

CONFIDENTIAL

**REPORT OF THE COMMITTEE
TO REVIEW THE FUNCTIONING OF THE
CENTRAL WATER & POWER COMMISSION**

1967-69

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Scientific Adviser to the
Defence Minister.

MINISTRY OF DEFENCE
South Block,
New Delhi-11.

March 28, 1969.

Dear Dr. Rao,

I have pleasure in submitting the report of the CW&PC Reorganisation Committee constituted by the Government of India in their Memorandum No.19/50/66-Adm.I dated 24th February, 1967 with myself as Chairman, and Sarvashri M.R. Chopra, K.P.S. Nair, Moti Ram, H.R. Bhatia and K.G.R. Iyer as Members and Shri H. Ramaswamy as Secretary, to review the functioning of the Central Water & Power Commission.

The Committee, during its deliberations, interviewed a number of officers of various departments of the Central Government, State Governments and of State Electricity Boards, who have experience in these matters, besides officials and representatives of various staff associations of the CW&PC. The Committee also visited the institutions of the CW&PC located at Bangalore and Poona. The staff associations of the CW&PC had submitted some memoranda to the Committee.

The broad conclusions arrived at by the Committee indicate that by and large the CW&PC had during the course of its existence over the last two decades discharged its functions satisfactorily commensurate with the status given to the organisation and the responsibilities devolving on those at the top level. Nevertheless, the Committee feels that it could have done much better had it been given adequate powers to deal with the problems at a national level and had it been allowed to follow more liberal and flexible personnel policies by which some of the best technical talent in the country could be attracted to and retained by it.

The recommendations of the Committee are summarised in the last chapter of the Report. The more important amongst them have been directed towards removal of the drawbacks mentioned above, so that the CW&PC could become a high level expert organisation for the whole country specialising in design, consultancy and research work of a very high order, and to which other organisations in the States can look forward for advice and guidance. A few of the main recommendations are given below:-

Recommendation No.1: The Central Government should assume greater responsibility for the regulation and development of inter-State rivers and river valleys.

(ii).

Recommendation No.2: The CW&PC should assume the responsibility for collecting and compiling reliable hydrological data in respect of major inter-State rivers and for preparing basin-wise plans. The responsibilities to be borne by the Commission in this respect are given in para 12 of Chapter II.

Recommendation No.4: The CW&PC should be charged with the responsibility to prepare Master Plans for irrigation, flood control and for hydro-electric and thermal power for the whole country. Within these limits a perspective plan for the next twenty years or so should be prepared, fixing suitable priorities for the schemes so that the investigations, designs and construction proceed systematically in a phased manner.

Recommendation No.6: The CW&PC should form part of the Ministry with Secretarial status for the Chairman and the Vice-Chairman. The Chairman should be a Special Secretary and the Vice-Chairman should be an Additional Secretary. There does not seem to be a better alternative than this in the present circumstances to ensure the smooth and efficient working of CW&PC.

Recommendation No.7: The two Wings of the CW&PC (Water Wing and Power Wing) should not be bifurcated. The Commission should continue to function as a composite body as at present providing opportunities for each Wing to develop its expertise.

Recommendation No.17: The CW&PC should play an effective role in flood control. Details of the functions to be performed by the Commission in this regard are mentioned in para 16 of Chapter IV.

Recommendation No.18: It is not considered desirable that the Commission should involve itself directly in ordinary construction activities. Nevertheless, it is essential that opportunities should be provided to the staff to get the required field and construction experience.

Recommendation No.21: The Central Electricity Authority should concern itself with arbitration work only and its functions other than arbitration should be added on to the Power Wing of the CW&PC after undertaking such legislation as may be necessary. The Committee has endorsed the view of the First Reorganisation Committee in this respect.

Recommendation No.60: The CW&PC should develop flood forecasting systems for all the flood-prone basins of the country. The Member(Floods) may be assisted by a Director at the Centre dealing with coordination of the work of the field units and standardising the methods of flood forecasting. The actual organisation required in the field may be worked out by the CW&PC.

Recommendation No.81: The general administration of CW&PC should be carried out by a Secretariat Officer and not by an Engineer Officer. One of the existing four posts of Under Secretaries should be upgraded to that of a Deputy Secretary and the person appointed to this post be designated as Director(Administration). He, assisted by the three Under Secretaries, will help the Chairman/Vice-Chairman in all general administration concerning each of the Wings of the Commission.

Recommendation No.84: The top level technical posts of Chairman/Vice-Chairman and Members should be treated as tenure posts. The Government may consider the desirability of appointing a high-powered Selection Board for making these appointments on an all-India basis. For the selection of Chairman, the retiring Chairman and for the selection of Members, both the Chairman and the Vice-Chairman should be co-opted as Members of the Selection Board. The Chairman shall be appointed alternatively from the fields of Irrigation and Power.

Recommendation No.85: While the practice of sending a few officers, irrespective of their suitability, to fill in the posts in CW&PC on quota basis is not conducive to building up an effective specialist organisation, every effort should be made to attract the best talent in any specialised field from any part of the country, and this we recommend, can be done up to 25%.

Recommendation No.90: The broad based pyramidal structure into which the Central Water and Power Commission has developed is not conducive to building up of an efficient consulting organisation. This imbalance has to be corrected.

Recommendation No.91: After the Indian Service of Engineers (ISE) cadre is formed, there should be no further recruitment to the present cadre of Assistant Directors outside the ISE. Further, at least 25% of the posts at this level should be surrendered and a corresponding increase in the number of Deputy Directors made.

(iv).

Recommendation No.92: It would be desirable to have a system of time-scales. Officers who complete eligibility in their grade should be considered for promotion and in deserving cases the promotions should not be stopped for reasons of lack of posts in the higher cadre. This can be achieved by having a flexible cadre structure and by giving the organisation the liberty to have an ex cadre post till such time as necessary. For the growth of specialist organisations like the CW&PC the usual rigid cadre structure with limitation of posts in each cadre should not be applied.

Recommendation No.93: In order to avoid stagnation and provide incentives at the level of Deputy Directors, the posts of Joint Directors in the scale of Rs.1100-1400 should be created depending on the need for senior specialised posts and the work load.

Recommendation No.94: The junior and senior scales of pay may be clubbed as follows and those officers who do not get selected for appointment to the ISE may be given this grade: Rs.400-40-600-EB-700-40-1100-50/2-1250.

Recommendation No.95: The present pay scale of Chief Engineer in the CW&PC at Rs.2,000/= p.m. (fixed) is not adequate; it should be revised to Rs.2000-125-2250 which scale is in line with the pay scale recommended for the ISE.

I am glad to report that all except recommendations numbers 7 and 21 have been unanimously agreed to by the members. Shri Bhatia has submitted a note of dissent on these two recommendations which is appended to this report.

In the end, on behalf of myself and my colleagues, I would like to express our deep sense of gratitude to all the officers who have so kindly given, during our interview with them, the benefit of their experience which has helped considerably in arriving at some of the main recommendations made in the Report.

It is my pleasant duty to acknowledge the invaluable help and cooperation given to me by my colleagues on the Committee in spite of their pre-occupations. I wish to place on record the Committee's appreciation of the secretarial assistance given by the Secretary, Shri H. Ramaswamy, and others.

With kind regards,

Yours sincerely,

Dr. K.L. Rao,
Union Minister for
Irrigation & Power,
New Delhi.

B. Bhagavantam

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CHAPTER I.

INTRODUCTION

By way of introduction, it is worthwhile to give here a very brief history of the development of irrigation and power in India during the past one century.

Irrigation

2. The practice of irrigation in India is perhaps as old as civilisation itself. But the first direct interest taken by the Central Government in this field was in the year 1867, when they established an Irrigation Department as a part of the Public Works Department. With this development, the post of Inspector-General of Irrigation was created to take charge of this branch and it was his duty to scrutinise all important projects before recommending them for sanction.

3. This position continued till the passing of the Government of India Act of 1919 when irrigation became a provincial but reserved subject and with limited powers to sanction schemes up to Rs.50 lakhs only. Schemes above this limit and those concerning more than one State were approved by the Secretary of State on the recommendation of the Government of India. In view of the change in the functions of the Inspector-General of Irrigation,

the name of the post was changed in 1923 to that of Consulting Engineer.

