated Cost | |
|---|---|------------------------|--------------------------|
| | | As Originally approved | Latest |
| A. On-Going Major Schemes | | | |
| I. Multi Purpose Projects | | | |
| 1. | Beas Unit I (Share cost) | 1.97 | 7.63 |
| 2. | Beas Unit II Do. | 20.63 | 32.99 |
| 3. | Beas Unit I (Ext.) Do. | 0.72 | 0.85 |
| 4. | Beas Unit II (Ext.) Do. | 3.93 | 4.32 |
| | TOTAL—I | 27.45 | 45.27 |
| II. Irrigation Projects | | | |
| <i>Major Projects</i> | | | |
| 1. | Jawahar Lal Nehru Lift Irrigation Schemes | 40.00 | 115.00 |
| 2. | Loharu Lift Irrigation Scheme | 4.13 (Stage I only) | 30.00 (Stages I & II) |
| 3. | WOC Remodelling Project | 5.57 | 12.49 |
| 4. | Gurgaon Canal Project | 5.27 | 15.00 |
| | TOTAL—II | 56.97 | 172.49 |
| III. Modernisation Schemes | | | |
| 1. | Modernisation of existing channels in Haryana (Phase I) | 77.11 | 77.11 |
| | TOTAL—III | 77.11 | 77.11 |
| | TOTAL A (I+II+III) | 161.33 | 295.39 |
| B. New Major Schemes of Fifth Plan | | | |
| | Modernisation of existing channels in Haryana (Phase II) | 39.78 | 39.78 |
| | TOTAL (A+B) | 251.11 | 385.17 |

JAMMU & KASHMIR

(Rs. in crores)

| S. No. | Name of scheme | Estimated Cost | |
|---|-----------------------------|------------------------|--------------|
| | | As originally approved | Latest |
| A. On-Going Major Scheme | | | |
| 1. | Tawi Lift Complex | 5.17 | 7.12 |
| 2. | Ravi Canal | 29.84 | 52.70 |
| | | <u>35.01</u> | <u>59.82</u> |
| B. New Major Schemes of Sixth Plan | | | |
| | | | Nil |
| | TOTAL : (A + B) | <u>35.01</u> | <u>59.82</u> |

KARNATAKA

(Rs. in crores)

| S.No. | Name of scheme | Estimated Cost | |
|--|--|------------------------|---------------|
| | | As originally approved | Latest |
| A. On-Going Major Scheme | | | |
| 1. | Tungabhadra Left Bank Canal and Right Bank Canal | 23.00 (Ist Plan) | 60.00 |
| 2. | Tungabhadra High Level Canal State II | 2.61 | 10.80 |
| 3. | Bhadra Project | 7.67 (Ist Plan) | 58.00 |
| 4. | Chataprabha Stage III | 90.54 | 125.00 |
| 5. | Malaprabha | 19.91 | 192.00 |
| 6. | Upper Krishna Stage I | 58.20 | 400.00 |
| | TOTAL — A | <u>201.03</u> | <u>851.80</u> |
| B. New Major Scheme of Sixth Plan | | | |
| | | | Nil |
| | TOTAL : (A + B) | <u>201.93</u> | <u>851.80</u> |

KERALA

(Rs. in crores)

| S.No. | Name of Scheme | Estimated Cost | |
|---|----------------|------------------------|--------|
| | | As originally approved | latest |
| A. On-Going Major Schemes | | | |
| 1 | Periyar Valley | 3.48 | 39.71 |
| 2 | Pamba | 3.83 | 43.00 |
| 3 | Kallada | 13.28 | 176.00 |
| 4 | Kuttiadi | 4.96 | 39.70 |
| 5 | Chitturpuzha | 0.99 | 12.80 |
| 6 | Kanhirapuzha | 3.65 | 32.00 |
| 7 | Pazhassi | 4.42 | 42.00 |
| TOTAL—A | | 24.61 | 385.21 |
| B. New Major Schemes of Sixth Plan | | | |
| | | Nil | |
| TOTAL : (A+B) | | 36.41 | 385.21 |

