

India
Ministry of Irrigation and Power

Report
of the Central water
and Power Commission
Reorganization Committee

1957-59



MINISTRY OF IRRIGATION AND POWER

**REPORT OF THE
CENTRAL WATER AND POWER COMMISSION
REORGANIZATION COMMITTEE**

1957-59

NEW DELHI

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REPORT
OF
THE C.W. & P.C. RE-ORGANIZATION COMMITTEE
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CHAPTER I

INTRODUCTORY

1.01. The present Central Water and Power Commission was created by amalgamating the Central Waterpower, Irrigation and Navigation Commission and the Central Electricity Commission. The functions of the Commission were described in Resolution No. EL.I. 201(5), dated the 21st April, 1951, of the Government of India in the Ministry of Natural Resources and Scientific Research. The Government of India considered that in view of the changes that had since occurred, it would be appropriate to review the work of the CW and PC to assess whether the existing arrangements were adequate for the effective performance of the duties assigned to the Commission. It was, therefore, decided (*vide* Ministry of Irrigation and Power Office Memo. No. 40(10) 56-Adm. I, dated 29th November 1957) to set up a Committee consisting of the following:—

Chairman

- (1) Shri B. K. Gokhale, ICS (Retd.), Chairman, Tungabhadra Control Board.

Members

- (2) Shri A. C. Mitra, Chief Engineer, Irrigation, U.P.
- (3) Shri M. S. Thirumale Iyengar, Chief Engineer, Hirakud.
- (4) Shri N. N. Iengar, Electrical Adviser to the Ministry of Iron and Steel.
- (5) Shri Indarjit Singh, Jt. Secretary, Ministry of Finance.

Member-Secretary

- (6) Shri R. R. Bahl, ICS, Jt. Secretary, Ministry of Irrigation and Power.

1.02. The Terms of Reference of the Committee were as follows:—

- (i) To review the organisational structure of the Commission and to indicate the directions in which it needs to be improved or strengthened.
- (ii) To examine the methods of recruitment now adopted for staffing the organisation at various levels and to recommend modifications of those methods to ensure that the Commission possesses the 'expertise' expected of it as a consultative organisation, and functions in practice as a high level expert body.

In making their recommendations the Committee may take into consideration the desirability of imparting field training to the officers of the Commission who, after some years, tend to lose touch with reality.

- (iii) To indicate what broadly should be the relationship between the Commission on the one hand, the Ministry of Irrigation and Power, the Planning Commission and the States on the other.
- (iv) To make any other recommendations, which are calculated to improve efficiency and promote maximum utilisation of available water and power resources in India".

1.03. Later, the following Terms of Reference were added (*vide* Irrigation and Power Ministry O.M. No. 40(10)/56-Adm. I, dated 17th January 1958:—

- “(v) To examine the directions in which the Power Wing of the Commission should be strengthened to make it an effective agency for rendering high level technical assistance and advice in regard to the generation, transmission and utilisation of power in the following sectors:—
 - (a) heavy industries in the public sector;
 - (b) railway electrification schemes;
 - (c) production of power by nuclear energy; and
 - (d) manufacturing industries producing heavy and light electrical machinery and power consuming apparatus.
- (vi) To examine whether in the context of accelerated development envisaged in the Power and Irrigation Sectors of the Second Five Year Plan and the subsequent Plans and the proposals to entrust additional duties to the Power Wing, there is a case for bifurcation of the Commission and the setting up of two organisations, one dealing with Power and the other with Irrigation, Navigation and Flood Control”.

1.04. In addition to the above, the following specific problems bearing on the organisation of the CW and PC were referred to the Committee:—

- (i) Setting up of a Statistical and Economic Unit in the Commission.
- (ii) Setting up of a unit in the Commission for assessment of efficiency of operation, maintenance and management of the electric supply undertakings in the public sector.
- (iii) Declaration of the post of Director in the Commission as ‘non-tenure’ post.

1.05. The Committee met 13 times for a total period of 46 days and held discussions with the following persons in the course of its deliberations:—

- (1) Shri C. M. Trivedi, Member, NR, Planning Commission.
- (2) Shri J. L. Hathi, Deputy Minister, I. & P.
- (3) Shri Kanwar Sain, Chairman CW & PC.
(Since retired).

- (4) Shri M. Hayath, Member and subsequently Chairman, CW & PC.
- (5) Shri S. S. Kumar, Member, CW & PC.
- (6) Dr. K. L. Rao, Member, CW & PC.
- (7) Shri Yadava Mohan, ISE, Member, CW & PC.
- (8) Mr. W. A. Dexheimer, Commissioner, Bureau of Reclamation, USA.
- (9) Shri A. N. Khosla, Vice-Chancellor, Roorkee University.
- (10) Shri B. S. Nag, ISE, Adviser, I. & P., Planning Commission.
- (11) Chief Engineers, Electricity, of Assam, Bihar, Bombay, Jammu and Kashmir, Madhya Pradesh, Madras, Mysore, Punjab and U.P.
- (12) Chief Engineers, Irrigation, of Andhra Pradesh, Bihar, Bombay, Madhya Pradesh, Madras, Punjab and Uttar Pradesh.
- (13) Chairman, Bombay State Electricity Board.

1.06. The CW & PC furnished to the Committee two detailed Memoranda, one relating to the Water Wing and the other to the Power Wing. Since separate Memoranda were received from the two Wings of the Commission, they were requested to consider them in a full meeting of the Commission and send their final views. These were received on the 28th January, 1959.

1.07. The Committee was not provided with any separate staff. By the courtesy of Shri Indarjit Singh, the Committee was fortunate in having the assistance of the staff of the Committee on Plan Projects for carrying out work studies of the various Directorates of the Commission, and for functioning as the Secretariat of the Committee. The results of the studies were particularly valuable to the Committee in assessing the programme of work, the methods of work and generally the load of work that the various divisions and officials of the Commission carried.

1.08. The Committee also invited the views of the State Governments regarding the relationship that should exist between the Commission on the one hand and the States on the other. At present, the relationship between the Commission and the States arises mainly in respect of the following matters:—

- (a) advice on technical matters for which adequate organisation has not been/could not be built up in the States;
- (b) technical scrutiny of schemes prepared by the States for consideration by the Technical Advisory Committee constituted by the Planning Commission;
- (c) preparation of major designs; and
- (d) standardisation/manualisation of material of technical nature necessary for the preparation and investigation of projects.

The State Governments were requested to indicate their views on (a) the scope of work of the CW & PC, as outlined above; (b) the manner in which they would like this scope to be enlarged/curtailed; and (c) generally, whether they had any suggestions to offer on the working of the Commission in relation to the States. Replies were received from ten State Governments. We found these replies helpful and would like to thank the State Governments for the interest taken by them in the work of the Committee.

CHAPTER II

HISTORICAL RETROSPECT

2.01. Irrigation has occupied, during the last hundred years or so, an important place in the business of the Government of India, and nearly 90 years ago, *i.e.*, in 1867, the post of Inspector General of Irrigation was created to take charge of the newly constituted Irrigation Branch of the Public Works Department in the Government of India.

2.02. Consequent upon the introduction of reforms under the Government of India Act, 1919, irrigation became a provincial but reserved subject. As the power of Local Governments was limited to the sanctioning of schemes upto Rs. 50 lakhs, the Government of India was required to advise the Secretary of State on schemes above Rs. 50 lakhs and on projects affecting more than one province. Consequently, the nomenclature of the post of Inspector General of Irrigation was changed on 1st June 1923, to that of Consulting Engineer.

2.03. Subsequently, on the suggestion of the Local Governments, the Government of India constituted, with effect from 1st January 1927, the Central Board of Irrigation with the Consulting Engineer of the Government of India and Chief Engineers of the Provincial Governments as members. The Board was charged with the function of advising the Government of India on all technical matters on the subject of irrigation, hydro-electric and river control projects including inter-provincial river problems. It was also to co-ordinate research work. As the constitution of the Central Board of Irrigation resulted in a material reduction of the work assigned to the Consulting Engineer, the post was abolished with effect from 31st March 1932, as a measure of economy.

2.04. Irrigation continued to be a provincial subject under the Government of India Act, 1935, and every province was competent to undertake whatever legislative or administrative measures it liked in respect of waterways passing through its territories. The power to settle disputes between two or more provinces over their rights in the water of inter-provincial rivers was, however, vested in the Governor General. The Government of India felt considerable difficulty in dealing with technical questions coming upto them in connection with large irrigation projects and water disputes concerning inter-provincial rivers. The Central Board of Irrigation also considered that unilateral action by a province concerning its portion of a waterway might have an adverse effect on neighbouring provinces. To make the fullest and most economical use of waterways, the Board adopted a Resolution in November, 1943, recommending the setting up of a technical authority which would collect and collate the necessary data for the information and use of the Government of India and the provinces. The post of Consulting Engineer

for Irrigation, Waterways and Navigation was accordingly revived in January, 1944.

2.05. The stoppage of import of Burma rice during the last World War focussed attention on augmenting domestic agricultural production by increasing irrigation facilities. The floods in the Damodar river in 1943 drew pointed attention to the necessity of overall planning of control of rivers. At the end of the Second World War, schemes were drawn up for post-war reconstruction. A major place was assigned in these schemes to Irrigation and Power Projects. Consequently, it was decided by the Government of India, in the Labour Department Resolution No. D.101(2), dated the 5th April, 1945, to constitute a strong technical organisation styled as the Central Waterways, Irrigation and Navigation Commission, which was charged with the general responsibility for initiating, co-ordinating and pressing forward schemes of control, regulation and utilisation of water and waterways in consultation with the Provincial Governments concerned and to undertake, if so required, the construction of any such scheme on behalf of the Government of India. The Consulting Engineer for Irrigation, Waterways and Navigation with the Government of India was appointed as the Chairman of the CWI & NC.

Power

2.06. One of the important factors in the power development in this country was the need to ensure adequate supply of power to ordnance factories and other industrial units engaged in the War effort. The Roger Mission, which toured the country in 1940, recommended the creation of the post of Electrical Commissioner for ensuring supply of power for the production of munitions and other essential services. Accordingly, the post was created in 1941, and later in 1946 its functions were enlarged to include all matters relating to planning, generation and distribution of electricity. He had to deal with diverse situations, such as requirements of power in coal fields and for industrial plants that were being set up by the Central and Provincial Governments. One of the important consequences of the creation of the office of the Electrical Commissioner was that, for the first time, data regarding the production and distribution of electricity in the country began to be collected systematically.

2.07. In pursuance of a Resolution passed by the Technical Conference on Post-War Electric Power Development in January, 1944, which was accepted by the Subjects Committee 3(c) of the Reconstruction Committee of Council, the Government of India set up a Central Technical Power Board charged with the general responsibility for initiating, co-ordinating and putting forward schemes of electric power development and utilisation throughout the country in consultation with the Provincial Governments concerned. It was intended that this Board should function as a planning and development organisation in direct touch with various authorities—Central Government Departments, Provincial Governments, the Central Board of Irrigation and commercial organisations. The Electrical Commissioner was also Chairman of the Central Technical Power Board.

Constitution of the Central Electricity Commission and the Central Waterpower, Irrigation and Navigation Commission

2.08. Prior to January, 1948, there were thus in existence the following four organisations dealing with electricity, irrigation and waterways development:—

- (1) The Electrical Commissioner with the Government of India;
- (2) The Central Technical Power Board;
- (3) The Consulting Engineer, Waterways and Irrigation;
- (4) The Central Waterways, Irrigation and Navigation Commission.

In January, 1948, the Electrical Commissioner's organisation was amalgamated with the Central Technical Power Board to constitute the Central Electricity Commission with a view to avoiding overlapping and duplication. Similarly, the office of Consulting Engineer Waterways and Irrigation was combined with the Central Waterways, Irrigation and Navigation Commission to constitute the Central Waterpower, Irrigation and Navigation Commission.

2.09. The composition and functions of these two organisations were laid down in the Resolution Nos. EL.I 201 (1) and DW.XVII (1), both dated the 16th January, 1948, of the former Ministry of Works, Mines and Power. With the formation of these organisations, the work relating to hydro-electric power generation, which was previously performed to a limited extent by the Central Technical Power Board, was entrusted to the Central Waterpower, Irrigation and Navigation Commission. It was, however, provided that the Central Electricity Commission would assist the Central Waterpower, Irrigation and Navigation Commission with plans and designs for transmission and utilisation of electricity generated by hydro-electric projects.

2.10. The two Commissions continued to function separately until 1951. It was soon apparent that there was considerable room for closer co-ordination with a view to achieving efficiency and economy. Such co-ordination was sought to be effected by appointing the Hydro-Electric Member of the CWINC as a part-time Member of the C.E.C. Even this arrangement was not found to be wholly satisfactory. It was, therefore, decided to amalgamate the two organisations particularly as a large number of schemes for multipurpose development of rivers were then under consideration.

2.11. The present constitution of the CW&PC is derived from Resolution No. EL.I 201 (5),* dated 21st April 1951 of the late Ministry of Natural Resources and Scientific Research. By this Resolution, the Commission was charged with the general responsibility of initiating, co-ordinating the furthering, in consultation with the State Governments concerned, schemes for the control, conservation and utilisation of water resources throughout the country for the purpose of flood control, irrigation, navigation and waterpower generation, schemes of thermal power development and also schemes of transmission and utilisation of electric energy throughout the country. The Commission was, if so required, also to undertake construction

and execution of any such schemes. Detailed functions of the Commission in the exercise of the above responsibilities were also defined in the said Resolution as follows:—

- “(a) to make all necessary investigations and surveys and when so required, to prepare schemes and designs;
 - (i) for the development of river valleys in respect of power generation, irrigation by gravity flow or lift, navigation, flood control, soil conservation, anti-water-logging measures, reclamation of alkaline and saline soils, drainage and other related facilities such as malaria control, recreation and fish culture; and
 - (ii) for thermal electric power development;
- (b) to undertake construction work on any river valley development or electric power development schemes on behalf of the Government of India or State Governments concerned;
- (c) to advise and assist, when so required, the State Governments (Commissions, Corporations or Boards that may be set up) in the investigation, surveys and preparation of river valley and power development schemes for particular areas and regions and in the surveying of potential sources of load, the forecasting of revenue from electricity supply and the formulation of electricity tariffs;
- (d) to advise the Government of India in respect of Water and Waterpower rights and disputes as between different units, of the effect which any scheme for the conservation and utilisation of water may have on the interests of the concerned units and of the interpretation of agreements in this regard between different units and any matter that may be referred to the Commission in connection with river valley development;
- (e) to advise the Central and State Governments on the administration of electricity legislation and control of electric utilities;
- (f) to advise the Government of India in regard to all matters relating to electric power development, public electric utilities, both private and State owned;
- (g) to advise the Government of India in regard to the settlement of priorities for plant, materials and foreign exchange as between various river valley development and power projects;
- (h) to collect, co-ordinate the collection of, publish and analyse, data relating to waterways, tidal rivers, rainfall, runoff and temperature, ground water resources, silting of reservoirs, behaviour of hydraulic structure, etc., and to act as the Central Bureau of Information in respect of these matters;
- (i) to collect, maintain and publish statistical data relating to the generation, distribution and utilisation of electricity

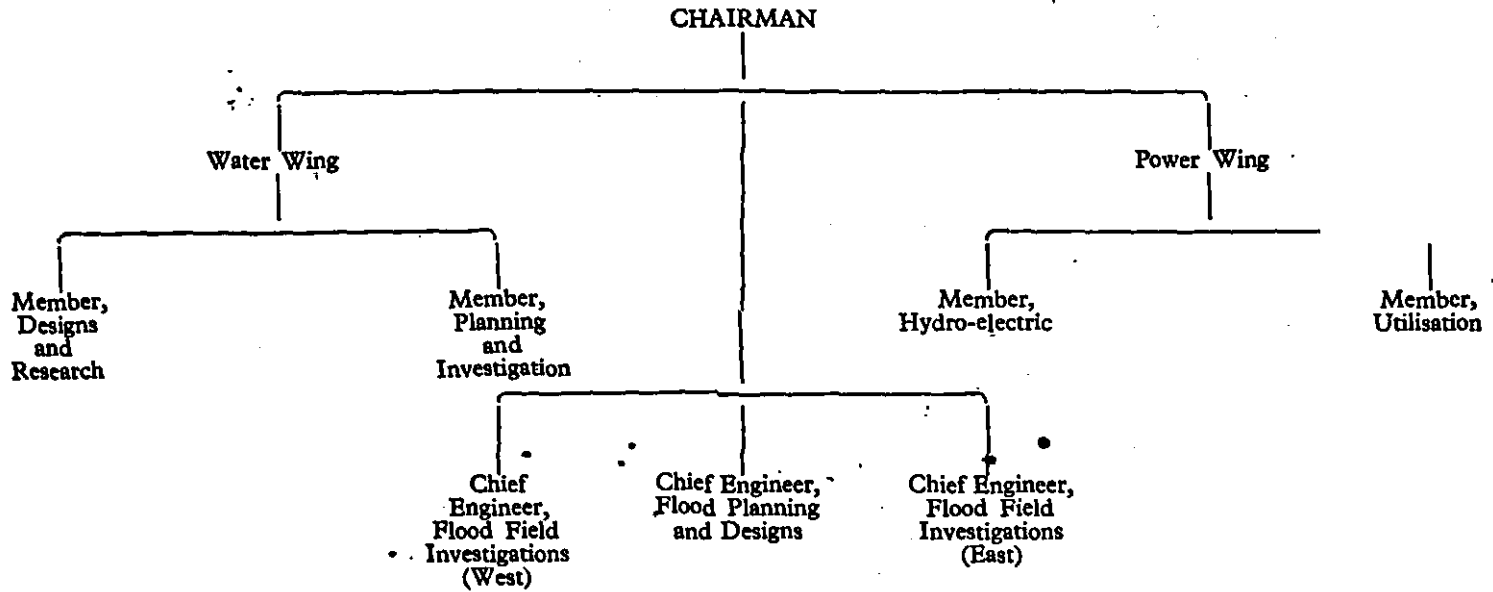
- throughout India and to act as the Central Bureau of Information on all matters relating to the public electricity supply;
- (j) to initiate schemes and arrange for the training of Indian Engineers in India and abroad in all aspects of river valley development and electricity supply industry;
 - (k) to standardise instruments, methods of observation and record, materials and construction, design and operational features;
 - (l) to review and lay down for the whole of India, standard voltages and practices for generation, transmission and distribution of electrical energy;
 - (m) to conduct and co-ordinate research on the various aspects of river valley development schemes such as flood control, irrigation, navigation, power development, etc., and the connected structural and design features; and
 - (n) to conduct experiments, research, propaganda and generally to carry out such other activities as will promote the spread and use of electricity throughout the country, in particular in the semi-urban and rural areas".

2.12. The Estimates Committee recommended in their Fifth Report (1951-52) relating to the Central Water and Power Commission and Multi-purpose River Valley Schemes that "..... The duties of the Commission should be limited to initiating, co-ordination and utilisation of water resources throughout the country. The function relating to the construction of any such schemes should be taken away from the Commission and entrusted to separate *ad hoc* bodies.....". This recommendation was accepted by the Government and the Commission was consequently relieved of its responsibility in respect of function (b) relating to the construction of projects. The Commission has, however, continued to render, when required, assistance in the construction and initial operation of small thermal power stations in areas not served at present by large hydro or thermal power projects. Later, the Government of India set up the National Projects Construction Corporation for undertaking construction of projects.