4. In January 1927, the Government of India, on the advice of the Provincial Governments, constituted the Central Board of Irrigation consisting of the Consulting Engineer and the Chief Engineers of the various provinces to advise them on irrigation, hydro-electric and river control projects including inter-provincial river problems. This Board took over a considerable part of the work of the Consulting Engineer and this post was abolished in 1932.

5. After the Government of India Act 1935, irrigation continued to be a provincial subject. The provinces were free to take any measures they liked concerning waterways passing through their territories. Power to settle inter-State disputes was, however, retained by the Governor-General, who could constitute committees of experts to advise him on any particular dispute. The Government of India later felt some difficulty in dealing with technical questions in connection with large irrigation projects and water disputes concerning inter-State rivers. To make the fullest and most economical use of waterways, the need for a high level technical authority was felt. The post of Consulting Engineer for Irrigation Waterways and Navigation was, therefore, revived in the year 1944.

6. As large irrigation and power projects were expected to be taken up in the post-war years, a high level organisation at the Centre called the Central Waterways Irrigation and Navigation Commission (CWINC) under the chairmanship of the Consulting Engineer was constituted in 1945. The Commission was charged with the general responsibility of initiating, coordinating and processing schemes of control, regulation and utilisation of water and waterways in consultation with provinces, and to undertake construction also, if required.

Power

7. While the development of irrigation started receiving active attention at the Central level since 1867, the same was not the case with electricity. It was during the Second World War that it received a real impetus. On the recommendation of the Roger Commission, the post of Electrical Commissioner was created under the Central Government in the year 1941 to facilitate arrangements for supply of power to the various ordnance factories and industries engaged in the war efforts. This officer was also entrusted with the work of collecting data about the production and distribution of power in the country. A few years later, i.e. in the year 1944, the Central Technical Power Board was constituted under the chairmanship of the Electrical Commissioner to initiate, coordinate and push forward schemes of electric power development and

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its utilisation in the country, in consultation with the Central and Provincial Governments and the commercial organisations.

8. Later, in January 1948, the Central Electricity Commission was formed by amalgamating the Electrical Commissioner's office with the Central Technical Power Board. Simultaneously, the office of Consulting Engineer, Irrigation Waterways and Navigation was combined with the Central Waterways Irrigation and Navigation Commission.

9. The Central Electricity Commission and the Central Waterways Irrigation and Navigation Commission continued to function as separate organisations till 1951 whereafter they were merged into the present Central Water & Power Commission (CW&PC).

10. The functions of the Commission are defined by the Government of India as given in Appendix I.

11. In view of the rapid developments in the irrigation and power sector since Independence and the consequent increase in the demands for specialised services, the question of reorganising the Central Water & Power Commission to meet the challenging tasks was considered by Government first in 1957 and then in 1967.

First Reorganisation Committee (1957):

12. In the year 1957, the Government of India constituted a Committee under the chairmanship of Shri B.K Gokhale, I.C.S. (Retired), to assess whether the arrangements existing in the Central Water & Power Commission at that time were adequate for the effective performance of the duties assigned to the Commission. The Committee submitted its report in 1959 making some important recommendations to give proper guidelines to the CW&PC as it stood at the time.

Second Reorganisation Committee (1967):

13. The Second Reorganisation Committee constituted by the Government of India in their memo. No.19/50/66-Adm.I dated 24th February, 1967 and subsequent memo. No.19/50/66-Adm.IV dated 11th September, 1967, to review the functions of the Commission and make further recommendations to enable it to meet the increasing demands for specialised services.

14. The following are the Members of the Committee:-

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| 1. Dr. S. Bhagavantam,
Scientific Adviser to the
Minister of Defence. | Chairman |
| 2. Shri M.R. Chopra,
Vice-Chancellor,
University of Roorkee. | Member |
| 3. Shri K.P.S. Nair,
Ex-Vice Chairman,
Central Water & Power Commission. | Member |

Contd.

- | | |
|---|------------|
| 4. Shri Moti Ram,
Consultant,
Ministry of Irrigation & Power. | Member |
| 5. Shri H.R. Bhatia,
Ex-Principal,
Thapar Engineering College. | Member |
| 6. Shri K.G.R. Iyer,
Joint Secretary,
Ministry of Irrigation & Power. | Member |
| Shri H. Ramaswamy,
Officer on Special Duty,
Central Water & Power Commission. | Secretary. |

15. The terms of reference of the Committee were as follows:-

- (i) to review the organisational structure of the Central Water & Power Commission and to indicate the directions in which it needs to be reorganised or strengthened in the context of the increasing demands for specialised services viz. designs, standardisation of specifications equipment etc.;
- (ii) to examine how far the Central Water & Power Commission could be equipped to work as consultants to meet the demands for technical personnel from friendly foreign countries; and
- (iii) to make such other recommendations as are considered necessary for improving the working of the Central Water & Power Commission in the discharge of its functions, with particular emphasis on optimum utilisation of personnel and avoidance of duplication of infructuous work.

Meetings and discussions

16. The Committee met several times and also had meetings with the following officers and representatives of Governments to elicit their opinion with regard to the functions of

Central Water & Power Commission and suggestions for its improvements, if any:-

1. Shri K.P. Mathrani,
Secretary, Ministry of Irrigation & Power.
2. Shri G.A. Narasimha Rao,
Chairman, Central Water & Power Commission.
3. Shri D.B. Anand,
Ex-Chairman, Central Water & Power Commission.
4. Vice-Chairman and Members of CW&PC.
5. Representatives of various staff associations of
Central Water & Power Commission.
6. Representatives of various ministries of the
Central Government.
7. Representatives of the States of:
 - a) Andhra Pradesh;
 - b) Kerala;
 - c) Tamil Nadu;
 - d) Mysore;
 - e) Madhya Pradesh;
 - f) Rajasthan;
 - g) Uttar Pradesh; and
 - h) Himachal Pradesh.

17. The views expressed by these representatives were very useful in the preparation of this report, for which the Committee is grateful to all of them.

18. The Committee was to submit its report to the Ministry within six months.

19. Subsequently, in their u.o. No.F.17(15)/61-Policy dated 28.2.1967, the Ministry of Irrigation & Power desired that the Reorganisation Committee may also examine

the "Report of the Committee to draw-up a preparatory plan for setting up a research and coordination centre in Soil Mechanics and Foundation Engineering" and give their recommendations.

Appraisal of Commission's work

20. Since its inception, the Commission has rendered useful service in the fields of irrigation and power and established itself as a premier organisation in the country. Some of the outstanding examples of the work done under the technical guidance and supervision of the Commission are the Hirakud Dam Project in Orissa, Nagarjuna Sagar Project in Andhra Pradesh, Neyveli Power Station in Tamil Nadu, Chambal Project in Madhya Pradesh and Rajasthan, Kosi and Sone Projects in Bihar, and Gandak Project in Bihar and Uttar Pradesh. These are only a few important projects of the many with which the Commission was associated at various stages of investigation, planning and design or execution. Some of the important projects, presently receiving technical assistance of the Commission in the form of designs, etc. are the Farakka Barrage Project, Idikki Project in Kerala, Pochampad and Srisailem Projects in Andhra Pradesh.

21. Apart from this, the Commission has been associated with the design and construction of Trisuli Project in Nepal. Tonle Sap Project in Cambodia, etc.

22. Despite the activities of the CW&PC enumerated above, the organisation has more or less remained a consultative body with no statutory responsibilities over the projects executed by the State Governments. This position has developed perhaps because irrigation, flood control and power are State subjects. Though the Central Government finances most of the projects by way of loans, the responsibilities of actual execution and control are with the States in which the projects are located. Against this background, we feel the CW&PC also has to be reoriented to take greater responsibilities than heretofore.

23. The role of the Centre in regard to inter-State projects and how it could be made more effective has been described in Chapter II.

24. Based on our observations in Chapter II and in keeping with our general recommendations, the functions assigned to the CW&PC, the status of the organisation, its relations vis-a-vis the Ministry of Irrigation & Power and the Planning Commission are discussed in Chapter III and IV.

25. Chapter V deals with an assessment of the present organisational structure and the changes that we feel necessary in the structure to enable the Commission to do its work in a more streamlined way.

10.

26. Chapter VI is devoted to the problems relating to the personnel, like recruitment, career prospects, training, pay scales, etc.