MADHYA PRADESH

(Rs. in crores)

| S.No. | Name of the scheme | Estimated cost | |
|-------------------------------------|------------------------------|------------------------------|--------|
| | | As originally approved | Latest |
| A. On-Going Schemes | | | |
| 1 | Chambal Stage I | 21.94 | 77.50 |
| | Stage II | 4.70 | 9.10 |
| 2 | Rajghat—Unit I. (Share cost) | 61.61 | 61.61 |
| 3 | Banagar—Unit I Do. | 45.66 | 63.80 |
| 4 | Mahanadi Reservoir Ph. I | 15.34 | 69.00 |
| 5 | Hasdeo Bango | 115.30 | 352.96 |
| 6 | Tawa | 20.24 (Irrgn) 27.50 (I&P) | 96.68 |
| 7 | Barna | 5.56 | 15.27 |
| 8 | Sukta | 4.93 | 10.70 |
| 9 | Bairiarpur L.B.C. | 18.40 | 18.40 |
| 10 | Rangwan H.L.C. | 1.86 | 4.40 |
| 11 | Hasdeo R.B.C. | 4.97 | 14.33 |
| 12 | Upper Wainganga | 50.60 | 50.66 |
| 13 | Sindh Ph. I | 4.95 | 16.00 |
| 14 | Pairi | 4.97 | 13.66 |
| 15 | Kodar | 2.94 | 14.00 |
| 16 | Jonk | 4.14 | 8.30 |
| TOTAL : | | 388.11 | 895.77 |
| B. New Schemes of Sixth Plan | | | |
| 1 | Arpa | 32.13 | 102.44 |
| TOTAL : (A+B) | | 420.24 | 998.21 |

MAHARASHTRA

(Rs. in crores)

| S.No. | Name of scheme | Estimated Cost | |
|---|--------------------------------------|------------------------|--|
| | | As originally approved | latest |
| A. On-Going Major Schemes | | | |
| 1 | Upper Godavari | 14.20 | 38.38 (Includes lining work Stage II) |
| 2 | Upper Pati | 13.11 | 73.63 |
| 3 | Khadakwasla | 11.61 | 111.20 |
| 4 | Warna | 31.09 | 201.84 |
| 5 | Krishna | 27.66 | 114.96 |
| 6 | Jayakwadi Stage I | 38.46 | 158.49 |
| 7 | Kukadi | 17.90 | 240.60 |
| 8 | Bhima | 42.58 | 184.52 |
| 9 | Kal | 2.31 | 8.61 |
| 10 | Tulshi | 2.00 | 6.96 |
| 11 | Bagh | 5.79 | 13.97 |
| 12 | Itaidoh | 7.34 | 9.66 |
| 13 | Surya | 19.35 | 41.89 |
| 14 | Waghur | 12.28 | 21.29 |
| 15 | Upper Penganga | 84.48 | 220.92 |
| 16 | Manjra | 20.19 | 31.49 |
| 17 | Mula | 15.01 | 29.98 |
| 18 | Upper Wardha | 39.88 | 123.00 |
| 19 | Pench Irrigation Project | 40.69 | 89.62 |
| 20 | Jayakwadi Project Stage II | 88.90 | 513.72 |
| 21 | Upper Parvara | 15.87 | 70.00 |
| 22 | Kalisarar | 2.42 | 5.06 |
| 23 | Chaskaman | 22.48 | 42.08 |
| 24 | Nandur Madhmeshwar | 72.66 | 72.66 |
| | TOTAL — A. | 648.26 | 2063.93 |
| B. New Major Schemes of Sixth Plan | | | |
| | | Nil | |
| | TOTAL : (A+B) | 648.26 | 2063.93 |

MANIPUR

(Rs. in crores)

| S.No. | Name of scheme | Estimated cost | |
|-------------------------------------|-----------------------------------|------------------------|--------------|
| | | As originally approved | Latest |
| A. On-Going Schemes | | | |
| 1 | Singda Dam | 3.75 | 9.12 |
| 2 | Thoubal | 47.25 | 62.70 |
| 3 | Laktak lift Irrigation | 4.62 | 16.86 |
| | TOTAL : A | 55.62 | 78.68 |
| B. New Schemes of Sixth Plan | | | |
| | | Nil | |
| | TOTAL : (A.+B) : | 55.62 | 78.68 |