2.13. Consequent on the floods of 1954, it was realised that *ad hoc* measures taken by the States to combat floods which occurred at fairly frequent intervals in their areas were merely palliatives and that, for a satisfactory protection of the areas affected by floods, a more scientific approach and concerted action by the adjoining States was necessary. The States affected, *viz.*, Andhra, Assam, Bihar, Jammu and Kashmir, Orissa, Punjab, U.P., and West Bengal, accepted the advice of the Centre and set up Flood Control Boards to formulate schemes, both short-term and long-term, for tackling the flood control problems in their areas. To consider the schemes prepared by the State Flood Control Boards at the highest level and to draw up a national flood control programme, a Central Flood Control Board, which included Ministers from the States and the Centre, was constituted. To assist the Central Flood Control Board in all technical

matters pertaining to the preparation of integrated plans for flood control, River Commissions were constituted for the basins of the Ganga and Brahmaputra and for the North-Western region covering Punjab, and Jammu and Kashmir. A Flood Wing with three Chief Engineers and ancillary staff was added to the CW&PC to give technical assistance to the States wherever necessary. The existing set-up of the Commission is indicated in the chart on page 14.

THE CENTRAL WATER AND POWER COMMISSION
Top Level Set up as on the 1st June 1958



CHAPTER III

CONSTITUTIONAL POSITION

3.01. It will be observed from the previous Chapter that the Centre has taken interest in Irrigation and Power matters throughout the British period and since Independence. Various forms of organisations have been tried out for giving concrete shape to this interest having regard to circumstances at the time. The fact, however, remains that the Centre has always given assistance to the States for facilitating the discharge of their functions in this important sector which has a vital bearing on the economic life of the country.

3.02. The present Constitution lays down the broad functions of the Centre and the States in these matters. Items 20, 32 and 38—List III (Seventh Schedule) give concurrent jurisdiction to the Centre and the States in matters connected with Planning, Navigation and Power. Item 17—List II (Seventh Schedule) makes Irrigation wholly a State subject, except for regulation and development of inter-State rivers and river-valleys which are within the jurisdiction of the Centre *vide* item 56—List I. Article 262 of the Constitution provides for the adjudication of disputes relating to waters of inter-State rivers and river valleys. This gives the right to Parliament by law to provide for such adjudication. In view of the importance of Irrigation to national planning, the Centre has to take sustained interest in the development of the Irrigation potential and its utilisation. Another reason for its interest in these matters is the provision of financial resources for many of the major irrigation works. The third factor is the necessity of meeting foreign exchange needs of the projects either by direct release of such funds or by means of loans negotiated with foreign creditors.

3.03. The Irrigation and Power Ministry and the Planning Commission thus carry distinct responsibilities over a wide field in Irrigation and Power matters in the sphere of policy, planning and progress of implementation.

3.04. It is the responsibility of the Irrigation and Power Ministry to lay down the general policy for the development of water and power resources in the country. For the discharge of this responsibility, the Ministry performs the following functions:—

- (a) examination of schemes formulated by the States and participation in discussions leading to the preparation of the Plan, its annual components and consequent phasing of projects;
- (b) Obtaining the vote of Parliament for policy on irrigation and power matters and for funds made available to the States;

- (c) formulation of integrated flood control programmes in consultation with the States which have the flood problem, and assistance to the States in executing other protection works;
- (d) watching the progress of the projects in the irrigation and power sector and of costs against estimates;
- (e) study of the International aspects of utilisation of water resources;
- (f) acting as an agency for negotiating foreign loans and credits and arranging for foreign exchange requirements of the projects.

3.05. The size of the Irrigation programme in relation to the totality of the Plan expenditure, the fixation of actual priorities, the earmarking of resources for the Plan period and for annual plans are some of the responsibilities that fall on the Planning Commission in consultation with the States and other authorities concerned. In addition, the Planning Commission has been charged with the responsibility, in terms of its functions,* for reviewing the progress of the Plan. It has, therefore, to interest itself in the details of actual implementation and the difficulties that arise in the way of completing the planned programme. Thus, the Central Government and the Planning Commission have to be fully in the picture in the matter of planning, designing and execution of projects for Irrigation and Power. In fact, in view of the importance attached to industrial development, Power occupies a special place in the economic life of the country, and the Centre has to take close and continuous interest in its generation and distribution.

3.06. The scope of the Irrigation Programme in the First and the Second Plans required a considerable organisational effort on the part of the States and the Centre. The trained man-power was fully extended and this created several situations in which it was found necessary to draw upon the resources and the good offices of the Centre for meeting them. We have observed* that a considerable amount of co-operative effort has been made, in spite of regional and local factors, to reach expert advice wherever it could make effective contribution. The CW & PC, the I. & P. Ministry and the Planning Commission have, in particular,* played a leading part in this sphere. The Centre had thus to take interest for strengthening the local organisations in the larger interest of the country, namely, of completing Irrigation and Power works according to the schedule laid down in the Plan.

3.07. The main burden of detailed planning, investigation and execution of Irrigation and Power schemes has, however, to rest inevitably on State Governments. They face the beneficiaries of the schemes either directly or through the elected members of the Legislative Assemblies. The Constitution places a direct responsibility on

*Function (6) of the Planning Commission reads as follows :—

(6) to appraise from time to time the progress achieved in the execution of each stage of the Plan and to recommend the adjustments of policy and measures that such appraisals might show to be necessary.

them, and, while the Centre may lend a helping hand, an organisation has to be built up in the States for undertaking, efficiently and economically, all the stages of work connected with Irrigation and Power projects.

3.08. It is possible, in such circumstances, for the Centre to give the impression sometimes that it is taking too detailed an interest in all aspects of Irrigation and Power plans. Since it has also the sanction to regulate the size of the annual Plan and thus the release of funds, it is possible for it to make its influence felt in many issues in which difference of opinion may arise. The concurrent nature of the functions in this sector predisposes in favour of some overlapping of jurisdictions and the possibility of misunderstandings on that score unless responsibilities of each authority are laid down with some degree of precision.

3.09. The evidence tendered before us shows that attitudes of mind have developed which have resulted and may further result in creating misunderstandings between the Centre and the States. We do not think that the area of such conflicts is large or by any means such as should cause anxiety but it is there and the possibility of its expansion cannot be ruled out. We do not wish to go into the question, at this stage, whether it is legitimate or not, but it does show that a great deal of thought has to be devoted to the division of functions among all the authorities that are, by virtue of the Constitution, responsible for certain features of the policy, planning and execution of Irrigation and Power Projects. As the Central Water and Power Commission forms an important link in these arrangements, its re-organisation impinges on all these issues and invests our task with considerable complexity.

3.10. The plan of this Report, therefore, is:

- (a) to assess the present arrangements and their adequacy;
- (b) to attempt a review of the future organisational and technical requirements of the Centre, the Planning Commission and the States in this sector, and to indicate broadly our views regarding the place of the CW & PC in these arrangements.

3.11. The necessity to view the arrangements for Irrigation and Power in their entirety arises from the Terms of Reference given to us. We have to define the relationship of the Central Water and Power Commission with other authorities. This can only be done if there is some measure of clarity about the responsibilities that each authority has to discharge.

CHAPTER IV

ASSESSMENT OF EXISTING ARRANGEMENTS AT THE CENTRE AND IN THE STATES

4.01. A discussion of the constitution, organisation, functions and methods of work of the CW & PC will involve *ipso facto* a consideration of its relations with the States and others. It is, therefore, proposed to discuss this subject at some length and then to refer separately to some important questions relating to the other authorities.

4.02. The constitution of the CW & PC is derived from the Resolution of the Government of India to which a reference has been made in chapter II. The preamble of the Resolution enumerates the generality of functions to be discharged by the CW & PC. It requires the organisation to initiate and co-ordinate Irrigation, Flood, Navigation and Power schemes in consultation with the State Governments.

4.03. The Resolution further goes on to list some 20 different items on which the CW & PC is supposed to base its working programme. These items subsume all known aspects of Irrigation and Power projects and policy considerations thereon. Agencies can thus be created within the organisation of the CW & PC for any aspect of work connected with Irrigation and Power. The Resolution, as it is worded, is both a source of strength as well as of weakness to the CW & PC. It enables the CW & PC to deepen and broaden its organisation on the one hand and on the other to build up defences for inability to undertake at all or effectively many of the functions assigned to it. The effectiveness of the CW & PC would naturally, in the circumstances, be measured against the number of functions for which it has been able to make adequate arrangements. The CW & PC is conscious of the implications of such evaluation of its work. It has specially drawn our attention to it. Yet in the detailed proposals for future reorganisation, the Commission has argued that it should strengthen its organisation in relation to every function assigned to it in the 1951 Resolution. The real point of our enquiry, therefore, is whether the 1951 Resolution is fully operative in view of the constitutional responsibility as discussed earlier and even if it is, whether its working, as proposed by the CW & PC, will lead to harmonious and economic relationship among the various authorities concerned with Irrigation and Power schemes.

4.04. Many changes have occurred during the past few years in the I. & P. Sector. The Planning Commission which was constituted in March, 1950, has several functions in the matter of preparation and progressing of the plans of this nature. It has in effect become the determining forum for many items of work which were originally expected to be undertaken by the CW & PC. Moreover, the Planning Commission has also felt it necessary to employ a fairly large technical staff for the discharge of responsibilities entrusted to it. No changes

have, however, been made in the functions of the CW & PC in view of the impact of the work of the Planning Commission.

4.05. A significant change that has occurred lately is the reorganisation of the States into fourteen large sized units. In 1951, a number of States were not considered viable, organisationally and technically, for planning, designing and implementing major Irrigation and Power projects. It is, however, now possible to envisage that all the States would be able to organise adequately for undertaking all types of work in the field of Irrigation and Power.

4.06. Another feature is that substantially the same functions, that have been assigned to the CW & PC by the 1951 Resolution of the Government of India, had been simultaneously assigned to the Central Electricity Authority by the Electricity (Supply) Act, 1948. This has not raised any major difficulties so far, as rationalisation has been attempted by framing the Rules of Business in such a way as to validate the acts of the two Members of the CW & PC as if they were exercising many of the functions statutorily, in accordance with the provisions of the Electricity (Supply) Act, 1948. It will be explained later in detail that it creates several complications regarding the corporate working of the CW & PC.

4.07. The proposals for the reorganisation of the CW & PC should take into account the effect of changes mentioned above which have intervened since it was originally conceived in 1951.

Organisation

4.08. The CW & PC is organised into the Water Wing and the Power Wing. The details of the organisation are shown in the Chart given in Appendix II.

Water Wing

4.09. The Water Wing is organised on a functional basis. Inter-related functions are grouped together to form Directorates and a number of Directorates are supervised by each Member. There are 2 sanctioned posts of Members. The grouping of Directorates is subject to alteration from time to time.

4.10. Lately, the grade of Chief Engineer has also been introduced into the Organisation. It is an intermediate grade between Director and Member. The grade of the Chief Engineer coincides with the last two stages of the Selection Grade Director. The Chief Engineers are utilised for scrutinising flood control projects and directing field investigations work, undertaken by the Commission.

4.11. While the main division of work is through Directorates, there are other grades between the Deputy Director and the Director, e.g., Superintending Engineer, which coincides with the Selection Grade of Dy. Director. The organisation then breaks up into Executive Engineers, Assistant Directors, Assistant Engineers, Extra Assistant Directors and Design Asstts. This nomenclature describes grades for which graduation in Engineering subject is considered an essential

qualification. In addition to these, there are about thirty different grades describing sub-professional and "lay" talent employed in the service of the CW & PC. We have found it difficult to visualise the exact shades of utility of each grade and the manner in which the posts have been assessed to carry them. We requested the CW & PC to let us know the standards employed for grading the posts but from the information supplied it appears that no definite standards have been evolved.

There is considerable room for individual judgment in fixing grades to the functions and responsibility attaching to a work unit for which posts are created. It is obvious that posts are graded on individual judgment and this accounts for several instances, noticed by us, of posts similarly graded carrying substantially different responsibilities.

Power Wing

4.12. The organisation of the Power Wing is substantially on the same basis as that of the Water Wing. The important difference between the two relates, as stated before, to the Power Wing acting virtually as the authorised agent of the Central Electricity Authority. It is necessary to bring out this peculiar organisational arrangement a little more fully as it has a bearing on the economic and efficient working of the CW & PC.

4.13. The scheme of the Electricity (Supply) Act, 1948, envisaged the constitution of a "hen and chick" variety of organisation for power development. The C.E.A. was to have under its wing, so to say, the State Electricity Boards. The development of power was to be the responsibility of the C.E.A. in the broadest possible terms and its control on individual projects was limited to those which were estimated to cost above rupees one crore; in the event of difference of opinion between the C.E.A. and the State Boards, the decision of the State Government was to prevail.

4.14. When the CEA was constituted, the Central Electricity Commission was already in existence. Thus a statutory authority was established simultaneously with the existence of a non-statutory central regulatory body. The two members of the Central Electricity Commission were also appointed as members of the Central Electricity Authority. We understand that this was found necessary as a sufficient number of senior technical personnel were not available to man adequately the two high level technical bodies. With the advent of the combined Central Water and Power Commission (incorporating both the CWINC and the CEC), the position continued to be the same. It appears that in the meantime the incompatibility of the position was recognised and the powers of the CEA were virtually transferred to the CW & PC (Power Wing) except in the matter of arbitration as required by section 3(ii) of the Electricity (Supply) Act, 1948. This was achieved by framing the Rules of Business in such a way as to validate the action of the CW & PC. Thus, an authority which was intended by Statute to have an independent existence, came to be in reality an appendix of the CW & PC, an official organisation. Lately, it has been decided that schemes estimated to cost above rupees one crore will be circulated to all Engineer Members of the

CEA. The procedure now is that the schemes from the States are received in the CW & PC; they are subjected to technical examination and are then put up for clearance to the Advisory Committee appointed by the Planning Commission. Subsequently, the same schemes are put up to the Central Electricity Authority. This procedure, besides leading to delay, does not seem to serve any purpose except that of formal compliance with the statute.

4.15. One of the consequences of this situation is that the Members of the CW & PC on the Power side are simultaneously Members of the CEA. At the moment, the strength of membership on the Power side is two; if it is increased, the quantitative representation of the CW & PC on the CEA will have either to be limited to two, or some other arrangement will have to be devised as, in terms of its statutory powers, the CEA can exercise almost any function in the field of power. We apprehend that this might raise difficulties in the future in the working of the CW & PC as a composite body. We, therefore, think that it would be desirable to re-appraise the complex statutory and unstatutory arrangements. The opinion of the Law Ministry, obtained at our instance, is also in favour of such a re-appraisal.

4.16. Another repercussion of the existing arrangements is that the Power Wing of the CW & PC acting on behalf of the CEA derives most of its authority for taking decisions from a statute while the advice of the Water Wing has only an administrative import. The disparity between the two Wings, on this account, may conceivably affect the harmonious working of the CW & PC as a composite body, particularly as some of the decisions on the Power side will have the imprimatur not only of the members of the Power Wing but also of other members of the CEA who will not be in touch with the thinking of the CW & PC as a whole.

4.17. In the light of the above discussions, we consider that the functions regarding the development of a national power policy, carrying out of investigations, collecting and recording of data, etc., contained in section 3 of the Electricity (Supply) Act, 1948, should be taken out of the purview of the CEA. The name of the Authority itself may be changed for the purpose of carrying out functions relating to arbitration embodied at present in section 3(ii) of the Act. These functions may be assigned to a Standing Arbitration Board to be appointed by the Central Government. The Act should be amended suitably to give effect to the above recommendations. This will facilitate the functioning of the CW & PC as a composite organisation dealing, in an integrated manner, with the development of Irrigation and Power.

Functions

4.18. The functions of the CW & PC have been presented to us broadly in two elaborate Memoranda of the CW & PC. We also thought it necessary to conduct a work-study of its various Directorates in order to assess the manner in which the actual work was organised.

4.19. The Resolution of the Government of India constituting the CW & PC lays down broad functions in the spheres of irrigation, navigation, floods and power. The detailed programme in pursuance of

these broad functions is, however, reflected in the items of work constituting the charge of each Directorate. We tried to piece together from the results of the work-study and the broad picture given to us in the Memoranda of the CW & PC, the priorities that the CW & PC assigns to its various functions *inter se* and *per se*. We gathered the impression that the CW & PC has started on a large number of items of work in order to be able to discharge as many of the functions allotted to it as possible, but does not appear to us to have attempted the formulation of a programme of work of reasonable dimensions within the capacity of the trained staff that it can expect to be released for it from the overburdened staff of the States. The real difficulties of the CW & PC stem actually from this. They were accentuated by the addition of a number of items of work, which could not be anticipated at the time the CW & PC was constituted. Some of the more important among them may be indicated below:—

- (i) Membership of the Control Boards.
- (ii) Advice to other Ministries and Development projects on hydrological questions and on utilisation of electrical power in their respective special applications.
- (iii) Meetings with the Planning Commission and those organised under its auspices for formulating Five Year Plans or for progressing schemes.
- (iv) Technical examination of projects for the Advisory Committee of the Planning Commission.
- (v) Membership of the various Committees of the Indian Standards Institution.

4.20. Several functions of the CW & PC entrench upon the sphere of the States and we are told that they were taken up for the following reasons:—

- (a) The States were not well equipped to undertake them, at least some of them.
- (b) The States cannot sustain particular types of specialist activities on their own, as their needs are of a transitory nature, or do not add up to an organisation of that character on a minimum standard.
- (c) The Centre is financing some of the projects and is, therefore, entitled to take enough interest to see that funds are being properly utilised.
- (d) It is necessary to ensure uniform practices in the States and that can only be done from the Centre.
- (e) There is political pressure on the State Engineers and that can be offset only from the Centre; otherwise there is a likelihood of inefficient projects, having local importance, being taken up for execution.
- (f) Inter-State projects require consideration by a neutral organisation.
- (g) The CW & PC is in a better position to keep in touch with the latest trends in the international field in these subjects.

4.21. On the other hand, State Governments contend that the Commission takes too detailed an interest in a large number of small schemes and that its scrutiny tends to be routine and causes delay in technical clearance of the schemes. The comments of the CW & PC, they argue, are presumably the outcome of scrutiny by inexperienced and immature subordinate officers of the Commission with little or no knowledge of local conditions. Scrutiny at this level, in their opinion, serves no purpose. On the other hand, it causes irritation and frustration as estimates are prepared by senior and more experienced officers with intimate knowledge of local conditions. They go on to argue that pre-occupation of the CW & PC with numerous petty schemes leaves little time to it for thoughtful study and careful investigation of the problems. If, therefore, the CW & PC is to serve this purpose, it must divest itself of petty tasks and concentrate attention on technical problems worthy of expert study by an All-India Organisation.

4.22. It is obvious that there is considerable polarity of views between the CW & PC and the States on the question of the functions that the former should exercise. In other words, beneficiaries of the advice of CW & PC are sceptical of its utility in its present form. We were informed, during our discussion with Chief Engineers in the States, that they tolerated it because the CW & PC plays an important part in the allotment of resources.

4.23. The results of the work-study, undertaken at our instance and under our guidance, broadly confirm that the comments on the small schemes tend to be stereotyped and the defects pointed out are such as can be, and, in fact, should have been, rectified by the issue of appropriate standards, norms and instructions for the preparation of estimates and project reports.