27. Chapter VII gives a summary of the recommendations.

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CHAPTER II

INTER-STATE PROJECTS

Irrigation

1. According to rough estimates, the resources of water in our country can bring about nearly 75 million hectares (187 million acres) of land under irrigation out of a total cultivated area of 158 million hectares (390 million acres). The total surface water resources have been assessed at 1356 million acre feet of which 450 million acre feet are the utilisable quantity.

2. At the beginning of the First Plan, that is in the year 1951, only 76 million acre feet of water were utilised in developing an irrigation potential of 22 million hectares (56 million acres). This is only 17.9% of the estimated utilisable resources. At the end of the Third Plan, about 160 million acre feet of water were utilised under the various projects thereby raising the percentage of utilisation to 36%. There is still a substantial quantity of water flowing in the country unexploited.

Power

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3. The total hydro-electric power that can be generated in the country has been estimated at 41 million kW.

4. There are substantial quantities of coal, natural gas and other oils available for the generation of power. Besides, there are large deposits of minerals suitable for the development of nuclear power. The total installed capacity at the beginning of the First Plan was hardly 2.3 million kW. At the end of the Third Plan, it rose to 10.17 million kW, out of which 40% was from hydro-electric resources and the balance from thermal stations.

5. The three nuclear power plants being set up at Tarapur, Kotah and Kalapakkam are expected to have a total installed capacity of 1 million kW.

Flood Control

6. Floods of varying intensity in one part of the country or other is an annual feature. The problem of floods has been very acute, particularly in the Brahmaputra and Ganga basins. The average annual loss due to floods is estimated to be about Rs.100 crores. The loss in the 1968 season alone was over Rs.175 crores. Against this, the total expenditure so far on flood control schemes is Rs.180 crores. This could protect only 40% of the area that needs protection. The flood-prone area is roughly estimated to be 20 million hectares (50 million acres) of which 80% can be economically protected. Thus, we are left with 10 million hectares (24 million acres) still to be protected.

Present system of working

7. For execution of projects included in the Plan, Central loan assistance is made available to States. For specified large projects cent per cent. loan assistance is being sanctioned whereas other projects are financed through miscellaneous development loans to States. The execution of the projects in the irrigation and power sector is the responsibility of the States. They submit detailed project reports and estimates to the Centre for technical scrutiny by CW&PC and financial scrutiny by the Ministry of Finance. A high-level advisory committee set up by the Planning Commission considers the project reports on the basis of the technical comments of the CW&PC and the observations made by the Finance Ministry, and approves individual schemes for inclusion in the Plan.

8. In planning most of these projects, the main lacuna was the lack of accurate data of the available water resources. A thorough knowledge of the available resources and complete hydrological data are essential for successful planning of any project. In spite of our country having advanced considerably in the field of irrigation and power, the hydrological data available on the various basins are still inadequate. The hydrological investigations on the various river basins so far are being done by the State

Governments concerned except in a few cases where the CW&PC is entrusted with this work.

Planning at National Level

9. The subjects of irrigation and power are included in the State Sector of all the Plans. That being the factual position as explained earlier, even in those cases where the Centre had given loans, the investigation, planning and execution remained with the State Governments. This pattern of working is not conducive for the future growth as most of the river systems in our country are inter-State rivers requiring coordination and planning aimed at optimum utilisation of available resources for the benefit of the country as a whole. The projects so far executed were mostly on water resources of a single State in which they were located or were planned with mutual consent within the States concerned when the rivers were passing through more than one State. However, in recent years, it is not uncommon to see difficulties arising out of independent planning of water resources by the different States on the rivers passing through them. The dispute on the sharing of water of inter-State rivers and the consequent hold-up in some of the major projects is an unhappy state of affairs. These developments point to the necessity of readjustment in the areas of working of the Central and State Governments in this major field of activity.

10. It would be relevant in this connection to note the constitutional position in regard to water and power development projects. Extracts from the Seventh Schedule of the Constitution of India defining the responsibilities of the Central and State Governments in the fields of Irrigation and Power are given below:-

"Article 246:

List I - Union List:

56. Regulation and development of inter-State rivers and river valley to the extent to which such regulation and development under the control of the Union is declared by Parliament by Law to be expedient in the Public interest.

List II - State List:

17. Water, that is to say, water supplies, irrigation and canals, drainage and embankments water storage and water power subject to provisions of entry 56 of List I.

List III - Concurrent List:

38. Electricity."

11. It is recognised beyond doubt that pre-requisite for scientific planning of our river resources is the collection and ~~comp~~ilation of reliable data of the water resources and the material and manpower available in each area. We feel that in order to collect and compile reliable data on these subjects for the whole country, there should

be an independent agency at the Centre, empowered to undertake this stupendous task in an uninterrupted manner. Actually as far back as 1956, the Government of India felt the necessity of a Central Organisation for investigation and planning of water resources of inter-State rivers when they passed the River Boards Act. But no River Board has been set up so far. The CW&PC was already doing some studies in a small way in respect of some of the river basins. This role of CW&PC is envisaged in the Government resolution setting up the Commission which reads as follows:-

- (b) To collect, coordinate the collection of, publish and analyse data relating to waterways, tidal rivers, rainfall, run-off and temperature, ground water resources, silting of rivers, behaviour of hydraulic structures etc. and to act as a Central Bureau of Information in respect of these matters.

It does not, however, in any way, include the responsibility for preparing river basin plans for utilisation of the water resources either for irrigation or for power.

12. The Committee is of the opinion that the CW&PC should assume the responsibility for collecting and compiling reliable hydrological data in respect of major inter-State rivers and for preparing basin-wise plans. The objects of the proposed set-up which are described in a subsequent chapter would be as outlined below:-

- (i) To collect accurate river flow data continuously and systematically in all major river basins in the country.

- (ii) To standardise methods to be followed in flow measurements and to provide continuous guidance in determining the sites and number of guaging stations in each river basin.
- (iii) To standardise the empirical factors to be applicable for computing the quantum of flows from the available hydro-meteorological data.
- (iv) To determine the number and sites of rain guage stations in the catchment areas in consultation with the Meteorological Department and determine the correlation between rainfall and run-off for various catchment areas jointly with the State Departments concerned.
- (v) To publish the above data so collected from time to time so that it is readily available whenever required for planning water utilisation of the river concerned.
- (vi) To prepare river basin plans for utilisation of water resources for irrigation and power.

13. As mentioned earlier, the Constitution enables the Centre to assume powers for regulation and development of inter-State rivers. This Committee feels that the Central Government should assume greater responsibility in this important field of activity.

14. We have been informed that there are two Wings in the Ministry of Irrigation and Power, namely, the Ganga Basin and the Indus Basin Wings which are working as separate units doing the work mentioned in paras (i) to (v) above on these basins. Since this technical work is best done by the CW&PC, we recommend that at a convenient point of time these Wings should be merged with the CW&PC.

15. The CW&PC should further be charged with the responsibility to prepare Master Plans for irrigation, flood control and for hydro-electric and thermal power for the whole country. A perspective plan for the next twenty years or so should be prepared, fixing suitable priorities for the schemes so that the investigations, designs and construction proceed systematically in a phased manner. While making this recommendation, the Committee is conscious of the fact that this is a big job which cannot be executed successfully without the cooperation of the State Governments.

16. With this arrangement, optimum benefits will be obtained. There should be a performance audit showing the physical targets, the shortfalls and their causes. The past experience of the shortfalls etc. will be useful for the planners at the time of preparing subsequent Plans.

CHAPTER III

STATUS AND COMPOSITION OF C.W.& P.C.

Status of CW&PC

The Commission is at present an attached office of the Ministry of Irrigation and Power with no secretariat status for its Chairman or the Members.

2. The Commission now submits all proposals to the Ministry for approval. After examination and approval by the Ministry, they are then passed on to the Ministry of Finance. And, if someone at any of the stages requires some clarification, the file comes back to CW&PC through the intermediate stages. A lot of unnecessary paper work is involved causing a good deal of delay before the schemes can get through. Similarly, for sanction of Class I Gazetted posts, the Commission has to approach the Ministry and await their sanction. The Ministry of Irrigation and Power sanction these posts on their own if funds are available and the scheme/estimate is approved. In case, any of these conditions is not satisfied, the Ministry of Irrigation and Power have also to approach the Ministry of Finance for sanctioning Class I posts. There appears to be no reason why the Commission itself cannot approach the Ministry of Finance direct in all such cases which should

be possible, if the Chairman and Vice-Chairman are given ex-officio secretariat status.