ORISSA

(Rs. in crores)

| S.No. | Name of scheme | Estimated cost | |
|---|-----------------------------------|------------------------|---------------|
| | | As originally approved | Latest |
| A. On-Going Schemes | | | |
| 1 | Rengali—Dam | 10.66 | 24.73 |
| | —Irrign. | 233.64 | 320.00 |
| 2 | Upper Kolab —Dam | 7.58 | 22.95 |
| | —Irrign. | 16.46 | 67.74 |
| 3 | Upper Indravati—Dam | 77.60 | 64.12 |
| | Irrign. | | 58.44 |
| 4 | Mahanadi Delta. | 14.92 (by State) | 69.50 |
| 5 | Salandi | 4.66 | 16.30 |
| 6 | Anandpur | 21.94 | 9.65 |
| 7 | Mahanadi Biurpa Barrage | 42.08 | 92.65 |
| | TOTAL : A. | 430.94 | 752.08 |
| B. New Schemes of Sixth Plan | | | |
| | | Nil | |
| | TOTAL : (A+B) | 430.94 | 752.98 |

PUNJAB

(Rs. in crores)

| Sl.No. | Name of Scheme | Estimated Cost | |
|---|---|------------------------|-----------------|
| | | As originally approved | Latest |
| A. On-Going Major Schemes | | | |
| I. Multi Purpose Schemes | | | |
| 1 | Beas Unit I (Share cost) | 2.96 | 11.71 |
| 2 | Beas Unit II Do. | 30.95 | 49.49 |
| 3 | Beas Unit I Extn. Do. | 1.09 | 1.68 |
| 4 | Beas Unit II Extn. Do. | 5.89 | 8.13 |
| 5 | Diversion weir of Shahaadhar Canal | 11.59 | 34.45 |
| 6 | Dholbaha Dam | 3.49 | 6.50 |
| | Sub—TOTAL I | 55.97 | 111.96 |
| II. Major Schemes | | | |
| III. Modernisation Schemes | | | |
| 1 | Extn. & Improvement of Shahanahar Canal | 10.63 | 32.55 |
| 2 | Lining of channels (World Bank assisted) (Phase I) | 152.03 | 152.03 |
| | TOTAL : III | 162.66 | 184.58 |
| | TOTAL A. | 218.63 | 296.54 |
| B. New Major Schemes of Sixth Plan | | | |
| | Thein Dam Multipurpose Scheme | 263.16 (I&P) | 469.00 (I&P) |
| | TOTAL : (A+B) | 481.79 | 665.54 |

RAJASTHAN

(Rs. in Crores)

| Sl.No. | Name of Scheme | Estimated Cost | |
|---|--|------------------------|--------|
| | | As originally approved | Latest |
| 1 | 2 | 3 | 4 |
| A. On-Going Major Schemes | | | |
| <i>Multi-purpose Projects</i> | | | |
| 1 | Beas Unit I (Share cost) | 0.87 | 3.44 |
| 2 | Beas Unit II Do. | 72.73 | 116.27 |
| 3 | Beas Unit I Extn. Do. | 0.32 | 0.49 |
| 4 | Pong Dam Extn. Do. | 13.84 | 19.10 |
| 5 | Chambal (Stage) I | 12.54 | 22.13 |
| | a) IDA assisted works | | |
| | b) Technical Committee and Left over works . | | 5.20 |
| | c) Renapratapsagar Left over works | 4.70 | 9.10 |
| 6 | <i>Mahi Bajaj Sagar</i> | | |
| | a) Unit I] | 13.70 | 31.78 |
| | b) Unit II] | | 30.60 |
| | Sub-TOTAL A. (I) | 118.70 | 238.11 |
| II. Major Projects | | | |
| | 1. Rajasthan Canal Stage I | 66.47 | 228.20 |
| | 2. Rajasthan Canal Stage II | 89.12 | 286.00 |
| | 3. Hakhanm | 2.33 | 31.84 |
| 4 | Gurgaon Canal | 2.38 | 9.48 |
| | Sub TOTAL II | 160.80 | 535.52 |
| | TOTAL —A. | 279.50 | 773.63 |
| B. New Major Schemes of Sixth Plan | | | |
| | | Nil | |
| | TOTAL—(A+B) | 279.50 | 773.63 |