4.24. The CW & PC has assisted the States in the past in several respects and has shown considerable initiative in securing efficiency and economy in this field. In spite of this, the State Governments seem to consider that the methods of working of the CW & PC, in relation to the States, should undergo several changes. We have ourselves observed, in discussions with the CW & PC, that there is insufficient recognition of the fact that the organisations of the States have grown up and are capable of assuming responsibilities of planning, designing and execution of projects in the Irrigation and Power sector except in certain specialised fields. On the contrary, there is some apprehension in the Centre that in the case of small Projects, the States tend to under-estimate costs and over-estimate benefits in presenting Projects for approval. And this has led to the designing of a 100 per cent. check which we feel is unnecessary and incommensurate with the economies effected. The future division of work, as between the Centre and the States, will require a different approach from the CW & PC that it has been used to in the past. We are glad to note that the States themselves recognise the utility of the CW & PC in several matters requiring high-level consultation in the Irrigation and Power Sector.

4.25. It will be relevant at this stage to draw attention to the erosion of authority of the CW & PC that has been steadily taking

place in relation to the functions as originally assigned to it in the 1951 Resolution. Some of these matters are mentioned below:—

- (a) The Planning Commission has asked for a second opinion on a few technical issues on which the CW & PC had already tendered advice. Special Committees were appointed to consider those issues.
- (b) There has been a move to reduce the influence of the CW & PC in the Control Boards inasmuch as the right to vote has been withdrawn from its representatives attending the meetings of the Boards.
- (c) The CW & PC is not being utilised for evaluation of projects, presumably because it deals with the projects at all stages from their inception to execution and participates in current controversies.

4.26. It will not serve any useful purpose at this stage to examine the justification for organising certain activities in the Irrigation and Power sector away from the CW & PC notwithstanding the fact that, by virtue of its charter, it would have been the duty of the CW & PC to undertake these tasks. This may be partly ascribed to want of confidence in the CW & PC and partly to the fact that the charter of the CW & PC has become outmoded and needs further consideration in the light of the circumstances that have developed since. Some of the functions, for which alternative arrangements have been made, may not now be justifiably entrusted to the CW & PC.

4.27. The CW & PC is itself conscious of the erosion of authority that has taken place and has attributed it, in its Memoranda presented to us, to inadequacy of staff both qualitatively and quantitatively. We think that this is a simplified view of the matter and that some of the methods of working of the CW & PC may also have contributed to the present situation. Some points that we have noticed during our examination of the work of the CW & PC are mentioned below:—

- (a) The CW & PC has organised its functions irrespective of the availability of proper type of personnel. The States have generally been reluctant to spare their good men and the more so now when the volume of work in the States themselves has increased. The CW & PC, instead of limiting its functions, has continued to expand with the assistance of inexperienced personnel recruited directly from the market.
- (b) In spite of the dearth of experienced senior supervisory staff, the methods of work are such that a large amount of details go up for consideration to them. The capacity of the senior staff for devoting themselves to larger issues is thus compromised and this is inevitably reflected in the quality of out-turn.
- (c) As will be evident from the statement below, the Chairman and the Members of the CW & PC remained away from their headquarters, both inside and outside the country, for considerable periods during the last few years. The effect of this was that either the important issues awaiting decision were kept pending or they had to be left for consideration and decision of comparatively inexperienced staff.

Statement showing the number of days spent on tour by the Chairman and the Members of the Central Water and Power Commission.

Year	Number of days-spent on tour by				
	Chairman (P. & I.)	Member (D. & R.) (Water Wing)	Member (H. E.) (Power Wing)	Member (U.) (Power Wing)	Member (U.) (Power Wing)
WITHIN INDIA					
1. 1954 (1-7-54 to 31-12-54)	52	50	26	..	..
2. 1955	94	50	89	69	50
3. 1956	122	64	135	128	60
4. 1957	109	..	145	68	65
5. 1958 (1-1-58 to 30-6-58).	67	..	97	..	..
ABROAD					
1. 1954	65	Nil	65	..	..
2. 1955	74	..	21	38	..
3. 1956	26	..	12	50	75
4. 1957	26	..	13	38	..

The situation was further accentuated by some sanctioned posts of members being left unfilled for considerable periods as indicated in the statement below.

Statement showing periods for which the Chairman and Members of the Central Water and Power Commission were in position

Year	Chairman & months Sanctioned post—1	Members × months			Grand Total of 2 and 5
		Water Wing (Sanctioned posts—2)	Power Wing (Sanctioned posts—2)	Total	
1	2	3	4	5	6
1951-52	12	22½	24	46½	58½
1952-53	12	22½	24	46½	58½
1953-54	12	12	14	26	38
1954-55	12	22½	12	34½	46½
1955-56	12	17½	22	39½	51½
1956-57	12	24	22½	46½	58½
1957-58	12	12	22	34	46
1958-59	12	20½	18½	39½	51½

4.28. It is easy to extend the area of work of a Central Organisation, particularly when it can influence the distribution of Central resources. If it is done beyond the limit of availability of adequately qualified staff, the work is bound to devolve on inexperienced persons and would command a very small proportion of attention from real experts, owing to the large volume of work to be supervised by them. That the limit has long been reached in the CW & PC is clear from the fact that persons with 8 to 10 years' total service are now within the range of promotion to the posts of Superintending Engineers which are available in the States generally to persons with about 15 years of experience. Experts cannot be made merely by designating them as such. A considerable amount of experience is a *sine qua non* of their recognition. Secondly, it would not be correct to build on the assumption that the States are unable to look after their responsibilities. In fact, one of the duties of the CW & PC should be to help strengthen the State Organisations which have to carry the full-scale burden of execution. The longer the interval in accomplishing this the more it reflects adversely on the main purpose of the existence of the CW & PC. Moreover, it also seriously affects the build-up of the consultant talent at the Centre which is largely drawn from the cadres of the States. Nor is it desirable that only a few well-organised States should be depended upon for recruitment to the CW & PC, as, sooner or later, inequalities in regional representation are bound to cause difficulties and deprive the CW & PC of local knowledge so essential for proper planning of projects. It is, therefore, essential that the States which have not yet been able to equip themselves to reasonable standards, may be assisted to do so in as short a time as practicable. We think it would be poor economy to strengthen the Centre and to leave the State organisations in a weak position in the hope that a well-equipped Centre would be able to counter-balance the weaknesses of the States.

4.29. The position is slightly different on the Power side. Most of the States have only recently set up Electricity Boards and are, in our opinion, in need of assistance for organising themselves efficiently. Some of the States have frankly informed us that they are in need of such assistance for some time to come. It is necessary that assistance should be rendered to the States, when required, but it is equally essential that the process of spoon-feeding should not be carried too far. A time-limit should be set for liquidating organisations created for this purpose in the CW & PC.

4.30. Comparatively junior officers are holding important middle level posts on the Power side also. The staffing standards on this side have been diluted roughly to the same extent as on the Water side. From our discussions with the CW & PC, we gather the impression that there is greater disposition on the Power side than on the Water side on centralising work of all types pertaining to the generic heading 'Power'. This is attributed to the inability of the State Governments to turn out work of adequate quality owing to lack of experienced staff. While we concede that there should be a greater measure of flexibility in this sector for division of work between the Centre and the States, it should be remembered that the expansion of the CW & PC on the Power side can only take place at the cost of experienced Engineers from the States. We, therefore, suggest that

it is necessary to maintain a proper balance between the functions that should be organised at the Centre and in the States, in the Power Sector. We may point out that some of the functions can be readily transferred even at this stage to the States e.g. Load Survey and scrutiny of estimates below Rs. 1 crore. The latter function is being performed by the CW & PC on behalf of the Advisory Committee set up by the Planning Commission. The limit of rupees one crore laid down in the Electricity (Supply) Act, 1948, for scrutiny of estimates appears to be sufficient from the point of view of the review of estimates of the States by a Central organisation and we suggest that it should be adhered to.

Methods of Work

4.31. Before concluding our assessment of the existing structure of the CW & PC, we would like to refer to the methods of work orienting the organisation. The best of organisations could be compromised by the methods of work that may be adopted. Our assessment shows that the following issues require careful consideration in laying down economic methods of work in all sections of the Commission:—

- (a) The initiative from a consultative organisation should come mainly from above. At present it mostly appears to be otherwise. This has resulted in a pyramidal build up in the Commission.
- (b) The top management should give the impression of co-ordinated working. The two Wings at present are working in watertight compartments and it is seldom that they meet as a composite body. Each Wing has even its separate administrative set-up. There is no doubt that the two Wings share a Chairman but the Power Wing had practically its own independent spokesman in most of the matters.
- (c) There is a considerable possibility of replacing trained Engineers by other talent for work of sub-professional and non-professional nature.
- (d) The posts should be graded on an objective basis which should be defined as precisely as practicable.

4.32. We have already drawn attention to the inadequacy of trained man-power and the consequent dilution of staffing standards in the CW & PC. The CW & PC have had to make direct recruitment from the market in view of the difficulty of obtaining the right kind of personnel from the States. The new recruits generally do not possess adequate field experience necessary for the type of work that the CW & PC is called upon to undertake. In fact, it will not be an exaggeration to say that the direct recruits have generally been drawn from University desks and placed at the official tables of the Bikaner House. Apart from the initial lack of experience, the new recruits have had adequate opportunity of gaining construction experience after joining the CW & PC. We will deal with this aspect later but we would like to draw attention here to certain facts relating to it. We have examined the records of most of the senior officers of the CW & PC in order to assess the extent and type of experience that they possess. It appears from the table below that

only a very small percentage of such officers had experience of the appropriate character. For the purpose of this table. We have reckoned that a minimum period of 5 years should have been spent on construction work in the capacity of Assistant Engineer for the posts of Deputy Directors (and Executive Engineer) and as Executive Engineer and/or Superintending Engineer for the posts of Directors (and S.E.) and above.

TABLE
Practical Training of Officers of C. W. & P. C.

Sl. No.	Designation of Officers	Water Wing		Power Wing		
		Total No. of officers in the grade	No. of trained officers	Total No. of officers in the grade	No. of trained officers	
1.	Member	2	1	2	2	Construction work for the purpose of this study does not include : (i) Construction work other than in the field of Irrigation and Power ; (ii) Normal operation and maintenance work of an ordinary Irrigation Division unless construction is specially mentioned as part of such work ; (iii) Investigation and survey Work.
2.	Chief Engineer	2	Nil	..	..
3.	Director	8	1	8	2	
4.	Superintending Engineer.	9	2	..	..
5.	Deputy Director	36	5	22	5	
6.	Executive Engineer.	17	4	..	..

4.33. The standards and reputation of the CW & PC for consultation by the States can be maintained only if adequately trained and experienced staff is at its disposal. We would rather that the Government placed an embargo on the future expansion of the CW & PC, however important the activity may be, than it should carry on with the help of inexperienced staff.

4.34. Our study further reveals that the shortage of experience is not only of a general character. There is a dearth of specialised personnel necessary for working in the Directorates requiring such experience. On the other hand, the specially trained officers have not been fully utilised for the purpose for which they were trained.

CHAPTER V

PRINCIPLES OF REORGANISATION

5.01. The future organisation of the CW&PC depends upon two factors:—

- (i) a rational scheme for the distribution of functions among those concerned with the I & P Sector; and
- (ii) the state of preparedness of different organisations to undertake this work.

5.02. Each State Government and Electricity Board should, in our opinion, have the following minimum organisations:—

- (i) An investigation and planning cell.
- (ii) A designs cell to undertake preparation of designs of small and medium projects.

5.03. In addition, the State Electricity Boards should make their own arrangements for load survey. This is their function and the expenditure is legitimately chargeable to their estimates. The CW & PC has taken over this work on the assumption that the States inflate their figures and thus vitiate the data on which decisions are taken regarding the relative priorities of the projects. We do not fully share the apprehensions of CW&PC, nor has any tangible evidence been produced before us indicating that this is the general practice. We have discussed this matter in detail with the CW&PC and the State Chief Engineers on the Electricity side. We think that if two precautions are taken, the risk of inflation, if any, will be avoided. These are:

- (a) the CW&PC should draw up instructions for load survey, based on its past experience, prescribing the procedure, standards and norms, wherever possible;
- (b) the Commission should have adequate staff for a review of the surveys undertaken by the State Electricity Boards in material particulars having regard specially to the knowledge of the loads pertaining to Central industries/projects which will be more intimately known to the CW&PC.

5.04. It should not be difficult for the Centre and the Planning Commission to use their good offices to see that the States build up a minimum standard of Irrigation and Power Administration. In our discussions with the Chief Engineers of the States, we were assured that they were quite capable of undertaking almost all the tasks except the preparation of major designs in some of the States. They

stressed, however, the necessity of an organisation at the Centre for consultation on important technical issues.'

5.05. The CW&PC has argued before us that the States cannot be fully depended upon in this matter and that the preparation and implementation of plans may not proceed according to schedule. While we cannot say that the States will play their part according to the expectations placed upon them, it is clear that the division of work between the Centre and the States cannot be made on the basis of the Centre undertaking tasks that inherently belong to the latter. We suggest that, in the existing circumstances, it would be desirable if the States and the Centre were to run a plan for pooling experience and talent in the I & P Sector in the same way as has been organised under the Colombo Plan. It will be a sort of internal plan of that character designed to reach "expertise" wherever it is lacking. We are making this recommendation in view of the difficulties which are being experienced in constituting an All-India Service of Irrigation and Power Engineers. The implications of this plan will be that the Centre may have to bear the liability for a part of the difference in the pay of the officer in his parent cadre and the emoluments he will receive if he were to be appointed in the cadre of the State. We have not fully assessed the financial effects of our proposals but we think that the Centre may not have to bear additional expenditure over and above it is already incurring on organising certain State activities in the CW&PC. The advantages will be: (i) the standard of organisations in the States will improve, and (ii) it will inevitably provide better types of recruits to the CW&PC itself in future.

5.06. As a preliminary step, we suggest that the Planning Commission may, in consultation with the Irrigation and Power Ministry and the State Governments, appoint a Committee of two or three Engineer-consultants and a senior Finance Officer with administration and management experience to make a quick assessment of the organisational effectiveness of the cadres of the States in the Irrigation and Power Sector with a view to suggesting ways and means of strengthening them to the minimum extent necessary for the functions that they are expected to undertake. This will serve as a basis for working out the details of the plan of assistance referred to above.

5.07. We have kept the following principles in view for making detailed proposals for the reorganisation of the CW&PC:—

- (a) The Commission should formulate an all-India plan of action in which constituent units will have their own part to play according to a schedule which should dovetail ultimately with the schedule for preparing Five Year Plans by the Planning Commission;
- (b) the Commission should review the original work done in the States from an all-India angle, particularly from the point of view of inter-State co-ordination.
- (c) in an emergency, when a unit fails to achieve its targets, the Commission should assist it with the necessary technical staff either from its own cadres or from such other cadres as can spare the required staff.

Our recommendations in respect of the detailed division of duties between the Centre and the States, having regard to the above discussion, are contained in the following paragraphs:—

(i) *Policy and the preparation of the Plans*

5.08. The policy is evolved in the course of the preparation of the Plans: Perspective, Five Year, and Annual. The procedure for this is laid down by the Planning Commission in consultation with all concerned and ultimately the policy and the broad details of the Plan are accepted by the National Development Council. As it is a co-operative effort, all elements concerned with the different subjects make their contribution to it. The role of the CW&PC in this respect is to check the technical feasibility of the proposals made. It is necessary, for this purpose, for the CW&PC to develop a considerable amount of data for adequate technical appreciation of the Plan. This may take three forms:—

- (a) The CW&PC should consolidate the relevant data basin-wise. Where any shortcomings exist, these should be made good on the basis of a well laid out plan, within a time limit, for investigation and compilation of the data;
- (b) it should develop plans from these data and check whether the proposals made by different authorities lead to the optimum use of the resources of the country for Water and Power on an economic basis; and
- (c) it should ensure that the schemes proposed are (i) technically sound, (ii) financially feasible, and (iii) have been fully investigated before inclusion in the Plan.

5.09. The main processes are the basin-wise study and the development of a Plan. The responsibility of the CW&PC for the former should be (i) to lay down a time-table for such studies, (ii) to apportion the work among State Governments, and (iii) if necessary, to recommend measures for financial assistance or for strengthening the staff of State Governments for this purpose. The studies are of such an important nature that we are surprised that they should not have received the attention and priority that they deserved. The economic and efficient planning, designing and execution of Irrigation and Power projects rest pre-eminently on this work. We suggest that the major gaps in the basin-wise data should be filled within the next five years so that a greater degree of accuracy is imported into our planning of Irrigation and Power projects than hitherto. This work is of a continuing nature and will always require attention, but a considerable improvement would result when the main gaps in our information have been closed.

5.10. As regards (c) in paragraphs 5.08 above, we think that the CW&PC should not devote detailed attention to schemes costing below rupees one crore. It may, at its discretion or at the instance of the Planning Commission, review such schemes broadly, particularly when inter-State interests are involved. We are convinced that the present practice of detailed review of small estimates creates unnecessary work and generates a kind of negative attitude amongst

the technical talent in the States bordering on hostility, which is not conducive to a healthy relationship between the CW&PC and the States. Further, it undermines the sense of responsibility and confidence of the Chief Engineers of the States. Nor are we convinced that the scrutiny by the CW&PC has led to any real improvement. The excesses over estimates, approved by the CW&PC or otherwise, continue to be a chronic feature, thus suggesting that the States do not appear to take up accurate planning and designing for the purpose of approval of estimates. The examination of estimates in this way also leads to considerable delay. Our studies show that the CW&PC has taken as long a period as two years to formulate its final comments on some small projects received from the States. It may be noted that out of 215 irrigation and multi-purpose projects estimated to cost Rs. 175 crores, 151 are below rupees one crore and their estimated cost is likely to be Rs. 50.72 crores.

5.11. It has been contended before us that the States have often included projects in the flood control programme, which have no organic connection with it. We are not convinced that this is deliberate. In fact, in many cases, it may be attributed to differences of opinion on the scope and details of the project. Moreover, we think that, even if the argument is correct, a hundred per cent check by comparatively junior engineers in the Central Water and Power Commission is not an economic way of discouraging this tendency. Flood control measures are now no longer in the stage of improvisation. The priorities and the types of projects could be planned in advance by State Governments and their brief description sent to the CW&PC to enable it to see (i) whether any inter-State ramifications arise, and (ii) whether there could be any possibility of an ordinary irrigation project being included as a flood project. If any projects answer the above description, they could be called for and examined in greater detail. It should be possible, in our opinion, to get this information through a suitably designed *pro forma*. This procedure should apply to projects estimated to cost below rupees one crore.

5.12. It has also been argued before us that senior engineers of the States do not devote personal attention to such projects and that it would, therefore, be desirable to centralise their scrutiny. If this is a fact, it is an additional reason for strengthening the organisations of the States so that project reports are prepared with proper technical guidance from the very start.

(ii) Basic facts

5.13. Planning can be a success only if basic hydrological data are gathered with accuracy and precision. This involves three types of tasks: (i) planning of the work of obtaining data, (ii) actual task of obtaining data, and (iii) consolidation and interpretation of data. Since basin-wise studies are the foundation of the work of planning in Irrigation and Power, the task of planning for obtaining hydrological data should, in our opinion, be the responsibility of the CW&PC. The actual task of obtaining data and their consolidation and interpretation should be entrusted to the State agencies, except for such inter-State issues on which it is considered necessary that the CW&PC should work.