3. As defined in the Charter, the Commission is expected to be a high-level technical organisation coordinating the activities of all river valley projects and power development in the country and also rendering advice on planning, design and other related problems to the Central and State Governments. This requires the building up of an expert organisation doing exclusively specialised work.

4. The Committee feels that while CW&FC should basically continue to function as a highly specialised consultancy and coordinating organisation, it must have a status to command a certain measure of respect from the State Governments. It has been expressed by many of the persons with whom we had discussions that the Commission, instead of being an attached office of the Ministry of Irrigation & Power as at present, should be an independent body with statutory powers so that it will be able to give uninfluenced expert opinion to States as well as the Centre. While it is agreed that the Commission should have sufficient powers and status to be able to discharge its functions efficiently, it is felt that making it an autonomous body with statutory powers may not work well, particularly in its dealings with the States. It is also possible that the technical aspects of the advice of the Commission may be further scrutinised and modified in the Ministry though this examination serves

no useful purpose. In order to get over these difficulties, the Committee feels that the CW&FC should form part of the Ministry with secretarial status for the Chairman and the Vice-Chairman. The Chairman should be a Special Secretary and the Vice-Chairman should be an Additional Secretary. There does not seem to be a better alternative than this in the present circumstances to ensure the smooth and efficient working of CW&FC.

Composition of CW&FC

5. Before discussing the functions of the Commission in greater detail, it is necessary to examine first an important aspect of the overall composition of the Commission and its functioning. The Commission is divided into two Wings - the Water Wing and the Power Wing. Referring to the detailed functions derived from the Government of India's Resolution of April 1951 as listed in Appendix I, a view has been expressed that except in the field of Hydro-electric Power Development, there is no common ground between the Water Wing and the Power Wing. The Water Wing of the Commission has no contribution to make in the development of thermal and nuclear power, transmission and distribution of power to centres of utilisation, integrated operation of power system, power system design, commercial aspects of electric power supply, etc. Similarly, the Power Wing has no contribution to make in irrigation, flood control, navigation aspects of water utilisation, detailed design of

hydraulic structures and soil conservation schemes, etc.

It was, therefore, suggested that the two Wings of CW&PC, viz., the Water Wing and the Power Wing should be bifurcated to form two separate authorities independent of each other with a suitable machinery for coordination between the two. A similar arrangement existed for some time before April 1951, when the C.E.C. and C.W.I.N.C. were amalgamated into one.

6. The Committee has given careful consideration to this proposal and it is of the opinion that the position regarding irrigation and power in the country today is different from what it was before 1951. There is a rising tempo in the development of water as well as power resources in the country, the full exploitation of which will require a great deal of coordination between the Water and Power Wings of the CW&PC.

7. Each Wing is even now working without interference by the other and it is not evident what object would be served by removing the present coordination at the higher levels. There would be no economy as the same people would continue to do the work which they are doing at present. Separation may, on the other hand, result in some increase of administrative expenditure. There is nothing to show that progress of either Wing is being impeded in any manner or that there is any definite disadvantage in the present arrangement but there are indications that even in the present set-up, both

the Wings, the Power Wing in particular, need to be strengthened.

3. The Committee recommends that the CW&PC should continue to function as a composite body as at present, providing opportunities for each Wing to develop its expertise. Suitable measures in this regard for strengthening the two Wings of the Commission are suggested later in this Report.

CHAPTER IV

FUNCTIONS OF THE C.W. & P.C.

The main functions of the Central Water and Power Commission which were defined in the Charter forming the Commission in 1951 are reproduced in Appendix I. Since then, a number of new functions have been added to the organisation. Hereunder we have given a re-appraisal of the existing functions and the functions we feel should be added to the CW&PC to make it play a more useful role in the fields it covers.

Water Wing

2. Since the formation of CW&PC in 1951, the following important changes have occurred in the Water Wing in its functions and responsibilities:-

- (i) The Commission has become very much concerned with the problems relating to floods.
- (ii) The Commission has been made responsible for technical examination of all major projects and medium projects costing more than a specified amount (Rs.3 crores).
- (iii) The Commission has been made responsible to act as a Secretariat of the Technical Advisory Committee set up by the Planning Commission. The requirement of this work has assumed such great importance that many of the normal activities of the CW&PC have been thrown into background.
- (iv) In the matter of execution of projects, the Commission has to represent the Government of India on a number of Control Boards and Technical Advisory Committees set up for a number of major projects.

- (v) For some projects, the CW&PC has been called upon to preside over or participate in deciding tenders for works and purchase of machinery.
- (vi) On the flood side, the Commission has to take part in Flood Control Boards and the Technical Committees set up for Jammu & Kashmir and Assam States.
- (vii) The work of investigation of projects at the request of the States has decreased considerably except for a few States such as Assam and Jammu & Kashmir where the facilities for investigations have not been fully developed for the projects of the size proposed to be undertaken, and some Central Projects in case of inter-State rivers such as investigations of the link from the Godavari to the Krishna river.
- (viii) Recording of detailed progress on specified major projects assisted by the Government of India and also on general progress on all other plan projects and expediting progress thereof have devolved on the Commission.
- (ix) Observations of discharges on key sites on inter-State rivers are being looked after by the Commission.

A review of some of the above functions is given below:-

Technical Examination

3. At present, irrigation projects costing below Rs.3 crores are being examined on a proforma basis. Medium projects costing between Rs.3 and Rs.5 crores and major projects costing above Rs.5 crores are being examined in detail on obtaining regular project reports.

4. In view of the present-day increase in the cost of projects, a limit of Rs.3 crores is no doubt too low and it seems reasonable to fix the limit for such examination at Rs.10 crores. Hence, detailed technical examination should normally be for projects costing Rs.10 crores and more. Projects costing below Rs.10 crores may be examined on a suitable proforma basis, to be prescribed by the Central Water and Power Commission in consultation with the Planning Commission. This would not, however, bar some of the States which do not have proper arrangements for technical scrutiny of projects to seek the advice of Central Water and Power Commission on projects costing less than Rs.10 crores also.

5. In the case of projects having inter-State ramifications, the present practice of complete examination by the Central Water and Power Commission should be continued irrespective of the estimated cost of these projects.

Progress of River Valley Projects:

6. The Central Water and Power Commission being the highest technical organisation responsible for coordination of the development of all the river valley projects in the country, it is felt essential that the organisation should keep abreast of the latest progress on these projects. Besides, most of the projects in the country receive aid from the Central Government and in this context it is only reasonable that there should be a watch dog organisation

at the Centre. The Central Water & Power Commission appears to be the proper organisation to keep such a watch on the progress of the projects and hence it is only appropriate that the Central Water and Power Commission continues to associate with this work in future also.

Membership of Control Boards and Committees

7. We have been told that the membership of control boards and committees is taking much of the time of Chairman and Members of the Central Water & Power Commission, thereby preventing them from devoting adequate attention to the work of the Commission. In this context, despite the above feeling, we wish to point out that the Chairman/Members of CW&PC are represented in the control boards as technical experts just as the financial experts are represented on these boards. It is common experience that their contribution to the deliberations of the control boards is by no means small and their advice is highly respected. Moreover, their participation in the control boards permits their close association with the working of the projects, some of which they may have planned and designed. Hence, it is felt that the Chairman and Members of Central Water and Power Commission should continue to be associated with the control boards as before.

Replies to Parliament Questions

8. It was brought to the notice of the Committee that at present considerable time of the experts in the CW&PC

is spent on compiling draft replies to Parliament Questions. While it is understandable that the Commission can certainly be asked to give technical information on any aspect mentioned in a Parliament Question, avoidable references should not be made to the CW&FC.

Rationalisation and Distribution of Plant and Machinery

9. With a number of projects under execution, under different authorities, the need for Central coordination with regard to even distribution of construction plant and machinery need not be over-emphasized. This role of coordination is being done by the Central Water & Power Commission, but only in an advisory capacity with no statutory powers to implement their advice. Another aspect of utilisation of construction plant and machinery is to arrive at the ideal plant layout on each project and to derive optimum benefit for speedy and efficient completion of the project. Just as the Central Water and Power Commission is advising the projects on various design problems, it should render high level expert advice on the construction plant layout also. A third requirement with regard to utilisation of heavy machinery on projects is their proper maintenance so as to prevent avoidable idling of capital investment. For this, the officers of the Commission should be trained suitably.