TAMIL NADU

(Rs. in crores)

| Sl.No. | Name of Scheme | Estimated Cost | |
|---|--|------------------------|--------------------|
| | | As originally approved | latest |
| A. On-Going Major Schemes | | | |
| 1 | Parambikulam Aliyar Project | 24.87 (Irrgn) | |
| | | 37.73 (I&P) | 66.72 |
| 2 | Ghittar Pattanamkal | 6.67 | 7.67 |
| 3 | Modernising Vaigai Channels | 2.63 | 11.36 |
| 4 | Modernisation of Periyar Vaigai System | 14.55 | 44.50 (Stage I) |
| | TOTAL—A. | 48.72 | 130.25 |
| B. New Major Schemes of Sixth Plan | | | |
| | | Nil | |
| | TOTAL (A+B) | 48.72 | 130.25 |

UTTAR PRADESH

| Sl.No. | Name of Scheme | Estimated Cost | |
|----------------------------------|--|--------------------------------|------------------------------------|
| | | As Originally approved | Latest |
| 1 | 2 | 3 | 4 |
| A. On-Going Schemes | | | |
| I. Multi-purpose Projects | | | |
| 1 | Ramganga | 3853 (Irrgn.) 39.83 (I&P) | 98.93 133.00 (I&P) |
| 2 | Tehri Dam (Irrign.) | 40.00 (Irrgn.) 197.92 (I&P) | 346.00 (Irrgn.) 827.30 (I&P) |
| 3 | Lakhwar Vyasi (Irrgn) | 91.59 (Irrgn) 140.97 (I&P) | 91.39 (Irrgn) 242.60 (I&P) |
| | TOTAL—A | 169.92 | 536.32 |
| II. Major Project | | | |
| 1 | Gandak Canal | 15.47 | 85.58 |
| 2 | Sarda Sahayak | 64.84 | 378.00 |
| 3 | Kosi Irrigation | 2.93 | 12.64 |
| 4 | Adwa Dam | 3.00 | 7.29 |
| 5 | East Baigul Reservoir | 2.83 | 7.67 |
| 6 | Strengthening of Sarda Sagar | 4.70 | 6.49 |
| 7 | Dohrihat Sahayak | 3.73 | 9.87 |
| 8 | I/G of Narainpur Pump Canal | 9.96 | 15.00 |

UTTAR PRADESH

(Rs. in crores)

| 1 | 2 | 3 | 4 |
|----|--|--------|--------------------|
| 9 | Parallel Lower Ganga Canal | 5.67 | 49.43 ₀ |
| 10 | Sone Pump Canal | 5.64 | 43.0 |
| 11 | Rajghat Dam | 61.61 | 61.61 |
| 12 | Shahzad Dam | 8.02 | 15.20 |
| 13 | Jamral Dam | 61.25 | 61.25 |
| 14 | Madhya Ganga Canal Stage I | 66.01 | 135.01 |
| 15 | Left Bank Ghaghara Canal (being revised as Sarju Nahar Pariyojana) | 78.68 | 299.20 |
| 16 | Okhla Barrage | 25.37 | 25.37 |
| 17 | Bansagar Dam (i) Dam - U.P. Share | 22.82 | 31.90 |
| 18 | Urmil Dam | 8.56 | 8.56 |
| 19 | Suheli Irrigation | 6.40 | 6.40 |
| 20 | Eastern Ganga Canal | 48.46 | 48.46 |
| 21 | Remodelling Bhimgoda Head Work | 22.45 | 17.45 |
| 22 | Increasing capacity of Deokali Pump Canal | 14.29 | 14.29 |
| | Sub-TOTAL - II | 562.69 | 1309.67 |
| | TOTAL - A (I+II) | 732.61 | 1845.99 |
| | <i>B. New Major Schemes of Sixth Plan</i> | | Nil |
| | TOTAL - (A+B) | 732.61 | 1845.99 |