(iii) *Basic studies*

5.14. One of the most important functions of the Commission is to undertake basic studies necessary for better planning, designing and preparation of projects. We regret to note that in the midst of other preoccupations, the Commission has not been able to devote adequate attention to such studies.

5.15. The future programme should provide for a definite time-schedule for these studies and staff should be earmarked and targets set up for them for the completion of this work. It would be necessary to ensure co-ordination with the State Governments so that the responsibilities of the CW&PC and of the States for completion of this work are clearly fixed and dovetailed. We suggest that programmes of this nature should be prepared by the CW&PC and placed before the Co-ordination Board of Ministers through the I & P Ministry for adoption. This will enable the States to make concurrent and corresponding arrangements so that the programme is implemented throughout the country on a unified basis, and overlapping is avoided.

5.16. We also suggest that there should be a provision for periodical evaluation of basic studies by the Commission and that regular reports on this subject should be sent to the Ministry of I&P and circulated to the State Governments for their information. This will enable the Chief Engineers to bring to the notice of the Commission any work of a similar character being undertaken in the States so that proper co-ordination could be ensured.

5.17. It is in recognition of the importance of basic studies in the field of Irrigation & Power that in assessing the future strength of the Commission we have provided for an additional post of Member in order to enable the Commission to implement the programme mentioned above in a reasonable period, say 3 to 5 years. We have suggested the creation of this post on a temporary basis until the major portion of the work is completed. We recommend that this post should be created only when a programme of basic studies, as suggested above, has been prepared and approved by the Ministry of Irrigation and Power. We envisage that if the programme of basic studies is systematically implemented as proposed, a stage will be reached when the work will taper off considerably and the need for an additional Member may cease to exist. The progress of work should be reviewed by the I & P Ministry every year and the necessity of continuing the post re-assessed after a period of three years.

(iv) *Designs*

5.18. We recommend that the Commission should continue to function as the Central Designs Organisation for the preparation of designs of a comparatively complicated nature. The Commission should not undertake in future the entire designs work of a project, since the States would be setting up their own Designs Organisations. In view of the availability of experienced personnel for designs work from projects nearing completion, we suggest that a scheme should be drawn up for their utilisation elsewhere on the lines of the plan of assistance recommended in paragraph 5.05 of this report.

5.19. We would further recommend that the CW&PC should undertake designs work only on request. The technical officers of the State/Project concerned, of appropriate status, should be associated with the preparation of designs by the CW&PC to enable them to get acquainted with the principles of the designs and the latest design techniques.

(v) *Investigations*

5.20. One of the functions of the CW&PC at present is to take up investigations and surveys, and, when so required, to prepare schemes for the development of river valleys. Investigations carried out by the CW&PC fall within the following two categories:—

- (i) Investigations undertaken at the instance of State Governments, autonomous Government Undertakings or other commercial concerns.

(The cost of such investigations is to be borne by the State Government or the party concerned.)

- (ii) Investigations undertaken in the interest of national development.

(The expenditure on these investigations is to be borne by the Central Government in the first instance and debited, in due course, to projects as might materialise as a result of such investigations.)

5.21. Investigation schemes which have so far been undertaken in the interest of national development are of the following types:—

- (i) Schemes for surveys and collection of data for flood control measures in the Ganga Basin.
- (ii) Schemes for investigations and surveys for collection of hydrological data for flood control and planning of water resources development in the Central India and Deccan River Basins.
- (iii) Schemes for surveys and collection of data for flood control measures in the Bahmaputra Basin.

5.22. The Flood Field Organisation of the CW&PC, in addition to its other functions, is responsible for maintaining co-ordination of the activities in the field of investigations and collection of essential data for flood control in the entire country. It also assists the State Governments, whenever required, in carrying out surveys and investigations for flood control and river valley projects. Based on data obtained during flood investigations, basin-wise reports of almost all the important rivers in the country are being prepared by this organisation. These reports provide information and data regarding the topography, rainfall, run off, silt, temperature, flood problems, suitability of land for irrigation, projects existing, under construction and under investigations, geology, economics, etc., of each basin, and serve as important data books for planning of river valley projects relating to individual States and inter-State problems and projects. The schemes that have been entrusted to the CW&PC for investigations are given in the Statement at Appendix III.

5.23. We reiterate that organisations for investigations should be built up in the States themselves and that it should not ordinarily be necessary for the CW&PC to take up investigations on their behalf. We are fully conscious of the fact that investigation of projects is of great importance from the point of view of development of the country. It is for this reason that we propose that the States should not be allowed to continue to ignore their responsibility in this matter. The Government of India and the Planning Commission should make it clear to the States that their proposals for new projects will not be accepted, unless these are based on proper investigations and that, in their own interest, they should build up proper organisations for this purpose. The Central Water and Power Commission and the Central Government should give necessary assistance to the States in arranging experienced staff for them. This experienced staff will be a nucleus for training other staff required by the States. We are of the view that the existing staff engaged for investigations may be dispersed by the CW&PC to the States after the investigations in progress have been completed. Where possible, the States should even be encouraged to take over investigations in progress along with the staff employed on them. We consider that efficient supervision of work of the investigation staff, which is dispersed all over the country, is not possible from Delhi.

5.24. The position regarding the investigation of projects may be briefly mentioned. At the time of preparing the Second Five Year Plan, 125 uninvestigated projects were included in it. Out of these, 46 still remain to be investigated. The position regarding the projects to be included in the Third Five Year Plan is not fully known but it is evident that heavy arrears of investigations will have to be carried forward. It is in this context that the suggestion made by us for decentralising the work of investigations should be viewed. We do not think that even by the Centre rendering any help, as it is doing at present, the backlog of arrears can be cleared. We suggest that the CW&PC should prepare a programme for investigations and, in consultation with the States, demarcate the staff that may be required having regard to its total availability. Periodic conferences of the I&P Ministry and the States may be held in order to evaluate the progress made in respect of investigations

Pattern of Authorisation

5.25. The present procedure of sanctioning projects for effective implementation consists of many stages. The first stage is the preparation of the project for administrative sanction in a State. The second stage is to get it included in the Plan. The third stage is to establish a priority among projects for allocation of resources, and the fourth stage is actual implementation and phasing that may be necessitated for various reasons.

5.26. A large number of projects in the First Five Year Plan had not been properly investigated before inclusion in the Plan. It was accordingly suggested that the Planning Commission should appoint an Advisory Committee to scrutinise projects to see that:—

- (i) the schemes have been properly investigated:

- (ii) the estimates have been worked out accurately and in sufficient detail; and
- (iii) the financial forecast and the revenue returns are based on correct data.

5.27. This Committee is thus an additional milestone in the long march of projects through the administrative labyrinths at the Centre. Before they are put up to the Committee, they are scrutinized by the CW&PC virtually from the same angle. The result is that small projects below Rs. one crore, which are by far the majority of projects seen by the Committee, are subjected to double scrutiny once at the technical level and again at what may be termed the technical-cum-administrative level of the Advisory Committee composed of Engineers, Administrators, and Financial experts.

5.28. It will be interesting to trace the course of the projects through the various Directorates of the CW&PC. The Chart at Appendix IV shows that considerable time is taken by each Directorate to offer its comments even on small projects. This lends weight to the complaint made by the States that the consideration of the projects gets delayed while they are under scrutiny by the CW&PC.

5.29. The position in the Power side is that the projects have to undergo scrutiny by the Central Electricity Authority in addition to the CW&PC and the Advisory Committee.

5.30. The Commission has given us some illustrative examples of the economies that they have effected in small projects. We have examined a number of projects ourselves and we think, taken as a whole, the claim of the Commission for effecting economies is somewhat over-stated. Some of the objections are really of the nature of second opinion on the same facts. Many of them pertain to missing links in the data furnished by the States. This could be rectified by prescribing a check list which should ordinarily accompany the projects sent to the CW&PC.

5.31. We are firmly of the view that the only solution to this double, nay, even treble draft of engineering talent on small projects is to decentralise the work relating to projects estimated to cost below Rs. one crore both on the Water and Power sides. We would suggest that all such projects should be finally dealt with by the Chief Engineers in the States except, when required, for a broad review in the CW&PC from the point of view of their inter-State implications. If a large number of defects are noticed in the preparation of projects, the matter should be brought to the notice of the Chief Engineer concerned by the Chairman, CW&PC. It should not be difficult for the Chairman, CW&PC, to persuade the Chief Engineer to improve the technical efficiency of his organisation in this matter.

5.32. We suggest that the following drill should be adopted for authorisation of projects in future:—

- (i) No scheme should be included in the Plan unless it is fully investigated.

- (ii) The rest of the schemes should be divided into two categories:—
- (a) schemes partially investigated,
 - (b) schemes not investigated at all.
- (iii) The States should assign priorities for investigation to the schemes falling under item (ii) above, on the basis of the practicability of completing investigations in time, quick realisation of benefits and such other special factors that may arise from the policies of Government. We attach importance to proper investigation of projects as their economy depends on the reliability of the data obtained. We would, therefore, suggest that priority should not be assigned to projects which have not been adequately investigated, except for very special justification.
- (iv) A programme of investigations should be drawn up two or three years in advance of the preparation of the plan for conducting such investigations. The respective roles and targets of the State Governments should be defined in a conference with them.
- (v) Projects estimated to cost above rupees one crore should be scrutinised by the CW&PC, and those below rupees one crore should be seen by it, when necessary, from a very broad angle, namely, that of inter-State ramifications, etc.
- (vi) The CW&PC should define the information that should be supplied with the project reports. It should prepare *pro formae* for this purpose and circulate them, within a reasonable period, to all the States.
- (vii) The State Governments may appoint *ad-hoc* Committees from within their personnel or from among retired Chief Engineers readily available, to exercise a check on projects prepared by their Investigation Circles in order to scrutinise that they are based on adequate investigations and data. The projects should be accompanied by the *pro formae* referred to above duly completed.
- (viii) The CW&PC should keep a watch on the progress of investigations both as a result of personal discussions and by obtaining reports in suitable forms. The reviews of the CW&PC should be compiled quarterly and sent to the State Governments, the I&P Ministry, and the Planning Commission. Programme Advisers of the Planning Commission may, if necessary, be requested by the I&P Ministry to use their good offices to step up the rate of progress where necessary.
- (ix) Where differences of opinion arise, the CW&PC should endeavour to settle them with the States concerned. All projects received by the CW & PC for consideration of the Advisory Committee should be finally disposed of within six months of their receipt. A monthly report should be

prepared on the progress of examination of projects by the CW&PC, and sent to the Irrigation & Power Ministry and the Planning Commission.

Construction

5.33. The CW&PC is not required at present to undertake construction work. We endorse this position. We have, however, observed that an erection unit for small thermal plants exists in the Power Wing for rendering emergency assistance to the States. This unit may continue until the States have equipped themselves for such work.

5.34. The Commission should, however, be concerned with the progress of construction and consequent phasing of projects. This can be done in four ways:—

- (i) By receiving regular progress reports.
- (ii) By personal visits.
- (iii) By attending Control Board meetings.
- (iv) By evaluation of selected projects.

5.35. All these methods of progressing projects are in use now. The CW&PC is utilising (i), (ii) and (iii); while (iv) is organised by the Committee on Plan Projects in consultation with the authorities concerned. The reports of the teams appointed by the COPP are discussed with the CW&PC before their publication. The present arrangements for watching the progress of projects seem to us to be adequate.

CHAPTER VI

PATTERN OF ORGANISATION

6.01. The CW&PC enjoys at present the status of an Attached Office, i.e. it functions virtually as an independent organisation within its delegated powers.

6.02. The CW&PC was requested to let us know the difficulties it was experiencing under the present system of organisational structure and working. It has stated that there is a considerable amount of duplication of work between the CW&PC and the Ministry of I&P, and that several matters got delayed in the process. It is evident that in technical matters the Ministry is not in a position to make much contribution. The CW&PC has accordingly proposed that the organisational structure should be in conformity with the one obtaining in the Roads Wing of the Transport Ministry. Its basic feature is that the Consulting Engineer (Roads) is ex-officio Joint Secretary to the Transport Ministry. There is also a system of common files between the Roads Organisation and the Ministry of Transport. The papers are received first in the Ministry, and are shown to the technical officers after precedents have been located. Further disposal depends upon the directions given by the technical officers.

6.03. We have given careful thought to the proposal of the CW&PC. Though, on the surface, it seems attractive, there are many snags in it. In the first place, the analogy between the Roads Wing and the CW&PC is not apposite. The Roads Wing controls the Central Road Fund, and it has sometimes to function as a machinery of Government for issuing sanctions. Further, there is only one senior officer of the rank of Joint Secretary in charge of the organisation and it is not difficult to invest him with Secretariat status. On the other hand, the CW&PC is a high-level technical advisory body and has no executive functions to perform. Also, the amount of work of secretarial nature is not enough to justify the conferring of ex-officio status on the four Members and the Chairman. In case the ex-officio status is given to the senior-most official, namely, the Chairman, he will be virtually flooded with the minutiae of administrative and technical matters requiring the exercise of such status. Moreover, we understand that the Government has recently decided that ex-officio status should not be given to Heads of organisations of this character.

6.04. In their Fifth Report, the Estimates Committee had recommended as follows:—

“Commission to be a separate body from the Secretariat.

13. The Committee recommended last year (vide para. 2 of their Second Report) that all posts of Additional Secretaries should be abolished. Apart from the general

considerations urged therein, the Committee are strongly of the opinion that the *Commission should be quite a separate body from the Secretariat and the Chairman of the Commission should have no ex-officio status in the Ministry or a hand in the administrative decisions.* The Committee also feel that the duties of the Commission should be LIMITED TO INITIATING; CO-ORDINATION AND FURTHERING schemes for the conservation and utilisation of water resources throughout the country. The functions relating to the construction of any such schemes should be taken away from the Commission and entrusted to separate *ad-hoc* bodies."

This recommendation was accepted by Government. In our view, this was a step in the right direction and we do not see any justification for altering this decision. On the other hand, we have felt, during our examination of the material relating to the CW&PC, that there are several matters which have a substantial executive import though they have also a technical content. The consideration of these matters in the CW&PC involves the organisation in controversies and detracts considerably from its technical objectivity. It thus compromises its position as a high level advisory body, and further floods the Senior Officers with a mass of detailed work incommensurate with their status.

6.05. We think that it is desirable that work of this nature should be taken away from the CW&PC, and transferred to the Ministry of Irrigation & Power. We refer specially to:

- (i) allocation of foreign exchange;
- (ii) questions relating to the rationalisation and distribution of construction plant and machinery which are also linked with the question of allocation of foreign exchange; and
- (iii) questions relating to the allocation of scarce materials to the projects.

6.06. We have noticed, as stated elsewhere, that a large number of technical officials are employed on this work much of which can be handled by sub-professional and ministerial grades. Apart from its other advantages, the transfer of this work to the Ministry is bound to result in saving in engineering man-power. Actually, there is a double draft on such man-power in some cases. For example, in spite of the existence of a Plant and Machinery Directorate in the CW&PC for more than 4 years, the Ministry found it necessary to employ an officer on Rs. 3,000 p.m. to carry out exactly the same functions.

6.07. It is not our intention that the CW & PC should be divorced from discussions on these subjects. When the material has been prepared it should be made available to the Commission as a matter of routine. The CW & PC should also be associated with final discussions in case the matter involved requires high level technical appreciation.

6.08. The acceptance of the above recommendation will necessitate the appointment of technical officers in the Ministry of Irrigation & Power. The status and strength of such officers may be determined on the basis of the additional work-load transferred to the Ministry.

6.09. Parliament questions are another item of work in which there is considerable duplication of effort between the Ministry and the Central Water & Power Commission. We suggest that where the questions relate to State Projects, the information should be obtained from them directly by the Ministry and got verified from the Central Water & Power Commission, only where there is a likelihood of its making some contribution. The present practice of sending copies of Parliament Questions to the Commission, as a matter of routine, for their comments involves duplication of work and should be discouraged.

6.10. The reason for the recommendations made above is that the Central Water & Power Commission should be able to act as objectively as practicable in the matter of tendering high level advice on technical issues relating to Irrigation and Power. This can be secured only if the Commission reorient their method of working. We have observed, during the course of our studies, that the usual practice in the CW&PC is to start consideration of most of the technical matters at the lowest level and then to work them up through a series of gradations to the highest level. There are very few issues which are discussed by the Commission as a whole. The purpose of appointing a Commission is that it should examine the issues referred to it as a corporate body. The members may be appointed because of their specialised experience in particular fields but the subjects are inter-related. The Commission should, therefore, take a co-ordinated view of issues arising in relation to the entire work in the Irrigation & Power Sector. In case the opinion of each Member is to be construed as the advice of the Commission as a whole, the CW&PC might as well be replaced by consultants having experience of a specialised nature.

6.11. One of the possible objections against the above suggestion is that the time of the Members will be wasted if all types of questions were considered by the Commission jointly. The division of work may, for the convenience of arranging business, be made on a functional basis but the privilege of working as a Commission should be shared by all the Members and not only by the Chairman. As an illustration, we give below a number of subjects which could be regarded as the concern of the Commission as a whole:—

- (a) Programmes of Basic Studies.
- (b) Consideration of basin-wise Irrigation & Power Plans.
- (c) Power System Planning.
- (d) Manuals prepared by the Commission and standards proposed to be prescribed.
- (e) Technical examination of projects at various stages, i.e. on receipt, at the time of issuing comments to Chief

Engineers, and before final comments are passed on to the Advisory Committee to the Planning Commission.

- (f) Important technical features relating to designs and construction aspects of projects referred to the Commission.
- (g) Important administrative and organisational matters.

6.12. We would make the following recommendations for regulating the work of the Commission more purposefully and for ensuring better co-ordination than existing at present:—

- (i) Projects received in the Commission for technical examination should be scrutinised by the Member (Projects) personally who should draw up a note for consideration by the Commission as a whole. Scrutiny in the respective Directorates should be undertaken only after the Commission has given its directions.
- (ii) Other important matters referred to the Commission should be considered similarly.
- (iii) The Commission as a whole should review the work of each Directorate once a month. A suitable *pro forma* should be evolved for preparing such review by each Directorate. This should indicate targets, when they can be fixed, and the state of their realisation. The discussions of the Commission on this and other issues should be minuted and forwarded to the I & P Ministry.

We envisage that the Commission will be meeting once a week.

6.13. The pyramidal system of arranging work in the Commission is, in our opinion, wasteful of talent and time. The base of the pyramid is far too broad for the requirements of the Commission. We have not gone into the staffing at the lower levels in meticulous detail but, from the work studies carried out by us, we have formed the opinion that the base could be contracted appreciably. We would, therefore, suggest that details of the lower staff should be worked out in consultation with the Ministries of Irrigation & Power and Finance. We think that it would add to the efficiency of the Commission if 25% of the posts of Dy. Directors and below were reduced. The degree of reduction will depend upon an appreciation of individual work-load and performance in pursuance of the principles of reorganisation recommended elsewhere in this report.

6.14. At present, too many levels are involved in consideration of questions in the Commission without making commensurate contribution. We think that except for complicated issues arising in a Directorate, a part of the straight-forward work can go directly from the Deputy Director to the Member. It could return to the former via the Director so that he could be kept in touch with developments. The co-ordination in the charge of a Director or a Member could be secured by a round-the-table meeting twice a month.

6.15 A proper method of circulation of fresh receipts also helps in exercising control. We suggest that all the fresh receipts of the day should be seen by the Director and he should mark the more important ones to the Member concerned before these are passed on to the lower levels for examination.