10. To achieve the above objects of optimum utilisation and proper distribution of equipment to the best advantage of the projects in the whole country, it is no doubt highly desirable that all projects should get the approval of CW&PC for procurement and disposal of the equipment, particularly imported equipment. So far as imported equipment is concerned, the Committee feels that the Government of India must contribute to insist on this condition before any foreign exchange is allocated for the purpose. But, it is hoped that most of the equipment will be indigenously manufactured in future and it will not be possible to make it mandatory that all State projects should obtain clearance from CW&PC before purchasing or disposing of such machinery for their plant layouts. The ideal way appears to be that the CW&PC should collect data of surplus equipment and spare parts lying at various project sites in the country and build up an extremely efficient and expeditious service in these matters so that the States are attracted to come forward voluntarily and make use of it.

11. The Committee, therefore, recommends that a separate Directorate should be created to render specialised advice on the subject at par with other design directorates.

12. A recommendation to transfer the above functions from the Central Water & Power Commission to the Ministry was made by the previous Reorganisation Committee. While making this recommendation, the Committee had simultaneously

suggested that the Central Water & Power Commission should be kept informed about the material prepared in the Ministry on these subjects and should also be associated with final discussions, but it was not wholly accepted by the Government.

13. We have given fresh thought to this matter and we feel that the functions mentioned above, namely, technical examination, watching the progress of irrigation and power projects, representing the Commission in the Control Boards and Committees, furnishing technical information for replies to Parliament Questions and advising the projects on construction plant and plant layout in the various projects should be done by the Central Water and Power Commission. We feel that even if separate officers are posted in the Ministry to attend to such work, they will always be tempted to consult the Central Water and Power Commission on all important issues and the time of the Commission will not be saved to any material extent. It will, therefore, be advantageous to give some extra staff for these functions to the Commission rather than duplicating the work in the Ministry. The work could possibly be attended to by the Directorates assigned to the functions of watching the progress of projects in the Irrigation and Power fields by augmenting the staff, if necessary. The working procedure in the offices of the Commission should, however, be so modified that the officers entrusted with these functions consult their counterparts posted in other specialised sections on a

personal level, when necessary. No inter-sectional correspondence or noting should be permitted in dealing with such matters. Personal discussions can be arranged at Members' level, where necessary, so as to finalise matters by such discussions instead of by a series of notings involving inordinate delays.

14. In addition to the above functions, we feel that the Commission should be charged with the following responsibilities to make it a full and effective organisation.

Basin-wise studies

15. We have already mentioned the necessity for undertaking basin-wise studies for all river basins in the country at the Central level. The responsibilities to be borne by the set-up have also been indicated in para 12 of Chapter II.

Flood Control

16. The importance of the role of the Central Government in flood control planning is mentioned in Chapter II. In this context, we feel that the Central Water and Power Commission should also perform the following functions:-

- (a) Establishing and operating efficiently Flood Forecasting Units in all ~~flood affected river~~ basins of the country.
- (b) Equipping the Flood Forecasting Units with the required men and appliances.
- (c) Proper planning of flood control measures of the ~~flood-affected river~~ basins.

- (d) ~~Investigating and undertaking the execution~~ of such of the flood control schemes as may be specially entrusted to the CW&PC.
- (e) Technical examination of flood control schemes formulated by the States.
- (f) Participation in the Flood Control Boards set up by the various States and the Centre.

Construction Activity

17. During our discussions with the Chairman and Members of the Commission, a view was expressed that the Commission should undertake construction of projects so as to provide the much-needed field training facilities to the staff of the Commission. We agree that the plans and designs evolved by a team of engineers with adequate field and construction experience will be more realistic and practical but we are not convinced of the desirability of the Commission involving itself directly in ordinary construction activities.

18. It is felt that if the CW&PC is loaded directly with the responsibility of undertaking construction of projects, ~~it will~~ be bogged down with a large amount of administrative work which will hamper its specialisation as a consultancy organisation.

19. Moreover, it is not essential that an organisation to be successful in the field of design, research and specialisation, should also take part directly in such construction work. Nevertheless, it is fully realised that in the interest of building up a sound consultative

organisation, it is essential that opportunities should be provided to the staff to get the required training in chosen major projects of the country. This experience should be provided to the engineers of CW&FC as recommended in Chapter VI. The expenditure on such engineers for the period of their stay at projects, if not met from the project, should be considered as a due charge for training of the engineers to discharge the responsibilities required by expertise and should be met by the CW&FC.

Design Cells in the Projects

20. We have noted with satisfaction that the present Central Water & Power Commission has attained a good standard as an expert design organisation in the field of irrigation, flood control and power. However, we feel that the designers of the Central Water & Power Commission should also be available for tackling problems at the sites of the projects they design. To achieve this objective, we suggest that a design cell of the Central Water & Power Commission should be established at the site of each of the projects executed by the Centre or such projects which have been either designed by the CW&FC or where advice has been given by it. This policy will be in keeping with the stipulations made by all aid-giving institutions.

Specialisations to be Developed in the Central Water & Power Commission

21. The Central Water & Power Commission at present is doing good work in various specialised fields. However,

we feel a clearer definition of the specialised fields and establishment of suitable units devoted to such specialised study will be conducive to the growth of the knowledge in these fields. We have indicated here some of the fields in which such specialised units can be established in the Central Water & Power Commission at present:

- (a) Masonry and concrete gravity dams.
- (b) Arch dams.
- (c) Earth and rock-fill dams.
- (d) Earth and rock mechanics.
- (e) Foundations and foundation treatment.
- (f) Civil engineering and power houses.
- (g) Research and standardisation of big cross drainage works, falls, major bridges and canal lining with a view to reduction in costs.
- (h) Tunnel engineering.
- (i) Gates, hoists and other appurtenances.
- (j) Instrumentation.
- (k) Irrigation engineering - crops - crop patterns - water utilisation, etc.
- (l) Drainage engineering - only general planning for projects and major works on drains.
- (m) Hydrological studies for assessment of surface water resources.
- (n) Assessment of ground water resources.
- (o) Flood routing and reservoir operations.
- (p) Flood forecasting and flood control measures.

These fields are only indicative and not exhaustive.

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Central Electricity Authority

22. The Electricity (Supply) Act of 1948, with the aim of rationalising electric power development in the country, envisaged the management and control of electricity supply industry throughout the country by setting up autonomous Electricity Boards at the State level to be supervised and guided by an autonomous Central body designated as the Central Electricity Authority. The responsibility for developing a sound, adequate and uniform national power policy and coordination of the activities of all planning agencies in relation to the control and utilisation of national power resources was vested with the Central Electricity Authority which was empowered to carry out investigations, collect and record data concerning generation, distribution, utilisation and development of power resources and to publish the same. No scheme involving a capital expenditure exceeding Rs.1 crore could be executed by the State Electricity Boards without prior consultation with the Central Electricity Authority. The particular aspects of such schemes which were to be examined by the Central Electricity Authority were clearly defined in the Act, the aim being to ensure that the plans of power development between adjoining areas were properly coordinated. The Act also provides for supervisory control of the Central Electricity Authority over the tariff policies of the State Electricity Boards. State Governments have powers under

the Act to issue policy directives to the State Electricity Boards functioning in their jurisdiction. In the event of any difference between the State Government and the State Electricity Board whether a particular directive issued by the State Government is a policy directive or not, the Act provides for arbitration by the Central Electricity Authority whose decision is binding on both parties. The Central Electricity Authority has the statutory responsibilities of arbitration on disputes arising between a State Government or State Electricity Board and a licensee or other person as provided in the Electricity (Supply) Act.

23. The Indian Atomic Energy Act of 1962 has placed additional responsibilities on the Central Electricity Authority under this Act. While the Central Government has been empowered to develop a sound and adequate national policy in regard to atomic power, it is required to coordinate its plans with the Central Electricity Authority whose concurrence is necessary in the fixation of rates for the sale of energy and regulation of electricity supply from atomic power stations. In regard to differences of opinion which may arise between the Central Government (Department concerned) and any State Electricity Board on arrangements for transmission of electricity from nuclear power stations to other States, these are to be referred for arbitration to the Central Electricity Authority whose decision will be binding on the parties concerned.