WEST BENGAL

(Rs. in crores)

| Sl.No. | Name of Scheme | Estimated Cost | |
|---|---|------------------------------|--------|
| | | As originally approved | Latest |
| <i>A. On-Going Schemes</i> | | | |
| 1 | Mayurakshi Reservoir | 7.23 (by State Govt.) | 20.46 |
| 2 | Kangsabati Reservoir | 25.26 | 84.00 |
| 3 | Barrage & Irrgn. System - D.V.C. | 22.86 (First Plan Scheme) | 20.00 |
| 4 | Teesta Barrage Project 1st Sub-stage of 1st Stage of Phase I(B) | 69.72 | 213.70 |
| | TOTAL : A | 123.07 | 348.16 |
| <i>B. New Major Schemes of Sixth Plan</i> | | | |
| | | Nil | |
| | TOTAL : (A+B) | 123.07 | 348.16 |

Appendix II
(Vide para 4.13)

Average yield of Paddy in National Demonstrations under irrigated conditions 1977-78

| State | Average yield (quantal per hectare) |
|----------------------------|-------------------------------------|
| West Bengal | 30.56 (18) |
| Orissa | 41.51 (81) |
| Punjab | 73.46 (45) |
| Himachal Pradesh | 37.28 (27) |
| Maharashtra | 45.15 (79) |
| Rajasthan | 40.00 (2) |
| Tamil Nadu | 53.65 (39) |
| Kerala | 48.03 (29) |
| Assam | 46.73 (23) |
| Andhra Pradesh | 57.17 (78) |
| Bihar | 54.81 (54) |
| Gujarat | 77.00 (9) |
| Madhya Pradesh | 45.77 (46) |

NOTE: The figures in parenthesis are the number of demonstrations conducted.

Statement 'B'

Average yield of wheat in National Demonstrations under irrigated conditions 1977-78

| State | Average yield (quintals per hectare) |
|----------------------------|--------------------------------------|
| Gujarat | 34.98 (16) |
| Punjab | 44.52 (51) |
| Haryana | 47.50 (48) |
| West Bengal | 29.92 (43) |
| Himachal Pradesh | 40.00 (45) |
| Madhya Pradesh | 40.00 (45) |
| Maharashtra | 23.80 (89) |
| Uttar Pradesh | 40.00 (161) |
| Rajasthan | 46.51 (64) |
| Bihar | 46.55 (65) |

NOTE: The figures in parenthesis are the number of demonstrations conducted.

Estimates of all-India average yield of irrigated rice 1977-78

| State | Yield Kg/ha | Weighted average yield for State | Area irrigated '000 ha | Production '000 tonnes | Average yield (weighted average) kg/ha. |
|--------------------------------------|-------------|----------------------------------|------------------------|------------------------|---|
| A. Andhra Pradesh | | | | | |
| Kharif | 1488 (72%) | 1619 | 3454 | 5592 | |
| Rabi | 1957 (28%) | | | | |
| 2. Assam | | | | | |
| Autumn | 1401 (24%) | 1362 | 532 | 725 | |
| Winter | 1344 (74%) | | | | |
| Summer | 1583 (2%) | | | | |
| 3. Bihar | | | | | |
| Autumn | 1101 (11%) | 1056 | 1984 | 2095 | |
| Winter | 1051 (88%) | | | | |
| Summer | 1022 (1%) | | | | |
| 4. Gujarat | | | | | |
| | 2052 | 2052 | 165 | 339 | |
| 5. Himachal Pradesh | | | | | |
| | 1537 | 1537 | 51 | 78 | |
| 6. Karnataka | | | | | |
| Kharif | 1879 (87%) | 1863 | 686 | 1278 | |
| Summer | 1754 (13%) | | | | |
| 7. Kerala | | | | | |
| Autumn | 1843 (44%) | 1680 | 255 | 428 | |
| Winter | 1557 (43%) | | | | |
| Summer | 1535 (13%) | | | | |
| 8. Madhya Pradesh | | | | | |
| | 1357 | 1357 | 765 | 1038 | |
| 9. Punjab | | | | | |
| | 2949 | 2949 | 817 | 2409 | |
| 10. Maharashtra | | | | | |
| Autumn | 1305 (98%) | 1311 | 381 | 499 | |
| Summer | 1584 (2%) | | | | |
| 11. Orissa | | | | | |
| Autumn | 917 (21%) | 1076 | 1165 | 1254 | |
| Winter | 1104 (75%) | | | | |
| Summer | 1383 (4%) | | | | |
| 12. Tamil Nadu | | | | | |
| | 2067 | 2067 | 2581 | 5335 | |
| 13. Uttar Pradesh | | | | | |
| Autumn | 1550 (64%) | 1528 | 1093 | 1670 | |
| Winter | 1489 (36%) | | | | |
| TOTAL | | 13929 | 22740 | 1633 | |

NOTE: Figures in brackets in Col. 2 indicates the percentage of area irrigated in the different seasons.