CHAPTER VII

DETAILED ORGANISATIONAL STRUCTURE

7.01. Our work-study was designed to assess work-loads of Directorates as a whole including their methods of work but it was not intended to determine work-loads of individual officers. We have reached the conclusion, from a consideration of the material placed before us and from discussions that we have held with the various authorities, that the senior staff of the Commission needs some rationalisation while there is considerable room for reduction amongst the junior staff. We have already indicated our views regarding the extent to which this reduction can be carried out. We do not, therefore, propose to deal here with staff below the level of Director.

7.02. We are not suggesting any change in the broad organisation of the Commission as it exists at present. The work of the Commission should continue to be allocated among Directorates on a functional basis. The Directorates should then be grouped into convenient charges of Members on the basis of work-loads and inter-relationship of functions.

7.03. The statement at page 41 shows at a glance the number of posts of Members, Chief Engineers, Directors and Superintending Engineers, asked for by the CW&PC in their original memoranda, the number that they have proposed in their revised memorandum and the number that we consider should be adequate. We envisage that the work of the Commission would be adequately carried out by a Chairman, seven Members, and a Secretary. We have made this recommendation on the basis of the Commission continuing to exist as a single body. We have given our reasons for this recommendation at several places in this Report and particularly in Chapter IX.

7.04. The Commission should have three broad divisions dealing, respectively, with work relating to water resources, power subjects and common services. Four out of the seven Members should deal with water resources; three with power development, and the common services should be included in the charge of the Chairman. The total number of Directorates should be 23. Their grouping among the charges of the Members is indicated in the chart at Appendix V.

7.05. The seven Members proposed will have the following broad distribution of work among themselves:—

- (1) Planning, Investigations and Water Utilisation;
- (2) Designs;
- (3) Projects;

Statement of Staff of the C. W. & P. C.

(E. & E. and above)

Name of Post	Existing		Originally proposed by C. W. & P. C.		Subsequently proposed by C. W. & P. C.		Proposed by the Reorganisation Committee	
	No.	Annual Expenditure	No.	Annual Expenditure	No.	Annual Expenditure	No.	Annual Expenditure
		Rs.		Rs.		Rs.		Rs.
1. Chairman	1	36,000	1	36,000	1	36,000	1	36,000
2. Secretary	..	..	..	..	..	..	1	22,800
<i>Water Wing</i>								
3. Member	2	64,500	8	2,58,000	5	1,61,250	4	1,29,000
4. Chief Engineer	3	1,03,500	..	..	..	..	..	..
3. Director	13	2,44,500	22	4,00,004	14	2,63,368	12	2,25,744
4. Superintending Engineer	5	85,200	6	1,02,240	5	85,200	..	..
TOTAL		5,33,760		7,96,244		5,45,818		4,13,544
<i>Power Wing</i>								
1. Member	2	72,000	5	1,80,000	4	1,44,000	3	1,08,000
2. Chief Engineer	..	..	6	1,36,800	6	1,36,800	..	..
3. Director	12	2,30,400	35	6,72,000	31	5,95,200	11	2,11,200
TOTAL		3,02,400		9,88,800		8,76,000		3,19,200
GRAND TOTAL		8,36,160		17,85,044		14,21,818		7,32,744

- (4) Basic Studies and Research;
- (5) Thermal Power;
- (6) Hydro Power & Power Systems; and
- (7) Power Utilisation.

7.06 We are of the opinion that there is no justification for a separate Flood Wing in the Commission. In the first place, flood control is primarily the function of the States. Secondly, flood control measures cannot be divorced from Irrigation aspects. The data have to be studied in a co-ordinated manner and control measures devised on over-all considerations. The investigation and compilation of data relating to discharge, rainfall, catchment etc., should be the responsibility of the States, particularly in view of the fact that funds for flood control programme are to be included in the States' sector of the Plan, as recently decided* by the Planning Commission. This, we think, is a move in the right direction. We, therefore, suggest that the various Members should deal with such aspects of floods as pertain to subjects included in their respective charges, e.g., flood investigations, if any, will be dealt with by Member, Planning, Investigation and Water Utilisation, and designs of flood control works would be the charge of Member, Designs.

7.07. The salient features of the charges of the Members proposed above are indicated in the following paragraphs.

7.08 The Member, Planning, Investigations and Water Utilisation, will be in-charge of all works connected with Investigations, Hydrology, Irrigation and Water-ways. He may have three Directorates under him—one dealing with Planning & Investigations, the second dealing with Hydrology and Statistics, and the third with Irrigation and Water-ways. He will also have the temporary Directorate of Union Territories under him.

7.09. We have already recommended that investigation work should be done, as far as possible, in the States, and the CW&PC should not undertake this work save in exceptional cases. We, therefore, think that one Directorate should be able to deal with whatever investigation work that may ultimately remain with the CW&PC. It will also co-ordinate the work now being done and to be done in the States.

7.10. We do not propose any major changes in the functions of the Directorate of Hydrology and Statistics. Our general recommendations about methods of work should apply here also.

7.11. We consider that the existing Waterways, Irrigation and Navigation Directorate needs reorganisation both as regards its functions and methods of work. In the Irrigation and Waterways Directorate proposed by us more emphasis should be given to the work of assessment of irrigation potential of the river basins, preparation of irrigation maps, publication of annual reviews of irrigation in India etc. The work relating to water-ways should be planned in a more realistic manner than in the past.

*Planning Commission Letter No. NR-10(3)/59, dated 21-2-59.

7.12. As regards the Directorate of Union Territories, we are of the opinion that the work does not properly belong to the Commission. However, the Directorate may continue on a temporary basis till alternative arrangements are made to carry on this work.

7.13. The Member, Designs, will be incharge of the designs of dams, canals and flood works, and will have two Directorates under him viz. (i) Directorate of Canals, including Flood Designs; and (ii) Directorate of Dams.

7.14. The prestige of the Commission depends mainly on its acknowledged supremacy in the field of designs. It is, therefore, necessary that the Directorates dealing with designs work in the Commission should receive close and continuous attention from the Member, Designs. We have, however, observed that the Member, Designs, is at present performing miscellaneous duties of diverse character not directly related to designs, such as allocation of foreign exchange, scarce materials, plant & machinery, etc. This may have been necessitated because of the fact that the Commission did not always have its full strength in the past. We would recommend that in future the Member, Designs, should be placed in the exclusive charge of the Directorates dealing with designs work in the Commission.

7.15. The Member for Projects would be allotted work relating to technical examination, cost control, advice on constructional problems including plan layout, etc. The Member, Projects, will normally attend the meetings of the Control Boards except in case where the presence of any other Member is necessary having regard to the subjects included in the agenda. He will also be in-charge of miscellaneous work arising in the Commission, which is not related to the charge of other Members. The work of tendering advice to other Ministries and Projects is an example of this kind of work. Recently, the number of references of this type has increased considerably. They do not always required special study. The advice sought for could be given by an experienced Engineer who is in touch with the work of the Commission. The fact that the advice has been sought for by other Ministries inevitably tends to push up the level of disposal of this work, which may not be warranted otherwise. We suggest that work of this nature should be centralised in the Commission under the Member, Projects. We think that a Deputy Director of adequate training and experience should normally be able to dispose of most of this work. We would suggest that all fresh receipts in the Commission on this account should be marked to him in the first instance. He should deal with them under the guidance of the Member/Director, Technical Examination. In case specialised treatment is necessary, the Member, Projects, should obtain the directions of the Chairman before transferring the papers to other Directorates for disposal.

7.16. The Member, Projects, will have the following Directorates under him:—

- (1) Technical Examination.
- (2) Cost Control & Miscellaneous work.
- (3) Construction Plant & Machinery.

7.17. The Member, Basic Studies and Research, will have the following Directorates under him:—

- (1) Manuals & Standardisation.
- (2) Basin-wise studies.
- (3) The Research Station, Poona.

It will be the duty of the Director, Manuals and Standardisation, to draw up a programme of preparation of manuals in the Commission. He will collect the necessary materials from different Directorates and have the manuals prepared in his own Directorate according to the programme drawn up. He will also deal with standardisation and the work connected with the Indian Standards Institution.

7.18. We have already drawn attention to the importance of basic studies, like preparation of basin-wise reports of different river basins. It will be the function of the Directorate of Basin-wise Studies to prepare a programme of such studies indicating therein the part to be played by the different States and the CW&PC. It will be his duty to obtain necessary data from the States who will normally collect, compile, consolidate and interpret these data, and prepare basin-wise reports.

7.19. Member, Basic Studies, will also be in-charge of research. He will have the Central Water and Power Research Station, Poona, under him. It will be his function, to formulate the programme of research and to obtain the concurrence of the Commission in it. In doing so he will co-ordinate with the Central Board of Irrigation and Power. After the research programme has been framed, it will be his duty to remain in touch with the progress and to bring it up for discussion in the Commission at regular intervals.

7.20. We will now deal with the division of work among the three Members proposed for Power development. The activities of the Commission in this respect can be broadly classified as below:—

- (i) Thermal power generation;
- (ii) Hydro Power generation;
- (iii) Transmission and distribution of power; and
- (iv) Utilisation of power.

The above classification is based on the techniques employed in a properly planned power system.

7.21. We are at present on the eve of a large programme of development of Thermal Power (coal) to increase the country's installed power capacity. By the end of the Second Plan the installed thermal capacity is expected to amount to 2.88 million kw. which will be 41% of the then total public electric power supply capacity; it will also represent 63% increase of thermal capacity over that at the beginning of the Second Plan. We, therefore, recommend a Member (Thermal) to be solely in-charge of the Commission's work of assisting in planning and execution of installation of this generating capacity in different areas on a co-ordinated and efficient basis. He has to deal with special problems e.g. utilisation of the large resources of low grade and high ash content coals for generating power economically. The Member will be assisted by two Directors—one for layout and general designs of Thermal Power Stations, and another for specifications and contracts connected with procurement of suitable equipment for the power stations. The temporary cell created

in the Power Wing for engineering and preparation of specifications for establishment of the 200 MW thermal power station at Neyveli will also work under this Member. As the country's resources of technicians, experienced in practices of large high pressure steam power stations, are particularly limited, we recommend active measures for training a number of them in the country and abroad.

7.22. One Member should direct work on problems of utilising water resources for generation of hydro-electric power. Although, construction works of a number of large multi-purpose hydro-electric projects, which were commenced in the First and Second Five Year Plans, are now in advanced stages of progress e.g. Bhakra Nangal, Hirakud, D.V.C., Chambal etc., it will not be correct to assume, as the CW&PC has done, that in future hydro-power development in the country will be largely through single-purpose projects. With a rainfall, as this country has, limited only to a few months in the year, the water resources of every nullah and valley must be conserved and used for several purposes in a co-ordinated manner. This may be said to be of prime necessity to the community. The economic generation of hydro power should also be co-ordinated with other uses of water. The demand of the several uses for the water in the valley cannot be fixed for all times, it must necessarily vary as communities grow, and irrigation and industries develop. The co-ordination of these uses should be planned in a flexible manner. It is essential that the Commission as a whole views the river water uses of the country with these objectives and helps in planning and executing projects, from time to time, for the different uses.

7.23. Two Directors should handle the Hydro-power station details—one for layout and designs, and the other for specifications and contracts. The Member-in-charge of the section can also deal with other work of the Commission—he will have one Director to assist in technical examination of Power Projects, and another to organise and process research on power system problems. The latter Director will participate in the work of co-ordination of power and communication circuits; he will also co-ordinate work on Standards and Designs manuals.

7.24. We do not consider that the volume of work at present justifies a separate Member for Transmission and Distribution of power. We suggest that a senior Director should handle this work. He will deal with problems of power systems designs, such as layout of suitable high voltage transmission lines and receiving stations required for transmitting power to load centres which will also serve as high capacity links to inter-connect thermal as well as hydro generating stations.

This Directorate will deal with Transmission as a whole and will serve both the Member (Hydro Power) and the Member (Thermal) though it will be under the administrative control of the former. The Directorate will also supervise hydro-electric power surveys where the Commission is rendering this service to the State Electricity Board or other local authorities.

7.25. The growth of low voltage distribution lines and particularly of rural supply lines will be reviewed in a separate Directorate in the Power Utilisation section of the Commission.

7.26. The erection and commissioning of large generating plant and its auxiliaries in Hydro and Thermal power stations is still being

carried out by technicians from abroad on behalf of the foreign manufacturers who are supplying such plants. Though, we were unable to obtain precise figures of expenditure incurred on foreign technicians working in our Irrigation & Power Projects, it can be generally stated that the amount involved is quite substantial and constitutes a considerable drain on our foreign exchange resources. It is very desirable that we rapidly train and develop such talent ourselves, as it will not only save foreign exchange but will also make a valuable addition to the technical resources of the country. Experienced personnel for this work should be developed in the power systems of the States and Electricity Boards. We would also suggest that the I&P Ministry should collect from all the States/Projects etc., full details of expenditure on foreign technicians and consultants, separately for Water and Power Projects, year to year from now onwards. This would provide a reliable index of our dependence on foreign experts, and of the efforts made to become self-supporting.

7.27. To help areas which are relatively under-developed, one or two squads of such erection personnel may also be developed in the CW&PC. There will be work for all these units in the power programmes of the Second and Third Plans. The CW&PC's squads (one Hydro and one Thermal) may be built up as temporary units in the first instance, in the Thermal and Hydro sections.

7.28. In view of the specialised nature of the work, it will be necessary to create a separate cadre for erection purposes. To begin with, the highest officer in the cadre who may be called Erection Superintendent, may be of the grade of Deputy Director but as the work and responsibility increase, the post may be up-graded to that of a Director. These units may be initially built up in the CW & PC, and should be transferred to the National Projects Construction Corporation when the training is completed and they have gained some experience.

7.29. A separate Member will, as now, be in-charge of the Power Utilisation section. There will be three Directorates in this section.—one for Load Surveys and acceleration of rural electricity supplies, a temporary one for assisting Union Territories in solving their power supply problems, and a third for collection and publication of data relating to progress of power development and its uses in the country. The third Directorate will also deal with legislation and commercial questions like power supply tariffs agreements, etc., that may arise between the various State Electricity Boards and their consumers including the Central Government establishments.

7.30. The CW&PC is maintaining, at present an elaborate field organisation for carrying out load survey in the States, and proposes to maintain this organisation further for a number of years. The justification was that this work was not properly organised in the States and that in the absence of dependable data, the Commission would not find itself in a position to tender advice to the Ministry of I&P or the Planning Commission on Power Development in the country. It was also argued that there was no uniform pattern for load survey obtaining in the different States. The Commission proposes to transfer this work to the States when the latter have equipped themselves to take it over.

7.31. Electricity Boards have now been constituted in almost all the States. Development of power is the primary function of these Boards. This function can be satisfactorily performed only if the Boards collect dependable data concerning load development. It should, therefore, be left to the Boards themselves to undertake this primary function of conducting load surveys within their jurisdictions. It should be made clear to them that no new project would be sanctioned unless it is supported by a reliable load survey. So long as the Centre continues to conduct load surveys on behalf of the States/Boards, the latter would remain inclined to pay scant attention to this primary function. We, therefore, recommend that the field staff of the Load Survey Directorate should be dispensed with as early as possible and the work in hand transferred to the respective States/Boards. Every effort should be made to persuade the States/Boards to take over this field staff.

7.32. The CW&PC has specifically asked for the posts of one Member and three Chief Engineers to deal with the various items of work listed in our Terms of Reference No. (V). We have discussed these proposals with the Members of the Commission and have also consulted the Railway Board and the Hindustan Steel Ltd. It transpires that the CW&PC had received no specific request from any of these organisations for expert assistance of the type contemplated. We understand that these organisations are building up their own technical experts to deal with their specific requirements. In any case, ready-made experts of this nature are not available in the CW&PC. We were informed that the Commission would have to build them up by getting them specially trained in the industries concerned in the country or abroad. In the circumstances, we do not consider that it is necessary for the CW&PC to provide for this service within its own organisation. The co-ordinating requirements of these industries, as far as the Commission is concerned, would mainly relate to proper power supplies for their working, and standardising of electrical equipment used in such industries to conform, where possible, to the practices employed in the field of general power supply. The Commission is already rendering such assistance. As the volume of such work is on the increase due to starting of State Steel Plants, Coal Boards, etc., we have provided for two Deputy Directors to head two Directorates in the Utilisation Section, to handle this extra work.

7.33. In our opinion, common services would include:—

- (i) Administration and Co-ordination;
- (ii) Publications & Publicity;
- (iii) Library, information and control room; and
- (iv) Seminars.

The first is, of course, the most important item in this category. We were surprised to find that though the present unified Commission was formed in 1951, its two wings have maintained their separate administrations upto now. This has contributed to a large extent to the difficulties of the Commission functioning as a unified body. We consider it as matter of the utmost importance that the administrative matters of the Commission should be handled in one place in a unified manner under the charge of the Chairman.

7.34. The Chairman will be assisted by the Secretary to the Commission in managing the common services. He may be of the level of a Director. He may be assisted by suitable staff including one or two administrative officers.

7.35. It will be observed that the proposed organisation does not contain the following existing Directorates and Sections:—

- (i) Plant & Machinery.
- (ii) Silt and Construction Materials.
- (iii) Flood Control Designs.
- (iv) Four Investigation Circles and two Flood Sections.

We have already suggested that the work relating to distribution of plant and machinery, allocation of scarce materials, and foreign exchange should be transferred from the Commission to the I & P Ministry. We have, therefore, not provided for any organisation in the Commission to deal with this work. The Directorate of Construction Plant & Machinery, provided for under the Member (Projects) is intended to deal with construction plant layout and other construction problems arising on the projects.

7.36. We are of the opinion that the work at present being done in the Silt & Construction Materials Directorate is a duplication of the work that is being done in a number of research institutions in the States and Projects throughout the country. It is not necessary to maintain a separate Laboratory and a Directorate at Delhi for this work. We, therefore, suggest that the Directorate should be abolished and the Laboratory at Delhi be amalgamated with the Research Station at Poona.

7.37. We have already suggested that the work at present being done in the Directorate of Flood Control Designs should in future, be dealt with in the Canals Directorate under the Member, Designs. Similarly, the work being done in the other two sections of the Flood Wing would be distributed among the appropriate Directorates according to the nature of work. We have also suggested that investigation work should be transferred to the States. Any residual work in respect of flood investigations and co-ordination may be done in the Directorate of Planning & Investigations.

7.38. We have also been asked to report on the desirability of setting up a unit in the Commission for assessment of efficiency of operation and management etc. of the electric supply undertakings in the public sector. We do not think that a probe by a Central organisation into the working of electrical undertakings of the State Governments and State Electricity Boards, under the present constitutional set-up, would either be welcomed by the State Governments, or yield results commensurate with the effort and expenditure involved. We raised this point during our discussion with the CW&PC and gathered the impression that they were not in disagreement with our views on this subject. We suggest that the proposal should be deferred till the electricity systems in the States have gone beyond the present developmental stage and become stabilised. When that stage has been reached, the States themselves might invite the CW&PC to help them to assess the working efficiency of their undertakings.

CHAPTER VIII

RECRUITMENT, PROMOTION, TRAINING AND OTHER PERSONNEL MATTERS.