24. Till now, the Central Electricity Authority although constituted in 1950, has been performing such functions only in name. Most of the functions have actually been carried out by the Central Water & Power Commission, and only formal compliance with the statute was secured through ratification by Central Electricity Authority, of schemes already cleared by Central Water and Power Commission and the Planning Commission. The main responsibility of the Central Electricity Authority to develop a sound, adequate and uniform national power policy and to coordinate the activities of the planning agencies in relation to the control and utilisation of power resources could not be executed in full measure. The Government of India included the following also as a term of reference to the first Reorganisation Committee:-

"(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."

25. That Committee, after examining this matter came to the conclusion that bifurcation should not be effected and since most of the functions were already being performed by Central Water & Power Commission, the existing provisions of the Electricity Supply Act 1948 under Section 3, should be so modified as to take away these functions,

other than arbitration, out of the purview of the Central Electricity Authority. This recommendation was, however, not accepted by the Government of India. In 1962-63, in its 30th Report, the Estimates Committee of Parliament also drew attention to the fact that the functions relating to development of a sound, adequate and uniform national power policy were not in actual practice being performed by the Central Electricity Authority and suggested a review of the Electricity Supply Act 1948 and the organisational set-up contemplated thereunder.

26. This Committee also feels that the Central Electricity Authority should concern itself with arbitration work only and nothing else.

27. The functions of the Central Electricity Authority other than the arbitration as mentioned below should be added on to the Power Wing of the CW&FC after undertaking such legislation as may be necessary:

(i) The collection of accurate data from power sources; costs of fuel at the source; transportation costs; calorific values of fuels; chemical composition of fuels; ash content; availability of gaseous fuels and their proper utilisation; statistical data of fuel consumption on existing power stations and standardisation of methods and tests for controlling fuel consumption; retiring obsolete

power plant having excessive fuel consumption; relative costs of coal, oil gas and atomic power, etc.

(ii) Detailed design and layout of thermal power stations, including conventional part of atomic power stations and ancillary services (Mechanical and Electrical).

(iii) Civil design of thermal power stations and ancillary services.

(iv) Power system planning covering preparation of a coordinated plan for power generation for the whole country including hydro-thermal and atomic power, power system studies, super-grids and inter-regional transmission links; regional control stations; standardisation of scheme for protection for proper coordination in interconnected power system etc.

(v) Detailed design of transmission lines -

(a) Electrical.

(b) Mechanical and standardisation.

(vi) Standardisation of designs other than transmission lines, such as grid substations, urban and rural distribution systems, etc.

(vii) Communication facilities required on power systems, their design and specifications.

(viii) ~~Commercial aspects of electricity supply~~ and tariff formulation.

28. In addition to the above, the Power Wing will have to assume new functions as stated below:

(i) The passing of the India Atomic Energy Act of 1962 placing additional responsibilities on the Central Electricity Authority is a subsequent development not in sight then. The regulation of supply of electricity from atomic power stations will become an important function of Central Electricity Authority which may involve executive control under changing conditions of load and power capabilities of State power systems from season to season. At times, there will be over-lapping facilities of power availability, both from atomic power stations and the States' other power stations and unless transfer of power is arranged to other adjoining power systems, the optimum utilisation of power resources will suffer. The authority for such adjustments relating to optimum utilisation of power systems shall have to be vested in the Central Water & Power Commission, which will have to maintain a close day-to-day watch on the power situation in each region.

(ii) The concept of establishing inter-connected super-grids for exchange of power between adjoining State Grids and to develop into a National All India Grid and ultimately is also a subsequent development envisaged to achieve large scale economy as well as reliability of electricity supply throughout the country. To achieve the

desired results, the operational control of these super-grids shall have to be centralised and placed in charge of regional units under the control of the Commission.

(iii) Large Central Power Stations are also envisaged in the future at coal washeries to utilise the middlings available from these washeries instead of transporting them to distant places. These Central Power Stations at coal washeries shall have to be connected into the super-grids and operated centrally to achieve optimum results.

General Functions of the CW&FC

Seminars, Short-Term Courses, etc.

29. The CW&FC being the premier organisation in the field of Irrigation & Power in the country, should take the lead in organising seminars on important aspects of design and construction of major river valley schemes and power projects. Such occasions will provide an opportunity for exchange of experience of design and construction engineers in the country, resulting in better quality of work in both the fields. The seminars division of the Central Water & Power Commission which is stated to have suspended the activity of holding seminar may be reactivated. The officers of the CW&FC should also participate in the deliberations of the Institution of Engineers and

other professional organisations, by way of contributing papers, etc.

30. The officers of the CW&FC particularly at the level of Assistant Director and Deputy Director, should be encouraged to go on study tours to the project sites, to get an idea of the actual field problems. They should also be encouraged to participate in larger numbers in short-term specialist courses organised by the universities in the country. They should also be deputed in large numbers for post-graduate courses in the various institutions and universities of the country. This is essential for building up the expertise in the CW&FC.

Standardisation and Manuals

31. Though the Central Water & Power Commission has been doing high level specialised work, so far no standard manuals are produced on the pattern of those of USBR. The Committee feels that the various specialised directorates in the CW&FC should be encouraged to bring forth their work in the form of standard manuals and brochures incorporating the latest methods and giving information regarding the special designs and calculations of important features of projects. This will greatly benefit the irrigation and power engineers and technical institutions.

Publicity

32. The investment and tangible achievement in the irrigation and power sector are probably among the largest, if not the largest, in India's planned development after Independence. Water and power projects costing to the tune of over Rs.4,000 crores have been executed during the last two decades after Independence. The magnitude of the achievement and the technological know-how that have been gained by Indian engineers during the short span of time have been hardly recognised within the country and received but little notice outside. From every point of view, it is necessary to create an image of a progressive and successful India in this sector, as it will have far-reaching effects in the promotion of an export market, particularly for Indian technology and personnel in the field of water and power engineering.

This appears to have been envisaged in the original proposal constituting the Central Water Power Irrigation and Navigation Commission. The Committee is of the opinion that it is high time that it is fully implemented.

33. The Committee, therefore, recommends that a full-fledged Directorate of Publications and Publicity for Irrigation and Power should be set up in the CW&FC with competent personnel specialised in this particular field to carry out a sustained and systematic programme of

publicity through the various information media including popular and technical publications, exhibitions, documentary films, etc.

34. Besides the above, the CW&FC should obtain information on the development of irrigation and power through our missions in friendly foreign countries who are likely to approach us for advice on these matters. There should also be a compendium maintained in the Commission giving a panel of engineers both in service and retired with their qualifications and experience so that their services can be considered for loaning to friendly countries whenever required by the latter.

While we have mentioned the functions in some detail, our review will not be complete unless we say something about the present location of the Commission and its environments.

Office of the Central Water & Power Commission

35. The first Reorganisation Committee recommended that Central Water & Power Commission should be treated at par with national laboratories, and should be housed properly in one building. Though the Government accepted the suggestion, it has not been so far implemented.

36. For creating a proper atmosphere for high level work expected of the Central Water & Power Commission,

this Committee reiterates the suggestion of the first Committee. We also feel that the Commission should preferably be located along with the Ministry of Irrigation and Power at one place to cut short avoidable correspondence and to make the assistance of the technical officers readily available to the Ministry. At present, a good deal of time of senior officers of the CW&FC is wasted in commuting from their office to the Ministry.

37. The Library which is now located in Bikaner House is not properly utilised by the officers as most of them are stationed in Ramakrishnapuram. It is, therefore, necessary that it should be shifted along with the main offices under one roof and properly organised.

Consultancy Services

38. One of the terms of reference made to the Committee is to examine how far the Central Water and Power Commission could be equipped to work as consultants to meet the demand for technical personnel from friendly foreign countries. We have already indicated, in the chapter on Introduction, the foreign countries where the Central Water and Power Commission undertook technical assignments and discharged them with credit. In fact, we have noted with satisfaction that a team of experts from CW&FC is doing very good work in Afghanistan in connection with investigation and designs of some irrigation and hydro-electric projects. The CW&FC

has been progressively building up specialisation and is now self-contained in regard to investigations, designs and construction of dams and hydro-electric stations. The designs of CW&FC can find a top place in a competitive market. This talent should be utilised for purposes of export to friendly foreign countries which are taking up development schemes.