Estimates of all-India average yield of irrigated wheat 1977-78

| Name of State | Average yield Kg./ha | Area irrigated '000ha | Total production of irrigated crop '000 tonnes | Average yield (wighted average) kg/ha. |
|-----------------------------|-------------------------|--------------------------|--|--|
| 1. Assam | 2040 | .. | .. | |
| 2. Bihar | 1025 | 1318 | 1351 | |
| 3. Gujarat | 2199 | 398 | 875 | |
| 4. Haryana | 2209 | 1208 | 2668 | |
| 5. Madhya Pradesh | 1302 | 903 | 1176 | |
| 6. Maharashtra | 1085 | 517 | 561 | |
| 7. Punjab | 2618 | 2379 | 6228 | |
| 8. Rajasthan | 1547 | 1319 | 2041 | |
| 9. Uttar Pradesh | 1587 | 5364 | 8513 | |
| TOTAL | 13406 | 23413 | 1746 | |

APPENDIX III

STATEMENT OF CONCLUSIONS AND RECOMMENDATIONS

| Sl. No. | Para No. | Ministry /Deptt. Concerned | Recommendation and Observations |
|---------|-----------|--|--|
| 1 | 2 | 3 | 4 |
| 1 | 2.45-2.47 | Planning Commission, Min. of Irrigation | <p>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. 5,951 crores (including institutional outlays of Rs. 2,840 crores) on minor irrigation. The cumulative target for creation of irrigation potential during this period was 59.57 m.h. (29.10 m.h. under major and medium 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.</p> <p>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</p> |

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 the 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 this 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.

2.48 Planning Commission
Min. of Irrigation

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.h. 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.h. 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.

3 2 49-
2 51 Do.

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—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 Seventeenth 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 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.

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Planning Commission
Min. of Irrigation

As many as 8 major projects, *viz.* Nagarjuna Sagar (Andhra Pradesh), Gandak (Bihar), Kosi (Bihar), Malaprabha (Karnataka), Kallada (Kerala), Tawa (Madhya Pradesh), Rajasthan Kanal Project

Stage-I, Stage-II (Rajasthan) and Kangasabati (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 on these projects amounted to Rs. 1221.45 crores and the opill-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 Nagarjuna Sagar, Gandak, Kosi, Tawa, Kangasabati and Rajasthan Canal, Stage-I, the other projects viz. Malaprabha,, Kallada 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 fund for their completion within the current Plan.

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Do.

During the Sixth Five Year Plan a total provision of Rs. 10,202.66 crores has been made—Rs. 8,391.36 crores for major and medium irrigation and Rs. 1,811.30 crores for minor irrigation schemes. In addition, institutional investment of Rs. 1,700 crores is envisaged for minor irrigation schemes. The physical target of 13.7 million hectares (5.7 m.h. for major and medium irrigation and 8 m.h. for minor irrigation) is stated to have since been raised to 14 million hectares. The Committee understand that taking into account the cost escalation and increase in the potential target on additional outlay of Rs. 2,600 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.

6

2 56

Planning Commission
Min. of Irrigation

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 programmes 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.

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Do.

The reasons for large scale delays and huge cost escalation in various irrigation projects as identified by the Nalgamwala 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 thin 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 projects;
 - (iv) delays in taking decisions;
 - (v) difficulties in land acquisition;
-

- (vi) 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 organizations in the States;
- (ix) lack of detailed plans and estimates for the distribution systems 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 to 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 have 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 cement, steel, coal etc. to enable completion of the projects within the time schedule laid down and within the approved estimates.

8 2 59

Do.

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 en-

sure 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.

9 2 60 Planning Commission
Min. of Irrigation

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 new 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.

10 2 61 Do.