8.01. The present procedure of recruitment and promotion to different levels of posts in the Commission is as follows:—

Chairman/Members.—These are tenure posts, the period of tenure being five years. The incumbents are selected on the basis of merit from amongst the Superintending Engineers and Chief Engineers of the States, or the Directors of the CW&PC who have rendered continuous service for not less than seven years in the grade of Director.

Directors (Power Wing).—These are non-tenure posts and are filled either by promotion of Deputy Directors of the CW&PC who have rendered continuous service for not less than four years in the grade of Deputy Director, or by obtaining officers on deputation from the States/Electricity Boards.

Directors (Water Wing).—These are tenure posts, the period being four years, and are filled by officers on deputation from the States, and also by promotion of Deputy Directors/Superintending Engineers of the CW&PC.

Superintending Engineers (Water Wing).—The post of S.E. is essentially a field appointment. There should normally be no room for such posts in a consulting organisation like the CW&PC. As, however, the CW&PC has been taking up some investigation work and also construction work on an *ad hoc* basis, e.g., Hirakud Project, a number of temporary posts of S.Es. came into existence. Whenever, officers for the post of Directors were not available, these posts were down-graded, to the status of Superintending Engineers, on a temporary basis. All posts of Superintending Engineers in the Organisation are temporary and no specific tenure has been fixed for them. Recruitment to these posts is either by promotion of Deputy Directors/Executive Engineers of the CW&PC with five years' continuous service, or by obtaining officers on deputation from the States.

Deputy Directors.—These posts are normally filled by promotion of Assistant Directors of the CW&PC with at least $4\frac{1}{2}$ years' continuous service in the grade of Assistant Director. E.A.Ds. with more than $7\frac{1}{2}$ years' continuous service in the grade are also eligible for promotion as Deputy Directors. There have, however, been instances where direct recruitment was resorted to, or officers were obtained on deputation from the States.

Assistant Directors.—50 per cent. of these posts are filled by promotion of Extra Assistant Directors in the CW&PC with at least three years' continuous service, and the remaining 50 per cent. by direct recruitment through the UPSC.

Extra Assistant Directors.—Two-thirds of these posts are filled by direct recruitment through the UPSC, and one-third by promotion of departmental candidates.

8.02. In its memorandum relating to the Water Wing, the Commission has proposed that at least 75 per cent of the vacancies in the grade of Directors/Members should be reserved for officers of the Commission and not more than 25 per cent. be filled by officers drawn from the State Governments. It has also been proposed that the posts of Directors should be made non-tenure so that it is possible for the present incumbents of these posts to be confirmed.

8.03. We have carefully considered this matter and are of the opinion that the posts of Members and the Chairman should continue to be tenure posts. The normal tenure of Chairman or Member should be five years. Since the age of superannuation is 55 years, we suggest that a Chairman or Member of the Commission may continue to serve up to the age of 60 years, provided that his total term in the Commission as a Member, Chairman, or both, does not exceed five years. The field of selection for Members/Chairman should be restricted to eminent Chief Engineers with construction experience of at least two years in the capacity of Chief Engineer. A Director of the CW&PC will become eligible for selection only if he has acquired construction experience for at least two years in the capacity of Chief Engineer in a State, Project or Electricity Board.

8.04. We consider it unnecessary to over-emphasize the fact that the prestige of the Commission would depend entirely on the calibre of its Chairman and Members. Every effort must be made to select the best available talent in the country to man the Commission. The method of selection is, therefore, an important factor. We recommend that a Selection Committee should be appointed to advise the Ministry in the choice of the Chairman and Members. This Committee should consist of the Secretary, Irrigation and Power Ministry, the Chairman CW&PC, and Senior Consultants of the CW&PC (referred to in para 9.10 of this report). We further recommend that with the concurrence of the UPSC, one of their Members should also be associated with the Selection Committee. We feel that this procedure will make the selection broad-based and inspire confidence in the minds of all concerned. The Ministry should maintain a list of serving and retired Chief Engineers with particulars of their experience for the use of the Committee.

8.05. If the CW&PC is to play successfully and effectively its role of the highest consulting organisation in the country in the field of Irrigation and Power, it is necessary that the arrangements for staffing should be so devised as to obtain the best available talent in the country.

8.06. Knowledge of local conditions in different States should be represented among the Commission's staff and this is not possible

until it is drawn, as far as practicable, from all the States. This applies particularly to two branches of its work, namely, Irrigation and Power planning and examination of projects.

8.07. We are of the view that these conditions cannot be satisfied if the officers recruited directly to the CW&PC, predominate in its overall composition. We, however, recognise that there is justification for maintaining a nucleus of permanent staff in the Commission for the sake of continuity of experience. This has become all the more necessary because of the practical difficulties faced by the CW&PC in securing a sufficient number of suitable officers on deputation from the States. Further, it is necessary to provide avenues for promotion for the staff of the CW&PC.

8.08. Taking all these factors into consideration, we make the following suggestions and recommend that these principles should be applied uniformly to the staff both on the Water and Power sides:—

Directors.—One-half of the posts should be filled by officers on deputation from the States, the period of deputation being four years. The remaining one-half of the posts should be permanent, intended to be filled by promotion of Deputy Directors of the Commission. Only officers with a minimum of six years' continuous service in the grade of Deputy Director, out of which at least three years must be in the field, should be eligible for promotion.

Deputy Directors.—One-half of the number of posts should be for officers on deputation from the States for a period of three years. The other half should be filled by promotion of Assistant Directors of the Commission with a continuous service of not less than six years in that grade, out of which at least three years must be in the field.

Assistant Directors.—One-half of the posts should be filled by officers on deputation from the States for a period of three years. The other half should be for officers to be recruited directly through the UPSC by means of a competitive examination. The CW&PC should arrange for field training during the period of probation.

8.09. We would suggest the abolition of the posts of E.A.Ds. in the Commission. The present system of the intermediate promotion of Extra Assistant Directors to the Grade of Assistant Directors will have to be reconsidered in the light of the above recommendation. We suggest that the existing E.A.Ds. should be screened and those who have completed six years' service should be included in a panel for promotion as Deputy Directors directly after they have acquired field experience for another three years. 25 per cent. of the promotion vacancies in the posts of Deputy Directors should be reserved for promotion of E.A.Ds. until the list gets exhausted.

8.10. We consider that there should be no cadre of Design Assistants in the Commission. Estimators, Computers and Draftsmen should be employed instead, for technical jobs of a routine nature. We have, however, no objection to a limited number of temporary

posts of Design Assistants (Technical) being retained in the transitional period, in case an adequate supply of Computers and Draftsmen etc. is not readily available.

8.11. We would suggest that the cadre strength of the various posts, below the Director's level, should be reviewed by the authorities concerned in the context of the work load, keeping in view at the same time, the desirability of providing adequate chances of promotion for all grades of officers in the Commission. An embargo should be laid on fresh recruitment till the staff requirements of the various cadres have been assessed and the reorganisation of the Commission completed.

8.12. A large number of tenure posts in a high level technical consulting organisation like the CW&PC requires that a satisfactory mechanism should be devised for securing the services of officers of suitable qualifications and experience, on deputation from the States, Projects and Electricity Boards. Unfortunately, the experience of the Ministry of I & P so far has not been happy in this regard. Requests for the loan of suitable officers made through correspondence have yielded practically no results. We recognise that the State Governments also have difficulties of their own in sparing their experienced officers for deputation to the Centre. It has, however, to be remembered that the CW&PC is an organisation for the benefit of the States. The better this organisation is equipped in trained man-power, the greater would be the advantage that the States can derive from its services.

8.13. The States should, therefore, be persuaded to enlarge their engineering cadres suitably so as to provide for an adequate reserve for deputation to the Centre. If, for any particular reason, the States do not accept the proposal, the programme of work of the Commission should be curtailed. The alternative of enlarging the permanent cadre of the CW&PC is inadvisable and is in any case not likely to facilitate the realisation of the objectives of the Commission. It will, in our opinion, be a wrong policy to maintain the CW&PC at a particular volume of staffing with officers not possessing adequate experience.

8.14. It is also necessary that the States should be more closely associated than hitherto with the procedure of selection of officers for the tenure posts. We gathered the impression that neither the CW&PC nor the States were happy about the present procedure of selection in which there is a tendency on the part of the former to ask for individual officers, and on the part of the latter to send officers who have neither the requisite experience nor any aptitude for work in the Commission. We feel that such a position arises due to lack of proper appreciation of each other's requirements on both States. It would, therefore, appear to be necessary to provide for a forum for consultation for this purpose so that the view-point of either side is better understood than at present.

8.15. This was one of the subjects we discussed with the Chief Engineers of a number of States. They agreed with our view that there should be a Committee for selection of officers from the States for manning deputation posts in the CW&PC. This Committee should:

consist of the Secretary, I & P Ministry, the Chairman, CW&PC, and two selected Chief Engineers from the States who should hold office for one year by rotation. In addition, the Chief Engineers and the Secretaries, I & P departments of the States concerned, should be co-opted as members when matters concerning their officers are under discussion. The broad functions of the Committee would be to draw up State-wise lists of officers that could be made available to the CW&PC at three months' notice, after consideration of the needs of either side.

8.16. If the officers in the field of selection are employees of the State Electricity Boards, the Chairman of the Board concerned may also be associated with this Committee. We have no doubt that with such association of the State Governments in the selection of officers, the desired flow of officers with appropriate experience for the deputation posts in the Commission, could be ensured. There is a feeling in the States that once an officer is deputed to the Centre, he is lost to the State for ever. There is, no doubt, some justification for this impression. We, therefore, recommend that the period of tenure should be strictly enforced so as to ensure a two-way traffic of officers between the States and the Centre. Unless this is done, there is little prospect of success for this deputation scheme.

8.17. We attach great importance to the necessity of imparting field training to the permanent officers of the CW&PC at all levels below the Members. We have already drawn attention to the inadequacy of field experience among the engineers working in the Commission. In our opinion, no officer should become eligible for promotion to the next higher rank unless he has had adequate field experience in his grade. For this purpose, it is necessary that satisfactory arrangements should be made with the State Governments, Project Authorities and Electricity Boards, for providing opportunities for practical training to the CW&PC officers according to a carefully planned programme. It is necessary to ensure that officers under training are not placed merely in supernumerary charge of a field job, but hold a regular charge for an adequate period. As practical training would be an essential qualification for promotion to the next grade, we consider that no deputation allowance should be paid to officers sent out for training. The reluctance of an officer to avail himself of opportunities for such training offered to him should disqualify him for further promotion until he has gained the requisite experience in the field. At the same time, it becomes the responsibility of the CW&PC to arrange for the field training of officers.

8.18. We envisage some hardship to officers who may not find suitable opportunities for training in view of the heavy back-log in this respect in the past. We, however, apprehend that once exemptions are granted from field training in special cases, they are likely to become the general rule in course of time. While we are against such exemptions being granted, we consider that some suitable interim arrangements will have to be made which may not secure the maximum experience for an officer recommended by us, but would provide him with the elements of essential experience required for manning the higher posts. We are sure that if a proper roster is

prepared and adhered to, the necessity for exemptions arising would become remote.

8.19. We are of the view that such training can be accommodated within the present strength of the CW&PC and that, at this stage, there is no need for providing an additional training reserve. When, however, the strength has been fixed on the basis of a detailed work-study, a suitable training reserve should also be provided.

8.20. Difficulties sometimes arise when the scale of pay in the States, projects etc. happens to be lower than the salary the officer concerned is drawing in the Commission. In such cases, the Ministry of I & P should be prepared to make good the difference.

8.21. Another suitable avenue for imparting field training and experience of construction to officers, has come into being with the setting up of the National Projects Construction Corporation by the Ministry of I & P. Full use should be made of this organisation to impart field training to the officers of the CW&PC. We recommend that a certain proportion of the staff of the Corporation should, subject to suitability, always be drawn from the training reserve of the CW&PC.

8.22. The difficulty in obtaining suitable officers in sufficient number for the tenure posts in the CW&PC has inevitably resulted in a considerable dilution of standards. Arrangements to fill in vacancies by making *ad hoc* selections have led to the rapid promotion of officers who would not, under normal circumstances, have been included in the field of selection. We feel that length of experience is a very important factor in building up the expertise and maturity of judgment of an officer in a technical consultant organisation. Promotions at a rapidly accelerated rate tend to lower the prestige of the higher posts and of the organisation to which they belong. This also creates cadre difficulties in the placement of deputation officers in the organisation. It may happen that when a qualified officer with the requisite experience is not available for promotion to a particular vacancy, the situation may require the promotion of an officer not ordinarily included in the field of selection. Instead of such an officer being promoted on a regular basis, he can be placed in charge of the higher post on his existing salary plus a small allowance. The fact that this opportunity comes his way, confers a benefit on him which is likely to help him in his future career.

8.23. We have been struck by the anomaly of selection grades existing in the Commission. The scale of a Deputy Director (Selection Grade) is Rs. 1300-1600 p.m. which happens to be identical with the scale of a Superintending Engineer in the same organisation. Similarly, the scale of Director (Selection Grade) is Rs. 1800-2000 p.m. which is also the scale of the Chief Engineer in the CW&PC. This results in an officer drawing pay in a higher scale without having to shoulder the responsibility of the higher post for which that scale is normally prescribed. We suggest that a suitable revision of the Selection Grade scales should be made. Selection Grade posts are ordinarily intended to prevent stagnation in a cadre when an officer in the ordinary grade has reached the maximum of the ordinary scale and avenues of further promotion are not available for the time

being. The practice in the Commission, however has been to treat the Selection Grade as a normal promotion post, and very junior officers drawing salaries far below the maximum of the ordinary scale, have been given Selection Grade posts.

8.24. The CW&PC being essentially a technical advisory body, the designations and grades of posts adopted are the same as in similar organisations like the Railway Board, i.e., Chairman, Member, Director, Deputy Director etc. In the Water Wing, however, the designations and grades of Chief Engineer & Superintending Engineer, which are essentially intended for a field assignment, have also been introduced. The Power Wing, however, has had no difficulty in carrying out its work without bringing in this grade of field officers. We consider that the grade of S.E. is incongruous with the set-up of a technical organisation such as the CW&PC and introduces an unnecessary level between the Deputy Director and Director, and should, therefore, be abolished.

CHAPTER IX

OTHER ADMINISTRATIVE MATTERS

Bifurcation of CW & PC

9.01. Our sixth Term of Reference is to consider the question whether the Commission may be bifurcated into two separate Commissions, one dealing with Power and the other with Irrigation, Navigation and Flood Control. The arguments advanced in support of the proposed bifurcation are as follows:—

- (1) The two Wings had previously functioned as separate organisations and their amalgamation in 1951, has not been a success. There is not much in common between the two organisations and they have functioned more or less independently.
- (2) The cadres in the two Wings are separate.
- (3) Electricity is a concurrent subject, whereas Irrigation is a State subject, and as such the extent of the responsibility of the Centre is not uniform for the two subjects.
- (4) In all the States of India, Irrigation and Electricity Departments are functioning independently and separately.
- (5) With the increase in the functions of the Power Wing, it seems necessary, in the interest of efficiency and harmonious working, to have a separate manageable unit which would be capable of discharging its functions and responsibilities more adequately than the combined organisation.

9.02. We have examined this question very carefully and are of opinion that the existing organisation should not be split up into two Commissions. Our view is based on the following considerations.

9.03. The considerations responsible for the decision of Government to amalgamate the CWINC and the CEC into one organisation in 1951, still continue to exist. There is a considerable area common to both the Water and Power Wings so far as hydro-electric projects are concerned. In fact, utilisation of the resources of the Commission should be conceived as a whole and the two aspects of water for power, and water for irrigation, cannot be separated.

9.04. In hydro-electric projects, civil engineering works constitute 75 to 80 per cent. of the cost of the Project. Even in the case of a thermal project, the civil engineering portion forms an important part of the project cost. This part of the work has to be handled by civil engineers and if the services of such engineers of the Water Wing are not available to the Power Wing, they will have to set up a separate Civil Engineering Organisation of their own. Similarly, the Water Wing will need to have a hydro-electric section to deal with

multipurpose projects if it were completely separated from the Power Wing. All this will lead to endless duplication on both sides.

9.05. Electricity and Irrigation are now being dealt with separately in the States—Irrigation by the State Irrigation Departments, and Electricity by the State Electricity Boards. The fact that these two functions are performed separately at State levels is, if anything, an argument in favour of having a unified organisation at the Centre. This organisation would be capable of taking an integrated view of water and power development in the country.

9.06. Experience in other countries shows that advantages of a combined authority for water and power development are being increasingly recognised and there is a move for better integration in this field in countries like the U.S.A. and China.

9.07. The fact that the two Wings have not functioned as an integrated organisation should not be cited as an argument for bifurcation. This, we consider, was a lacuna in the working of the Commission in the past, and steps should be taken to remove this drawback. We would make the following suggestions in this regard:—

- (a) The Commission should work as a corporate body. Rules of Business should be framed to ensure this, and followed rigidly.
- (b) There should be regular weekly meetings of the Commission to consider important technical problems, and to discuss and deal with administrative matters.

A formal record of the proceedings should be kept and a copy sent to the Ministry for information. The Ministry should scrutinise these proceedings to ensure that the Commission functions as a corporate body.

9.08. The Commission has sought to justify its proposed bifurcation on the ground that the functions of the Power Wing will be substantially enlarged on account of their being required to render high level technical assistance and advice in regard to the generation, transmission and utilisation of power in the following sectors:—

- (a) Heavy industries in the Public Sector;
- (b) Railway electrification schemes;
- (c) Production of Power by nuclear energy;
- (d) Manufacturing industries producing heavy and light electrical machinery and power consuming apparatus.

9.09. During discussions with the CW & PC it transpired that no formal request had been received from the industries concerned that the Commission should equip itself for rendering high level technical assistance and advice to them. In fact, we understand that each of these industries, e.g., Steel, Heavy Electrical Machinery, is building up its own set of experts for the various problems connected with that particular industry, including utilisation of power. We consider that this is the correct approach. The responsibility of the CW & PC should be confined to advising these organisations on the availability of power, its actual utilisation being left to the industry itself. Secondly, no experts of the type required exist in the CW & PC at present. Experts will have to be trained and built up. For example, during discussion with the Commission, we understood that if they are to provide an expert in Railway Electrification, their intention is to get him trained by actual experience in the Railway

Organisations. We feel, it would be a more effective method if such an expert were to be trained by the Railways themselves. We understand that this is in fact what the Railway Ministry proposes to do. We do not, therefore, see justification for any considerable expansion of the responsibilities of the Power Wing in this respect.

Consultants

9.10. We feel that the expertise available in the Commission should be augmented by a panel of consultants drawn from the ranks of experienced outstanding retired engineers in the field of irrigation and power. An expert on this panel could be consulted as occasion arises concerning individual projects or problems, either singly or as a member of an *ad hoc* Committee. It is always of advantage to have a second opinion on important designs prepared even by a highly expert organisation. We, therefore, recommend that this consultative panel should also be utilised for checking up designs originally prepared by the CW & PC. We understand that similar recommendations regarding the setting up of a panel of consultants were also made by the COPP team on I. & P. in their report on the Chambal Project. We are informed that these recommendations were accepted by the Government and are now under implementation.