39. We are indeed surprised to note that an organisation of the standing of CW&FC has not been registered with international bodies like the United Nations, etc. for rendering consultancy services. We understand that the potentialities for consultancy services are very much there in the projects assisted by United Nations Special Fund, etc., as well as projects taken by the individual Governments of the developing countries of Asia, Africa and Latin America.

40. With the rich experience the organisation has gained during the last two decades, it is felt that it should be able to compete with other international organisations as consultants. The consultancy services abroad apart from bringing in returns in terms of foreign exchange will also enhance the prestige of our country as a technically advanced country and will provide a market for our products from Government Undertakings like the Heavy Electricals, the Heavy Engineering Corporation, Bharat Earth Movers, Tungabhadra and Nangal Workshops, etc. Further, the young

officers working in the organisation at present will have a sense of participation in the developmental activities of the countries abroad and this will generally raise the morale and job satisfaction of the officers of the organisation. This may also incidentally go a long way in providing employment opportunities to the vast number of qualified engineers.

41. As India has gained rich experience in the planning, design and construction of quite a number of projects, the services of eminent engineers connected with these projects, both retired as well as those who are still in service, should be made use of in rendering these consultancy services.

42. It was brought to our notice that a Foreign Technical Assistance Cell has been set up in the Ministry of Irrigation & Power with a nucleus staff to process cases relating to requests for technical assistance from friendly foreign countries. In our view, this Cell should be transferred to the Central Water & Power Commission since the nature of work to be done is largely technical.

43. We also consider it essential that the CW&PC should equip itself with literature showing the progress already made in those countries which are likely to seek technical assistance from India. It is hoped that the Members

concerned would take personal interest in organising the work in such a manner that requests received can be processed expeditiously.

CHAPTER V

ORGANISATIONAL STRUCTURE - CHANGES RECOMMENDED

In Chapter IV we have given the functions of the Central Water & Power Commission and the Central Electricity Authority. It is now necessary to consider the structure to be adopted for the Commission to enable it to discharge those functions efficiently.

2. The organisation should be such as to inspire confidence amongst the States, the State Electricity Boards and other organisations consulting the Commission. It should be able to render advice on problems which the States are not in a position to solve or for which they desire to obtain a second opinion.
3. In determining the future structure of the CW&PC, we have to take cognisance of the gradual development of professional competence in the State Engineering Organisations and its impact on the specialised services required from the Central organisation.
4. The Commission should not take up work of a routine nature such as preparation of detailed designs for a small project or carrying out routine investigations. The CW&PC should be able to give advice of a high order expeditiously.
5. At present all the functions in the Commission are carried out in the various ~~specialised~~ directorates and

advice given by the different directorates is coordinated. The members or the Chief Engineers incharge give the consolidated advice, or the Commission sometimes acting section-wise for Water and Power Wings respectively renders such advice in important cases.

6. It is considered that the present system of functional working by the directorates dealing with all the matters under the purview of the Central Water & Power Commission has worked well and should be adopted in the future also. The necessity for strengthening or modifying the organisation to meet the increasing requirements has been examined in some detail.

WATER WING

7. The present organisational structure of CW&PC is given at Appendix II of this report. The revised organisational structure we have in view is given at Appendices III (a) and III (b). We recommend that one more Member in charge of Floods be added. We have also discussed below ~~the functions of some of the important directorates~~ under each Member:-

I. MEMBER (DESIGN & RESEARCH)

8. At present the three Dams Directorates, Canals Directorate, Faralka Barrage Design Directorate, Central Water & Power Research Station, Poona, Central Soil Mechanics

Research Station, and the Library and Information's arrangements are placed under the Member (Design & Research).

that with the increase in the design and research activities, the work load on the Member (D&R) is too heavy and in the interests of specialisation, the Member (D&R) should be relieved of certain items as indicated below.

The following grouping of specialised units is considered suitable for the present but it may need some readjustment at a later date depending on the development of the specialised nature of work:-

(a) Director, Concrete & Masonry Dam Designs:

9. The Director, Concrete & Masonry Dam Designs, will look after the design of masonry and concrete gravity dams and appurtenant works. He may have a specialised cell, if necessary, under a Joint Director for the design of gates and structures.

(b) Director, Hydro-Electric Civil Designs:

10. The present Director (Power House Designs) will be renamed as Director, Hydro-Electric Civil Designs. He will deal with the designs of hydro-electric power houses and other appurtenant structures.

(c) Director, Earth Dams:

11. The present Dams Director-II is dealing mostly with

earth and rockfill dams design. We feel that this arrangement is adequate and may continue hereafter.

A Cell under a Joint Director may work on Instrumentation in this Directorate.

(d) Director, Farakka Barrage Design:

12. The present Directorate may continue as long as it is concerned with the designs of the Farakka barrage project and should thereafter be placed under the Member (Floods).

(e) Director, Central Water & Power Research Station, Poona:

13. The Central Water and Power Research Station, Poona, is considered to be one of the foremost amongst the laboratories devoted to Hydraulic research in the country. The hydraulic laboratories of the State Governments or in the States are restricting themselves in a large measure to problems of local interest. The advice rendered by the CWPRS to the various projects in India and abroad has been greatly appreciated.

14. At present the work of this station is being done under the following broad divisions:

- (i) River and fluvial hydraulics.
- (ii) Flood Control.
- (iii) Hydraulic Structures.
- (iv) Cavitation.
- (v) Maritime and tidal hydraulics.

- (vi) Ship model testing.
- (vii) Instrumentation.
- (viii) Experimental stress analysis.
- (ix) Soil Mechanics, Rock Mechanics, Concrete and Chemistry.
- (x) Geophysical, Seismological, Earthquake and Vibration Investigations.
- (xi) Statistics, Mathematics and Computers.

Apart from the above, the laboratory also takes up specific projects sponsored by bodies like the Central Board of Irrigation and Power.

15. We have already suggested in Chapter II that the CWPC should take up detailed basin-wise studies of all the river systems in the country. In this connection, the research laboratories can contribute a good deal by evolving improved techniques of measurements of discharges and determination of run off. In addition to the functions mentioned above, it should be the work of the Research Station to coordinate and advise the field staff engaged on the basin-wise studies in the methods and means of measuring stream flows.

16. We understand that the Director, CWPRS, has submitted certain proposals to strengthen the organisation. The Commission may examine these proposals and take necessary measures in this direction.

17. The Director, CWPRS, has also made detailed suggestions with regard to the pay scales of the officers of the Research Station. We have recommended in Chapter VI that

the cadre of the CWPRS and the Commission should be merged. Thus, we envisage a common cadre of the Engineering Officers for the whole of the CW&PC. With the formation of a common cadre, we envisage, the strength and pay scales of officers will be rationalised.

18. The CWPRS is situated at Khadakwasla, some distance away from Poona. At present we understand that some of the officers are not provided with quarters near the laboratories. We recommend that the Research Station at Khadakwasla should be a self-contained Unit. Construction of quarters for the officers and staff working in the laboratory should be undertaken in a phased manner.

(f) Director, Central Soil Mechanics Research Station, New Delhi.

19. The laboratory has four broad divisions:-

- (i) Soil Mechanics Division.
- (ii) Concrete Division.
- (iii) Soil Survey and Chemical Division.
- (iv) Coordination and collection of silt data of the various river systems.

20. This Station is rendering useful service to the Ministry of Irrigation and Power, other Ministries like Railways, Transport, etc., and to some other departments.

21. The two Research Stations (the Central Water & Power Research Station, Poona, and the Central Soil Mechanics Research Station, New Delhi) should both work as

part of the Central Water & Power Commission. They should continue to be under the charge of Member (Design and Research).

Research and Coordination Centre in Soil
Mechanics and Foundation Engineering.

22. The Ministry of Irrigation and Power in their u.o. No. F.17(15)/61-Policy dated 28.2.1967 desired that the CWP&P Reorganisation Committee may study and give their recommendations on the report "Preparatory Plan for setting up a Research and Coordinating Centre in Soil Mechanics and Foundation Engineering".

23. In the above report, it has been suggested that the Centre should start with its nucleus in the Central Soil Mechanics Research Station at New Delhi. It has, amongst other things, recommended that the Centre should (i) co-ordinate the work that is being done by the various Central and State Government laboratories; (ii) conduct advanced research on the subjects of soil mechanics and foundation engineering; (iii) offer facilities for training at various levels in the techniques of grouting, soil stabilization and instrumentation; (iv) provide a high class consultation service; and (v) establish a full-fledged documentation service.