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 feed-back to the Planning Commission. The Commission 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 Governments at the highest level.

11 2 62 Do.

So far as big projects are concerned, the Nalgamwala Committee had recommended that detailed investigation and preparation of projects re-

ports 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 anticipated 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.

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12 2.62

Do.

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

13 2.64 Planning Commission/Min.
of Irrigation

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.

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 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.

14 2.65 Do.

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.

15 2.75 Do.

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.

175

16 2.76 Do.

There has been general criticism that persons entrusted with responsibility for planning, investigating and designing of projects are not most competent. The Committee would stress that career 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

Among the several strategies of development of irrigation in the Sixth Plan is the strengthening of Command Area Development Organization—a Centrally sponsored scheme covering at present 76 major/medium irrigation projects with a 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 Areas 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 multi-disciplinary 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 objec-

tives 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.

21 2.99 Deptt. of Industrial Develop-
& ment/Min. of Steel and
2.100 Mines

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 years 1980-81, 1981-82 and 1982-83, the allocations on the main producers were only to the extent of 1.79 lakh metric tonnes, 4.24 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 instance 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 Central 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.

22 2.104 Planning Commission/
 Min. of Irrigation

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 it would be "a risky venture". While the Committee would not like to go into the merits of this issue, they consider 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.

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| 23 | 2.105 | Planning Commission/ Min. of Irrigation | <p>The Committee find that in pursuance of the recommendations of the Naegamwala 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 up-to-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.</p> |
| 24 | 3.22 10 3.24 | Do. | <p>As per the Sixth Plan document, the irrigation potential created till the end of 1979-80 was 26.61 million hectares under major and medium irrigation and the actual utilization of the potential was 22.64 million hectares. Thus the total shortfall in utilisation was nearly 4 million hectares, <i>vis-a-vis</i> the potential created. As regards the potential under minor irrigation it has been claimed that the potential of 30 million hectares has been fully utilised. The State-wise figures of creation and utilization 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, Madhya Pradesh, Manipur, Meghalaya, Nagaland, Orissa, Punjab, Rajasthan, Tamil Nadu and Uttar Pradesh.</p> |

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 Economics and Statistics, Ministry of Agriculture, indicate the pattern of utilization of available irrigated land area based on land records, the Ministry of Irrigation 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 Irrigation/ Planning Commission and lower in a 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 needs to be thoroughly examined State-wise by the concerned State Governments to arrive at a common acceptable basis for reporting.

181

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 Irrigation/Planning Commission should have claimed 100 per cent utilisation of the minor irrigation potential during the year. The explana-

tion 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 Commands Areas with the supplemental irrigation particularly through private tubewells, there was a possibility of duplication while calculating the area under irrigation. As the Command Area projects cover a total of 15 m. h. 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.

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3.25

Planning Commission
Min. of Irrigation

Another aspect of the utilisation of the minor irrigation potential is with regard to irrigation by tube-wells. It was admitted in evidence that no information was available as to the actual area irrigated by tube-wells, both by State tube-wells and by private tube-wells, because of frequent power outs and poor maintenance. Further, no data is available as to how many tube-wells 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 tube-wells 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.

26 3.26 Do.

The Committee recommend that the Planning Commission should set up a group of experts in agricultural economic 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 utilization 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 finalized as expeditiously as possible so that the projections for the Seventh Five Year Plan may be put on a realistic basis.

27 3.27 Do.

So far as the under utilization 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 utilize 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 receive adequate attention.

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| 28 | 3.28 | Planning Commission/ Ministry of Irrigation | <p>The Planning Commission is stated to have advised the State Governments to provide at least 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 up to 5/8 hectares blocks. Central assistance is also available in the Command Area projects for construction of field channels. State Governments 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 pre-determined schedule. These should be ensured.</p> |
| 29 | 3.29 | Do. | <p>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 utilization of irrigation potential created at enormous cost. The Committee consider that a determined and sustained effort needs to be put in for large scale modernization 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</p> |

of a gains and removal of constraints in the optimum utilization of the irrigation potential must get overriding priority. An integrated plan of action in this regard should therefore be drawn up without delay in consultation with the State Governments.

30 3.32

Do.