Relationship between the CW & PC and other Organisations

9.11. The proper role of the CW & PC is to function as the technical adviser to the Ministry of I & P, the Planning Commission, and the States. Being the highest advisory body in the field of irrigation & power, the advice of the Commission in technical matters should be accepted. We find that the Ministry of I & P and the Planning Commission had set up a large number of committees to examine and report on some specific questions in the field of irrigation and power. The necessity for setting up of such *ad hoc* committees would have been minimised, if not altogether obviated, if the Ministry and the Planning Commission had felt that the CW & PC was properly equipped for tendering advice on those specific problems. We have suggested the association of eminent retired engineers as consultants to the Commission. It will now be open to the Commission to draw on the mature experience of these consultants for dealing with specific problems whenever they feel this to be necessary. The best available engineering talent in the country would thus be available to contribute their knowledge and experience to the solution of problems before the Commission. In view of this arrangement, the advice of the CW & PC in technical matters should be accepted by the Ministry of I & P, the Planning Commission and the States.

9.12. As observed earlier in this Report, there is a certain amount of overlapping in the functions of the CW & PC and the statutory functions of the Central Electricity Authority. Some of the common functions relate to carrying out investigations and collecting and recording data concerning the generation, utilisation and distribution of power. The CEA is not performing these functions because they are being carried out by the CW & PC. Nor has the CEA taken any steps for the development of a national power policy and the co-ordination of activities of the planning agencies in relation to the

control and utilisation of power resources. This work also is at present being handled in the CW & PC. We are of the view that the CW & PC should continue to handle this work and that the Electricity (Supply) Act, 1948, should be suitably amended, as early as possible, to relieve the CEA of these functions.

Control Room.

9.13. The CW & PC has a separate cell in its Control Room for maintenance of statistics relating to projects that have been sanctioned and are under execution. Engineers have been employed in this Cell for compiling and maintaining statistical information. The work handled by them was examined by the Central Statistical Organisation and they recommended the replacement of the engineering staff by statisticians. The CW & PC, however, did not agree to the proposed alteration. This question has now been referred to us for our opinion. We have examined the type of information which is at present collected and compiled in the Control Room. We feel that a number of engineers are being wasted on this non-engineering assignment. The country is short of experienced engineers and we agree with the recommendation of the Central Statistical Organisation and suggest that the engineers employed in the Control Room may be replaced by statisticians as early as possible.

Foreign Delegations.

9.14. It will be seen from the statement referred to in item (c) of paragraph 4.27 that during the last few years the Chairman and the Members of the CW & PC remained outside the country for considerable periods. It appears that while selecting delegations for attending International conferences abroad, the field of choice is limited almost entirely to the senior-most experts available in the Commission. The effect of this practice is that, not only does the Commission lose the services of its senior-most officers frequently and for considerable periods, but also that junior officers are deprived of the opportunity of acquiring experience abroad and of making contacts in the international field. We would suggest that officers of middling seniority from the Commission and from the States/Electricity Boards should find adequate representation in the composition of delegations sent abroad.

Accommodation

9.15. We would like to draw attention to a matter which constitutes a serious handicap in the efficient working of the CW & PC. Different sections of the Commission are located in various buildings all over New Delhi. The major portion of the Power Wing is located in Simla. Under these conditions, it becomes virtually impossible for the Members and Chairman of the Commission to supervise effectively the work of the various Directorates in their charge or to give them prompt guidance. If the CW & PC is located in a single building, not only would the movement of papers from one section to another become quicker, but considerable savings would also be effected in the travelling allowance paid to officers for journeys between Delhi and Simla and the expenditure on trunk telephone calls. We feel that the CW & PC should be treated on lines analogous to the various National Laboratories and provided with proper office and housing accommodation to facilitate high-level technical work.

CHAPTER X

CONCLUSION

The Irrigation and Power sector occupies a very prominent place in the national development programme. In the first Five Year Plan, this sector claimed an allocation of Rs. 661 crores which constituted 27% of the entire Plan provision. The second Five Year Plan envisaged an even more vigorous programme of development by providing an outlay of Rs. 955 crores for irrigation, power and flood control schemes. This is as it should be. Irrigation is the principal key to larger agricultural production which is the prime necessity of the country in its present stage of development. Power is necessary not merely for industrialization but also for bringing about an improvement in rural economy. It is obvious that for many years to come, irrigation and power schemes will continue to occupy a place of pride in the development plans of the country. The Central Water and Power Commission plays a prominent role in the finalisation of water and power schemes throughout the country. It is the function of the Commission to provide the required expertise in these fields so as to ensure that the limited financial resources of the country are utilized to the best advantage possible. The CW & PC has thus to play the important role of "friend, philosopher and guide" to the State Governments and Electricity Boards. It is with this object in mind that we have envisaged the reorganization of the Commission and made the recommendations contained in the foregoing chapters. If our recommendations result in the Commission being better equipped to meet the present needs of the country, we would consider our labour well rewarded.

Sd/- B. K. GOKHALE,

Sd/- A. C. MITRA,

Sd/- M. S. THIRUMALE IYENGAR,

Sd/- N. N. IENGAR,

Sd/- INDARJIT SINGH,

Sd/- R. R. BAHL,

APPENDIX I

(Ref. paragraph 2.11)

GOVERNMENT OF INDIA

MINISTRY OF NATURAL RESOURCES AND SCIENTIFIC RESEARCH

No. EL-1-201 (5)

New Delhi, the 21st April, 1951

RESOLUTION

The Government of India have reviewed the position regarding the two organisations at present dealing with Electricity and Waterways Development viz. the Central Electricity Commission and the Central Waterpower, Irrigation and Navigation Commission which were set up vide the late Ministry of Works, Mines and Power's Resolution-Nos. EL-1-201 (1) and DW. XVI-1(1), dated the 16th January, 1948. They have now decided, on grounds of economy and efficiency, to amalgamate these two organizations and constitute them into one organisation to be known as the Central Water and Power Commission. The composition, functions, etc. of the Central Water and Power Commission shall be as follows :—

1. *Central Water and Power Commission.*—The Commission will take over the functions of the Central Waterpower, Irrigation and Navigation Commission and also those of the Central Electricity Commission.

2. *Composition of the Commission.*—The Commission will be a strong technical organisation, and when fully constituted, will consist of a Chairman and four Members, two of them directing the Water Wing and the other two directing the Power Wing, and such other full-time or part-time Members as Government may, from time to time, find necessary. The Chairman and full-time Members will be fully qualified engineers. The Chairman will also be *ex-officio* Consulting Engineer to the Government of India. In order to give due emphasis to the needs of both Water and Power problems, and to co-ordinate the Designs work, three sub-committees, viz. Water Sub-Committee, Power Sub-Committee and the Designs Sub-Committee will be constituted. The Chairman of these Sub-Committees will be nominated by the Government of India for a specified period in the first instance out of the four Members of the Commission.

3. *Functions of the Commission.*—The Commission will be charged with the general responsibility of initiating, co-ordinating and furthering, in consultation with the State Governments concerned, schemes for the control, conservation and utilisation of Water resources, throughout the country, for purposes of flood control, irrigation, navigation and waterpower generation, as well as schemes of thermal power development and also schemes of transmission and utilisation of electric energy throughout the country. The Commission will, if so required, also undertake the construction and execution of any such schemes. In exercise of the above responsibilities it will be the function of the Commission—

- (a) to make all necessary investigations and surveys and when so required, to prepare schemes and designs :
 - (i) for the development of river valleys in respect of power generation, irrigation by gravity flow or lift, navigation, flood control, soil conservation, antiwater logging measures, reclamation of alkaline and saline soils, drainage and other related facilities such as malaria control, recreation and fish culture ; and
 - (ii) for thermal electric power development ;
- (b) to undertake construction work on any river valley development or electric power development schemes on behalf of the Government of India or State Governments concerned ;

- (c) to advise and assist, when so required, the State Governments (Commissions, Corporations or Boards that may be set up) in the investigation, surveys and preparation of river valley and power development schemes for particular areas and regions and in the surveying of potential sources of load, the forecasting of revenue from electricity supply and the formulation of electricity tariffs ;
- (d) to advise the Government of India in respect of water and waterpower rights and disputes as between different units, of the effect which any scheme for the conservation and utilisation of water may have on the interests of the concerned units and of the interpretation of agreements in this regard between different units and any matter that may be referred to the Commission in connection with river valley development ;
- (e) to advise the Central and State Governments on the administration of electricity legislation and control of electric utilities ;
- (f) to advise the Government of India in regard to all matters relating to electric power development, public electric utilities both private and State owned ;
- (g) to advise the Government of India in regard to the settlement of priorities for plant, materials and foreign exchange as between various river valley development and power projects ;
- (h) to collect, co-ordinate the collection of, publish and analyse data relating to waterways, tidal rivers, rainfall, run-off and temperature, ground water resources, silting and reservoirs, behaviour of hydraulic structure, etc., and to act as the Central Bureau of Information in respect of these matters ;
- (i) to collect, maintain and publish statistical data relating to the generation, distribution and utilisation of electricity throughout India and to act as the Central Bureau of Information on all matters relating to the public electricity supply ;
- (j) to initiate schemes and arrange for the training of Indian Engineers in India and abroad in all aspects of river valley development and electricity supply industry ;
- (k) to standardise instruments, methods of observation and record, materials and construction, designs and operational features ;
- (l) to review and lay down for the whole of India standard voltages and practices for generation, transmission and distribution of electrical energy ;
- (m) to conduct and co-ordinate research on the various aspects of river valley development schemes such as flood control, irrigation, navigation, power development etc., and the connected structural and design features ; and
- (n) to conduct experiments, research, propaganda, and generally to carry out such other activities as will promote the spread and use of electricity throughout the country, in particular in the semi-urban and rural areas.

ORDER

ORDERED that Resolution No. EL-1-201(1), dated the 16th January, 1948, setting up the Central Electricity Commission and Resolution No. DW.XVI-1(1), dated the 16th January, 1948 setting up the Central Waterpower, Irrigation and Navigation Commission, shall stand cancelled and that this Resolution be communicated to all State Governments, all Chief Commissioners, the Several Ministries of the Government of India, Prime Minister's Secretariat, Cabinet Secretariat, Parliament Sectt., the Private and Military Secretaries to the President, all Indian Embassies and the High Commissioners for India in foreign countries, the Planning Commission and the Comptroller and Auditor General of India.

ORDERED ALSO that the Resolution be published in Gazette of India, for general information.

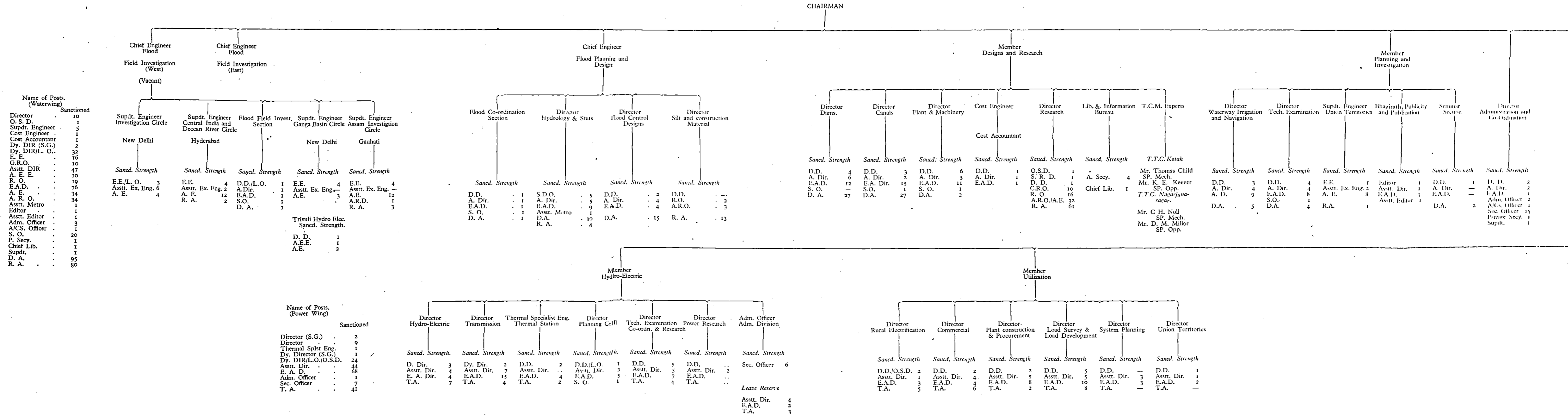
(Sd.) A. N. KHOSLA,

Addl. Secretary to the Govt. of India.

ORGANISATION CHART OF CENTRAL WATER AND POWER COMMISSION
(AS ON THE 1ST JUNE, 1958)

LEAVE RESERVE

Asstt. Dir. 8
E. A. Dir. 6



APPENDIX III

(Reference paragraph 5.22)

NAMES OF SCHEMES THAT HAVE SO FAR BEEN ENTRUSTED TO THE CENTRAL WATER AND POWER COMMISSION FOR INVESTIGATIONS.

I. *Andhra Pradesh and Orissa.*

(1) Vamsadhara Project (Investigations of alternative site at Gudari).

II. *Assam.*

(2) Kopili Project.

(3) Jamuna Irrigation Scheme.

(4) Killing Project.

(5) Borpani Project.

(6) Barak Dam Project.

(7) Diyung Dam Project.

(8) Investigations of Dam sites in the Dehing basin (Namphuk, Namchik and Tirap).

(9) Subansiri Dam Project.

(10) Manas Project.

III. *Bihar.*

(11) Kosi.

IV. *Bombay.*

(12) Ukai Dam Project.

(13) Breoch Project.

(14) Sabarmati.

(15) Kakrapar.

V. *Jammu and Kashmir.*

(16) Reservoir Scheme on Chenab.

VI. *Madhya Pradesh.*

(17) Hasdeo Project.

(18) Upper Wainganga Project.

(19) Bah Project.

(20) Sagar Project.

(21) Halali Project.

(22) Barna Project.

(23) Kolar Project.

(24) Upper Ken Valley Development Scheme.

(25) Kesiyari Project.

(26) Nagda Project.

(27) Raigon Project.

(28) Paveri Canal Scheme.

(29) Cnatat Reservoir Scheme.

- (30) Nagod Canal Scheme.
- (31) Unchera Canal Scheme.
- (32) West Sohawal Scheme.
- (33) Punasa Dam Project.
- (34) Bara Talav Scheme.
- (35) Sindh Reservoir Scheme.
- (36) Chachai Development Scheme (Touo river).
- (37) Bargi.
- (38) Tawa.
- (39) Upper Mahanadi Project.
- (40) Jonk Project.

VII. *Madhya Pradesh and Bombay.*

- (41) Investigations of dam sites below Punasa.

VIII. *Mysore (Coorg).*

- (42) Harangi Project.
- (43) Barapole.
- (44) Lakshmana tirtha.

IX. *Orissa.*

- (45) Hirakud Project.

X. *Rajasthan.*

- (46) Banas Project.
- (47) Kantli Project.
- (48) Rajasthan Canal Project.

XI. *West Bengal.*

- (49) Ganga Barrage (Farraka).

FLOW CHART OF SCRUTINY OF PROJECTS BY CENTRAL WATER AND POWER COMMISSION

APPENDIX IV

I. WATER WING

Ref. paragraph 5.21

Name of Project & Amount	Date of receipt in C.W.P.C.	Reference to different Directorate and receipt back	Comments by C.W.P.C.	Reply by State Chief Engineer	Further comments by C.W.P.C.	Reply by State Chief Engineer	Final comments by C.W.P.C.	Time lag between columns (2) & (8) (in months)	Remarks
1	2	3	4	5	6	7	8	9	10
1. Salki Project, Orissa. Rs. 52.85 lakhs.	5-9-55	..	7-11-55	20-3-56	31-7-56	6-12-56	21-2-57	17	Projects below Rs. 1 crore (S. No. 1 to 4) are examined in T. E. Directorate only. Those above Rs. 1 crore (S. No. 5-7) are examined in the various Directorates concerned and consolidated in Technical Examination Directorate which alone correspond with the State Chief Engineers. The field of scrutiny is the same in both cases, viz. (a) Planning (b) Hydrology. (c) Irrigation. (d) Designs.
2. Suwarna Project, Andhra Rs. 44.18 lakhs.	10-1-58	..	4-3-58	13-4-58	..	..	1-5-58	4	
3. Jambadahalla Project, Mysore. Rs. 40.0 lakhs.	4-11-55	..	8-6-56	8-9-56	..	..	20-12-56	13	
4. West Banas Irrigation Project, Rajasthan. Rs. 48.75 lakhs.	4-9-56	..	14-3-57	25-3-57	..	..	4-6-57	9	
5. Halhimati Reservoir Project, Bombay. Rs. 184 lakhs.	14-7-55	Canals Dams	21-7-55 19-12-55 21-7-55 27-8-55	17-7-56	29-9-56	26-12-56	

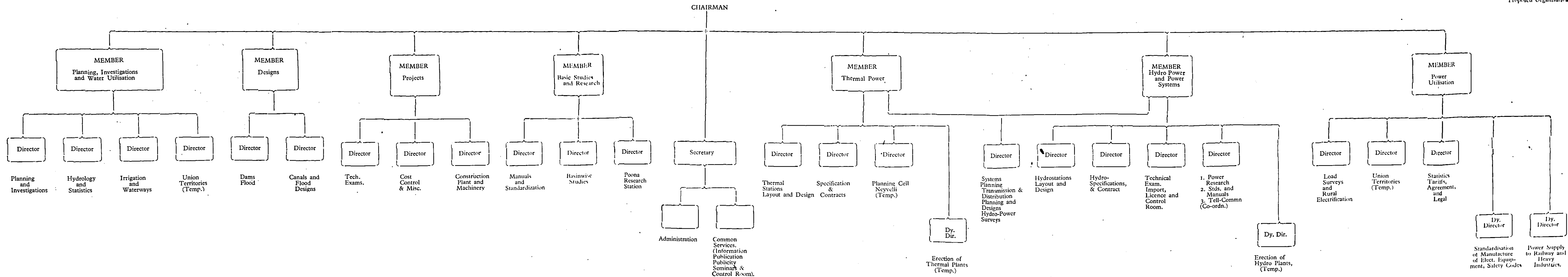
	1	2	3	4	5	6	7	8	9	10
			H. & S. 5-9-55 28-10-55							(e) Estimate. (f) Financial Returns and Forecasts.
			WIN . 14-9-55 10-12-55							
			Fin. Officer . 14-9-55							
			P. C. . 12-10-55							
6. Maja Reservoir Project, U. P.] Rs. 177 lakhs.	31-5-56	Canals . 3-6-55 5-11-55	7-12-55	31-3-56	28-3-57	12-6-57	8-11-57		29	
		Dams . 21-7-55 6-10-55								
		H & S] 3-6-55 7-7-55								
		WIN. . 3-6-55 22-9-55								
		Fin. Officer. . 8-8-55								
		P. C. . 10-9-55								
7. Meswa Reservoir Project Bombay, Rs. 121.57 lakhs.	20-7-55	Canals . 21-7-55 9-12-55	14-8-57	14-11-56			14-2-57		19	
		Dams . 21-7-55 13-1-56								
		WIN . 13-9-55 15-12-55								
		H. & S. 8-9-55 13-1-56								
		F.O.P.C. 8-9-55 13-1-56								