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 at 8 cusecs per million sq. ft. 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 Mahanandi 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 Distributories 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 precious water resources can be easily imagined. The Committee would like to express their deep sense of concern over this situation. The Committee desire that this aspect should be

| 1 | 2 | 3 | 4 |
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| 31 | 3.37 & 3.38 | Planning Commission/Min. of Irrigation | <p>given utmost attention is the action plan suggested elsewhere in this report.</p> <p>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, Bhakra and Gandisagar dams which was originally assessed as 386, 403 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 secure the country is "losing a staggering a 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."</p> <p>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 indepth. 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 taking urgent remedial measures.</p> <p>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</p> |
| 32 | 3.49 & 3.50 | Do. | |

Committee the "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."

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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 utilization 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.

33 3.51

Do.

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 resolu-

tion in 1969 and WHO 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 have.

34 4.9 Planning Commission/Ministry
of Irrigation.

As regard 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 Project. 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.

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| 35 | 4.10 | Do. | <p>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 <i>vis-a-vis</i> 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 postfacto 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 realized and what steps should be taken to ensure optimum economic return.</p> |
| 3 | 4.11 | Do. | <p>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.</p> |
| 37 | 4.22 & 4.23 | Planning Commission/Ministry of Irrigation/Ministry of Agriculture | <p>The Committee find that the levels of yield achieved in the national demonstration farms and by experiments in water management projects, have been of the order of 4 to 5 tonnes per hectare as against the national</p> |

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 areas 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.

38 4.24 Planning Commission
Ministry of Irrigation
Ministry of Agriculture.

In this context, the Committee note with concern that so far no in-depth 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.

- 39 4.25 Do. 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.
- 40 4.26 Do. 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.
- 41 4.27 Do. 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.
- 42 4.33 & 4.34 Do. A study made by the Planning Commission with regard to the short-fall in production of foodgrains consequent upon the non-materialization 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 for 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.

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

43 4 39 Planning Commission
 & Ministry of Irrigation
 4 40

interest on the capital. The Committee find that the National Development Council have also been exercised over the matter. However, the resolution passed by the Council have remained only a pious wish and the losses on the irrigation and multi-purpose river valley projects continue to mount.

The Fifth Five Year Plan documents 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 subsidizing 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 objective 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.

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| 44 | 5 11 & 5 12 | Planning Commission/Ministry of Irrigation | <p>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 treated 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.</p> |

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.

45 5.13
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5.14

Do.

The second Irrigation Commission had recommended the setting up of a 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, Bana-sagar 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 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 pro-

gress 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.

46 6.1 Planning Commission Min. of
& Irrigation
6.2

Out of a total irrigation potential of 113 million hectares, the achievement so far is 61.58 million hectares, 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 million hectares and another 39 million hectares have been added during the last 32 years of planning. The growth rate of a little over 1 million hectares per year needs to be stepped upto 2.5 to 3 million hectares per year so as to achieve the target of 113 million hectares 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 successive Five Year Plans has been of the order of about 10 per cent only. This would need considerable augmentation if the target of adding another 51.5 million hectares during the next 20 years is to be achieved.

47 6 3 Do.

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-were. 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.

48 6 4 Do.
Ministry of Agriculture

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 it 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.

49 6 5 Do.

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 per cent utilisation of the minor irrigation potential of 30 million hectares appears to be preposterous. The experience of the common cultivator with regard to operation of tube-wells 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.

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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 exists for providing employment opportunities and augmenting food production. In areas so far bereft of irrigation facilities,

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Do:

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 schemes is being derived by relatively well-to-do farmers. There is no reason why this section of the rural population should continue to be subsidized by the poor taxpayer. 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.

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At the more level, there is urgent need to revise the priorities to con-

centrate 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 inter-disciplinary 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 clearance of individual plan projects besides technical guidance and coordinating supply of inputs.

53 6.9 Planning Commission/Min. of
Irrigation

We have a centralised planning in a federal set up. There has therefore necessarily to be a coordinated approach by the Centre and the State Governments to ensure that the National plans are translated into reality and the plan targets are adhered to. In this connection, the role of unitary and independent audit in our federal polity 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 Pro-

grammes 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.

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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 short-fall 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 the suggestions given are pursued with the earnestness that the situation demands.