II. POWER WING

8. Transmission & Distribution, Madras. Rs. 1591 lakhs.	13-1-55	Transmission.	19-1-55 25-1-55 9-6-55 25-6-55	30-4-55	5-6-55 (First Revised Report)	..	22-11-55 (Final Scheme Report)	14-2-56	13	After receipt of the first revised report on 5-6-55 further discussions were held with the C.E. as a result of which the final scheme report was prepared by him and sent.
		Rural Elect.	19-1-55 23-3-55 26-11-55 11-2-56							
9. Panniar H. E. Scheme Kerala, Rs. 324.0 lakhs.	17-1-55	Hydro-Electric	28-1-55 2-4-55	30-8-55	17-10-55	4-6-56	..	20-8-56	19	(i) Only one copy of the Scheme Report was received on 17-1-55. Additional copies were received on 18-3-55.
		Water Wing	19-3-55 14-12-55							(2) After sending further comments of C.W.P.C. on 4-6-56 discussions were held with the C. E. on the basis of which final comments were sent on 20-8-56.
		Transmission	21-3-55 22-3-55							
10. Birsinghpur Thermal Power Station, Madhya Pradesh. Rs. 1062.69 lakhs	26-5-57	Thermal	28-5-57 13-7-57	9-10-57	27-11-57	..	6-6-58	22-8-58	15	Discussions were held with the C. E. after receipt of his comments on 27-11-57 as a result of which the final scheme report was sent by him on 6-6-58.
		Transmission.	16-7-57 9-8-57 18-6-58 21-8-58							

1	2	3	4	5	6	7	8	9	10		
11.	Umtynagar Steam Power Station, Assam. Rs. 193.13 lakhs.	12-2-56	Thermal	16-2-56 14-8-56 27-5-57 3-6-57		17-5-57 (Revised)	24-3-57	16-12-57	20-2-58	24	(1) Discussions were held with C. E. before final comments were sent. (2) Assistance was given to Assam Engineers to finalise the scheme report.
12.	Sibru H. E. Project Stage I, Andhra Pradesh. Rs. 927.58 lakhs.	13-7-55	H.E.	21-7-55 2-8-55 10-5-58 12-5-58	13-9-55			13-4-58 (Revised report).	27-10-58	39½	There were :— (1) Discussions between Water Wing and the C.E. (2) Visit to site by Member.
			Transmission	21-7-55 9-8-55 24-4-58 21-7-58							
			W. W.	21-7-55 4-6-56 10-5-58 27-8-58							
13.	Barajadi (1) Suvendranagar Bombay (2) Rs. 70.0 lakhs.	2-11-57 (Transmit) 4-9-58 (Distt.)	Transmission	12-11-57 7-3-58	7-6-58	15-7-58	22-7-58	4-9-58	26-10-58	12	
			R. E.	20-9-58 3-10-58							
			Load Survey and Load Dev.	15-5-58 29-5-58							

CENTRAL WATER AND POWER COMMISSION



APPENDIX VI

SUMMARY OF RECOMMENDATIONS

- | Serial No. | Para. No. | |
|------------|-----------|---|
| 1 | 4·17 | The functions of the C. E. A. other than arbitration, as laid down in Section 3 of the Electricity (Supply) Act, 1948, should, by an amendment of the Act, be taken out of its purview. The C. E. A. should be renamed as the Standing Arbitration Board. |
| 2 | 4·28-29 | The States which have not yet been able to equip themselves with technical organisations to reasonable standards, should be assisted to do so within as short a time as practicable. A time limit should be set for liquidating organisations created in the C. W. & P. C. for the purpose of rendering routine assistance to the States. |
| 3 | 4·30 | There should be a proper balance between the functions that should be organised at the Centre and in the States in the Power Sector. |
| 4 | 4·33 | An embargo should be placed on expansion of activities of the C. W. & P. C., if adequately trained staff is not available. |
| 5 | 5·02 | Each State Government/Electricity Board should have the following minimum organisations:—
(i) an investigations and planning cell ; and
(ii) a designs cell. |
| 6 | 5·03 | The States/Electricity Boards should make their own arrangements for load survey. Suitable measures, as suggested should be taken by the C. W. & P. C. to see that the States Boards do not inflate their figures. |
| 7 | 5·05-06 | A Plan of Assistance, on the lines of the Colombo Plan, should be organised to pool the experienced technical personnel of the Centre and the States in the I. & P. Sector, for use wherever they are needed most. The Planning Commission may appoint a Committee of two or three Engineer Consultants and a Senior Finance Officer with administration and management experience to make a quick assessment of the needs of the States in trained manpower in the I. & P. Sector. |
| 8 | 5·07 | The functions of the re-organised C. W. & P. C. should be generally to:
(a) formulate an all-India Plan of action embracing the Centre and the States; |

- | Serial No. | Para. No. | |
|------------|-----------|---|
| | | (b) review the original work done in the States from an all-India angle; and |
| | | (c) assist the States with the necessary technical staff in an emergency. |
| 9 | 5·08 | For an adequate technical appreciation of the Plan proposals, the C. W. & P. C. should consolidate relevant data basin-wise and develop plans from these data in order to check that the proposals made lead to the optimum use of the resources on an economic basis, and also that the schemes are technically sound, financially feasible, and have been fully investigated. |
| 10 | 5·09 | The responsibility of the C. W. & P. C. in the basin-wise studies should be (i) to lay down a time table for such studies, (ii) to apportion the work amongst the State Governments, and (iii) if necessary, to recommend measures for assistance to the State Governments for this purpose.

The major gaps in the basin-wise data should be filled within the next five years so that a greater degree of accuracy is imported into the planning of Irrigation and Power Projects than hitherto. |
| 11 | 5·10 | The C.W. & P.C. should not devote detailed attention to schemes costing below Rs. one crore. It may, if necessary, review such schemes broadly, when inter-State interests are involved. |
| 12 | 5·11 | The State Governments should plan in advance the priorities and types of projects costing below Rs. one crore and send to the C.W. & P.C. only a brief description of such projects in a proforma designed for this purpose, to enable the C.W. & P.C. to see (i) whether any inter-State ramifications arise, and (ii) whether an ordinary irrigation Project is being included as a flood project. A detailed examination by the C.W. & P.C. will be necessary only if any projects answer the above description. |
| 13 | 5·13 | The C. W. & P. C. should plan the work of obtaining basic hydrological data necessary for basin-wise studies. The actual collection of such data should be entrusted to the States. |
| 14 | 5·15 | The Commission should lay down a definite time-schedule for basin-wise studies taking into account the part to be played by the States, and should place it before the Co-ordination Board of Ministers for adoption. |

- | Serial
No. | Para.
No. | |
|---------------|--------------|---|
| 15 | 5·16 | The Commission should periodically evaluate the basic studies and send regular reports thereon to the I. & P. Ministry and the States. |
| 16 | 5·17 | An additional post of Member should be created for a period of 3 to 5 years for implementing the programme of basic studies. |
| 17 | 5·18-19 | The C.W. & P.C. should continue to function as the Central Organisation for the preparation of designs of a complicated nature. Such work should be undertaken only on request and the technical officers of the State/Project concerned should be associated with the preparation of designs. A Scheme should also be drawn up for the utilization of the experienced personnel for designs work from projects nearing completion. |
| 18 | 5·23 | Investigations should, in future, as far as possible, be taken up by the States only. The existing staff engaged on this work in the C.W. & P.C. should be dispersed to the States after the investigations in progress have been completed. |
| 19 | 5·24 | The C.W. & P.C. should prepare a programme for investigations and, in consultation with States, demarcate the staff required having regard to its total availability. Periodic conferences of the I. & P. Ministry and the States may be held in order to evaluate the progress made in respect of the investigations. |
| 20 | 5·31 | All Projects costing below Rs. one crore should be dealt with by the State Chief Engineers except in cases where their inter-State implications are required to be examined by the C.W. & P.C. |
| 21 | 5·32 | A drill for authorisation of projects in future prescribed in this paragraph, has been suggested for adoption. |
| 22 | 5·33 | The C.W. & P.C. should not undertake construction work. The existing Erection Unit for small thermal plants may, however, continue until the States have equipped themselves for such work. |
| 23 | 5·34-35 | The Commission should concern itself with the progress of construction and phasing of projects by (i) receiving regular progress reports (ii) personal visits; and (iii) by attending Control Board meetings. The evaluation of selected projects may continue to be organised by the Committee on Plan Projects. |

- | Serial
No. | Para.
No. | |
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| 24 | 6·03-04 | The C. W. & P. C. should continue to function as an Attached Office. Neither its Chairman nor Members need be given any <i>ex-officio</i> status in the Ministry. |
| 25 | 6·05-08 | The following items of work should be transferred from the C.W. & P.C. to the Ministry: <ul style="list-style-type: none"> (i) allocation of foreign exchange; (ii) rationalisation and distribution of plant and machinery; and (iii) allocation of scarce materials. <p>Technical officers may be appointed in the Ministry to handle this work.</p> <p>The C. W. & P. C. should, however, be kept informed about the material prepared in the Ministry on these subjects, and should also be associated with final discussions involving high level technical appreciation.</p> |
| 26 | 6·09 | The work relating to Parliament questions should be handled in the Ministry as far as possible. The C.W. & P.C. should be consulted only where there is a likelihood of its making some contribution. |
| 27 | 6·10-12 | The Commission should examine the issues referred to it as a corporate body. Important matters including projects received for scrutiny should initially be placed before the Commission. Detailed examination in the Directorates should be undertaken only after the Commission has given its directions. The Commission should also review the work of each Directorate once a month. |
| 28 | 6·13 | It would add to the efficiency of the Commission if 25% of the posts of Deputy Directors and below were reduced. The 'details of the lower staff should be worked out in consultation with the Ministries of I. & P. and Finance. |
| 29 | 6·14 | There is considerable scope for level-jumping in the flow of work, <i>i.e.</i> , cases, other than complicated issues, can go from Deputy Director directly to the Member. |
| 30 | 6·15 | All fresh receipts should be seen by the Director, and he should submit the more important ones to the Member. |
| 31 | 7·03 | The work of the Commission would be adequately carried out by a Chairman, seven Members, and a Secretary. |

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| 32 | 7·04 | Four out of the seven Members should deal with water resources; three with power development. The total number of Directorates should be 23. |
| 33 | 7·05 | The seven Members proposed will have the following broad distribution of work among themselves:—
(1) Planning, Investigations and Water Utilization;
(2) Designs;
(3) Projects ;
(4) Basic Studies and Research ;
(5) Thermal Power ;
(6) Hydro Power and Power Systems; and
(7) Power Utilization. |
| 34 | 7·06 | There should be no separate Flood Wing in the Commission. The various Members should deal with such aspects of floods as pertain to subjects included in their respective charges. |
| 35 | 7·08 | Member, Planning, Investigations and Water Utilisation, will be in-charge of the following Directorates:—
(i) Planning and Investigations ;
(ii) Hydrology and Statistics;
(iii) Irrigation and Waterways; and
(iv) Union Territories (Temporary). |
| 36 | 7·13-14 | Member, Designs, will have the following Directorates under him:—
(i) Canals including Flood Designs;
(ii) Dams.
He should be placed in exclusive charge of these Directorates to enable him to devote undivided attention to designs work. |
| 37 | 7·15-16 | Member, Projects, will deal with the following Directorates :—
(1) Technical Examination ;
(2) Cost Control; and
(3) Construction Plant and Machinery.
He will normally attend the meetings of the Control Boards except in cases where the presence of any other Member is necessary. He will also be in charge of miscellaneous work in the Commission, such as tendering advice to other Ministries and Projects. This work should be handled, under his guidance, by a Deputy Director. |

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| 38 | 7·17 | Member, Basic Studies and Research, will have the following Directorates under him:—
(1) Manuals and Standardisation ;
(2) Basin-wise Studies; and
(3) Research Station, Poona. |
| 39 | 7·21 | Member, Thermal Power, will be solely in charge of the work of planning and execution of installation of Thermal Stations. He will have the following three Directorates under him :—
(1) Thermal Stations, layout and designs ;
(2) Thermal Stations, specifications and contracts; and
(3) Planning Cell, Neyveli (Temporary).

Active measures should be taken for training engineers in the techniques of large high pressure steam power stations. |
| 40 | 7·22-23 | Member, Hydro Power and Power Systems, will deal with the following Directorates:—
(1) Hydro Stations, layout and designs;
(2) Hydro Stations, specifications and contracts ;
(3) Technical Examination; and
(4) Power Research, Standardisation and Manuals, Tele-Communication Co-ordination. |
| 41 | 7·24 | There is no justification for a separate Member for Transmission and Distribution of power. A senior Director should handle this work. He should also supervise hydro-electric power surveys. |
| 42 | 7·25 | The growth of low voltage distribution and rural supply lines should be reviewed in a separate Directorate in the Power Utilisation Section. |
| 43 | 7·26 | Technicians for erection and commissioning of large power generating plant should be rapidly trained and developed in the power systems of the States/ Electricity Boards. The Irrigation and Power Ministry should collect from all the States/ Projects full details of expenditure on foreign technicians and consultants, separately for Water and Power Projects. |
| 44 | 7·27-28 | Two Erection Squads (one Hydro and one Thermal) may be built up in the Central Water and Power Commission on a temporary basis for helping areas that are relatively under-developed. These should in due course be transferred to the N.P.C.C. |

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| 45 | 7-29 | Member, Power Utilisation, will have the following Directorates under him:—
(1) Load Surveys and Rural Electrification ;
(2) Statistics, Tariffs and Legislation; and
(3) Union Territories (Temporary). |
| 46 | 7-30-31 | The States Electricity Boards should themselves undertake load survey of the areas within their jurisdiction. The field staff of the Load Survey Directorate of the Central Water and Power Commission together with the work in hand should be transferred to the States/Boards. |
| 47 | 7-32 | It is not necessary for the Central Water and Power Commission to equip itself for rendering high level technical advice to heavy industries in the Public sector, railways, or manufacturing industries producing heavy and light electrical machinery, etc. The Commission should advise such industries only in regard to proper power supplies for their working, and standardisation of electrical equipment used by them to conform to practices employed in the field of general power supply. To handle the increasing volume of work in this regard, two Deputy Directors may be appointed to head two Directorates in the Utilisation Section. |
| 48 | 7-33-34 | Administrative matters of the Commission should be handled in one place in a unified manner under the charge of the Chairman. The Chairman should be assisted by the Secretary to the Commission in managing common services. |
| 49 | 7-35-37 | The re-organised Commission will not have the following existing Directorates :
(1) Plant and Machinery ;
(2) Silt and Construction materials;
(3) Flood Control Designs; and
(4) Four Investigation Circles and two Flood Sections. |

The work in respect of (1) will be largely transferred to the Irrigation and Power Ministry. The Directorate of Construction, Plant and Machinery, provided for under Member (Projects) would deal with construction plant layout and other construction problems.

The Directorate at (2) should be abolished and the existing laboratory at Delhi amalgamated with the

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| | | The work at present being done in the Directorate of Flood Control Design should in future be dealt with in the Canals Directorate under Member (Designs). Similarly, the work being done in the other two sections of the Flood Wing should be distributed among the appropriate Directorates according to the nature of work. Investigation work should be transferred to the States. Any residual work in respect of flood investigations and co-ordination may be done in the Directorate of Planning and Investigations. |
| 50 | 7-38 | The proposal to set up a unit in the Commission for assessment of efficiency of operation and management of electric supply undertakings in the public sector should be deferred till the electricity systems in the States have gone beyond the present developmental stage and get stabilised. |
| 51 | 8-03 | The posts of Members and the Chairman should continue to be tenure posts. The normal tenure of these posts should be five years. A Chairman or Member may continue to serve up to the age of 60 years provided his total term in the Commission as a Member, Chairman or both, does not exceed five years. The field of selection for Members/Chairman should be restricted to eminent Chief Engineers with construction experience of at least two years in the capacity of Chief Engineer. A Director of the Commission will become eligible for selection only if he has acquired experience for at least two years in the capacity of Chief Engineer in a State, Project or Electricity Board. |
| 52 | 8-04 | A Selection Committee should be appointed to advise the Ministry of Irrigation and Power in the choice of Chairman and Members. |
| 53 | 8-08 | One-half of the posts in the grades of Directors and Deputy Directors should be filled by Officers on deputation from the States, and the other half should be filled by promotion of officers of the Commission in the grades next below. One-half of the posts of Assistant Directors should be filled by officers on deputation from the States, and the other half by direct recruitment through the Union Public Service Commission. |
| 54 | 8-09 | The posts of E. A. Ds. should be abolished. |
| 55 | 8-10 | There should be no cadre of Design Assistants, Computers and Draftsmen should be employed instead, for technical jobs of routine nature. |

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56	8-11	The cadre strength of the various posts below the Director's level, should be reviewed and fresh recruitment suspended till the re-organisation is completed.
57	8-13	The States should be persuaded to enlarge their engineering cadres to provide for an adequate reserve for deputation to the Centre. If they do not accept the proposal, the programme of work should be curtailed.
58	14-15	A Committee should be appointed for selection of officers from the States. The States should be associated with the procedure of selection of officers for deputation to the Commission by giving them representation on this Committee.
59	8-16	The period of tenure should be strictly adhered to.
60	8-17	No officer should become eligible for promotion to the next higher rank unless he has adequate field experience in his grade. The Commission should depute its officers to the States, Projects and Electricity Boards for field training according to a carefully planned programme.
61	8-18	If the heavy back-log of untrained officers does not permit arrangements being made for thier training, as recommended in the Report, some suitable interim arrangements may be made to provide them with the elements of essential experience required for manning the higher posts.
62	8-19	The training should at present be accommodated within the present strength of the C.W. & P.C. When the strength has been fixed on the basis of a detailed work-study, a suitable training reserve should also be provided.
63	8-21	Full use should be made of the N.P.C.C. for imparting field training to the officers of the C.W. & P.C., by drawing a certain proportion of the staff of the Corporation from the training reserve of the Commission.
64	8-22	When an officer with the requisite experience is not available for promotion to a particular vacancy the available officer, not ordinarily included in the field of selection, should not be promoted on a regular basis. He should be placed in charge of the higher post on his existing salary plus a small allowance.
65	8-23	The selection grades should be suitably revised. These should ordinarily be intended to prevent stagnation in a cadre when an officer in the ordinary grade has reached the maximum of the scale and

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		avenues of further promotion are not available for the time being.
66	8·24	The grade of S. E. should be abolished.
67	9·02	The C.W. & P.C. should not be split up into two organisations.
68	9·07	The Commission should work as a corporate body. It should hold weekly meetings to consider important technical and administrative problems. A formal record of the proceedings should be sent to the Ministry who should scrutinise them to ensure that the Commission functions as a corporate body.
69	9·09	There is no justification for any considerable expansion of the responsibilities of the Power Wing for rendering assistance to heavy industries in the Public sector, railway electrification schemes, production of power by nuclear energy or industries producing heavy and light electrical machinery.
70	9·10	A panel of consultants drawn from the ranks of outstanding retired engineers should be constituted for consultation concerning individual projects or problems and for checking up designs originally prepared by the C.W. & P.C.
71	9·11	The advice of the C.W. & P.C. in technical matters should be accepted by the Ministry of I. & P., the Planning Commission and the States.
72	9·12	The C.W. & P.C. should continue to handle the work relating to carrying out investigations and collecting and recording power data, and co-ordination of activities of the planning agencies in relation to the control and utilisation of power resources. The Electricity (Supply) Act, 1948 should be amended to relieve the C.E.A. of these functions.
73	9·13	The engineers employed in the Control Room should be replaced by statisticians as early as possible.
74	9·14	Officers of middling seniority from the Commission/States should find adequate representation in the composition of delegations sent abroad.
75	9·15	The C.W. & P.C. should be treated on the lines analogous to the various National Laboratories and provided with proper office and housing accommodation to facilitate high-level technical work.