24. Of late, the need for an organisation devoted to advanced research and capable of rendering advice on

complex problems in the field of soil mechanics and foundation engineering has been greatly felt. The Committee agrees with the view that the Centre should start with its nucleus in the existing Central Soil Mechanics Research Station, New Delhi, working under the Central Water & Power Commission. The research station is already doing considerable work in this field and instead of starting new centres, it is desirable to strengthen the existing research station so as to enable it to deal with the problems referred to above.

25. The Committee feels that providing opportunities for advanced research leading to post-graduate and doctorate courses in the field of soil mechanics and foundation engineering should not be primary concern of this Centre, as it is not practicable for a research station dealing mostly with specific problems to train officers in their academic pursuits.

26. In regard to the other recommendations, namely, consultation service and documentation service, we have already stressed the importance of these functions and recommended them in Chapter IV of this report.

27. Since we are not in favour of opening a new centre, we have not examined the organisational chart and the year-wise estimate of expenditure accompanying the report.

II. MEMBER (PLANNING & PROGRESS)

28. There are six Directors working under the Member (Planning & Progress). We are recommending the addition of three more Directors, viz., the Director (Standards & Manuals), the Director (Plant Layout) and the Director (Publicity). The importance of these posts has been discussed earlier in Chapter IV.

(a) Director, Technical Examination:

29. The present Directorate of Technical Examination may continue.

(b) Director, Progress & Planning:

30. We feel that the Directorate of Progress Recording may be renamed as Directorate of Planning and Progress. The necessity for a planning unit in the CWPC need not be over-emphasized. If necessary, depending on the quantum of work, a Joint Director for Planning may be created at a later date.

(c) Director, Cost Control:

31. The present Directorate of Cost Control may continue as it is. This Directorate should do basic work in revising the Rates & Cost Committee Report which was prepared more than a decade ago. This report has been a valuable guide to all practising engineers in this country

but needs revision suited to the present-day conditions. Instead of appointing another Committee to revise this edition, we suggest that this Directorate should bring it up-to-date and the CW&PC should publish the latest edition as early as possible.

(d) Director, Standards and Manuals:

32. We feel that there is a necessity for publication of Standards and Manuals for the guidance of the engineering profession in the country. In fact, this suggestion was made by the 1st Reorganisation Committee also. This Directorate should be charged with the responsibility of collecting material for preparation of manuals and arranging their publication.

(e) Director, Statistics:

33. This Directorate has been newly formed for the collection of hydrological and other data of the river valley projects. This work was hitherto being dealt with by the Directorate of Hydrology. The Committee agrees with the importance of statistical work being done by a separate Directorate which should form the store house for all statistics connected with the development of irrigation in the country. This Directorate should work under the Member (Planning & Progress).

(f) Director, Plant & Machinery:

34. This Directorate may continue to function present.

(g) Director, Technical Manpower & Stores:

35. This Directorate may also continue as at present

(h) Director, Plant Layout:

36. As suggested earlier, we feel that an additional Directorate may be established to render advice on construction plant layout in all major projects. This is essential for the optimum use of machinery and expeditious completion of projects.

(i) Director, Publicity:

37. The necessity for having a publicity unit is mentioned in Chapter IV. At present an Assistant Director is incharge of the publicity work in the CW&PC. We feel that a full-fledged Directorate should deal with this work. This Directorate should also include the present Deputy Director, Seminars. As we have already mentioned, the CW&PC should take the lead in organising seminars and symposia on important subjects of interest for designers, research workers and construction engineers in the field of irrigation and power. The proceedings of such symposia and other technical publications and manuals

should be published by this Directorate. 1
the abstracting work in the Library and Information
Bureau should also form part of this Directorate.
Editorial Section of Bhagirath may form the nuclear re-
this Directorate. The Director (Publicity) should be on the
in overall charge of all the above mentioned activities
We feel that there is a lot of scope for properly organizing
the library of CW&PC which is considered to be one of the
best technical libraries in the country. We feel that the
administration of the library needs proper streamlining
to be of greater service.

III. MEMBER (WATER RESOURCES):

38. At present the Directorates of Surface Water Resources; Waterways, Irrigation and Navigation; Hydrology & Statistics; Flood Estimation; Soil Conservation and the Director of Reservoir Operations of DVC are directly placed under the Member (Water Resources). The Director (Technical Examination) is responsible to Member (Water Resources) and to Member (Planning & Progress) as well. The Committee recommends the inclusion of one more Directorate under this Member to deal with ground water resources. Further, the basin-wise studies should also be carried out under his control.

(a) Director, Surface Water Resources:

39. This Directorate should be charged with the

responsibility of compilation, coordination of the data to be supplied by the staff working on basin-wise studies. This directorate should also attend to the standardisation of the methods of collecting the data.

(b) Director, Flood Estimation:

40. At present, the Director (Flood Estimation) is working on the data being collected from the Ministry of Railways, Transport, etc. With the organisations to be suggested later in this chapter for collection of basin-wise data, the Director (Flood Estimation) should be made responsible for preparation of Hydrographs in all major river basins at important locations and arriving at suitable empirical factors for estimation of floods for various regions of the country.

(c) Director, Waterways & Irrigation:

41. The present staff strength of this Directorate may continue. However, they should develop specialised knowledge on the crops and crop pattern in the commanded areas of various projects and should be able to render high level advice on the economical utilisation of water. Their advice will be of particular significance where the beneficiaries of any canal system belong to more than one State. The CW&PC should properly advise the State Irrigation Departments on optimum use of water to avoid problems

of water logging and water wastage.

(d) Director, Ground Water Resources:

42. We note that the assessment of ground water resources has so far not been done by the CW&PC. From the Government Resolution issued on 21st April 1951, it is seen that this subject also comes within the purview of the CW&PC, but the work is actually being done by the Ministry of Food & Agriculture (Department of Agriculture) and the Geological Survey of India. We feel that there is sufficient area to be ~~covered in this branch of engineering~~ and specialisation can be built up in the CW&PC on the techniques of ground water utilisation. In addition to exploitation of water resources available in the rivers of our country, utilisation of ground water resources should also be studied simultaneously to avail of all natural resources for obtaining the best results. In this connection, it may be significant to recall that in the course of our discussions, the officers of Food & Agriculture Ministry have also suggested the necessity for developing this specialisation in CW&PC in close collaboration with Food & Agriculture Ministry. It may also be significant to note that some of the State Governments have full-fledged units working on ground water problems. The specialised cell to be developed in CW&PC should be capable of rendering competent advice to such organisations.

(e) Director, Hydrology:

43. The Directorate of Hydrology may continue with the present strength. We have felt the necessity of a separate Directorate for Statistics. However, we learn that CW&PC has recently bifurcated the Hydrology and Statistics Directorates and we have, therefore, no comments to add. We have recommended earlier that this Directorate of Statistics should be transferred to the Member (Planning and Progress).

(f) Director, Soil Conservation:

44. It is considered that there is no further need for this Directorate. The work of soil conservation is rightly the responsibility of the Food & Agriculture Ministry. The soil conservation work in River Valley Projects may be done in the Flood Control Directorate, under a Deputy Director. This post may be filled in by an officer on deputation from the Forest or Agriculture Department.

Basin-wise studies:

45. We have dealt with the necessity for preparing basin-wise studies earlier in this report (in chapters II and IV). The detailed organisation required for the work may have to be built up in course of time depending on the site requirements and the experience gained in this regard. At present regular collection of data is being done only on

Ganga and Indus Basins in the North and the Krishna and Godavari Basins in the South. The Ganga Basin and Indus Basin Organisations are respectively working under two Commissioners who at present form part of Ministry of Irrigation & Power. We feel that the work of these organisations should be taken over by the CW&PC in due course.

IV. MEMBER (FLOODS):

46. The importance of proper flood control measures need not be over-emphasized. We have dealt with in detail elsewhere in this report the necessity for a proper organisation at the Centre to undertake studies connected with flood control. We suggest that regular studies should be made by the CW&PC in this field and it should be in a position to coordinate all activities in the flood control field throughout the country. The Commission should also be responsible for the development of a proper flood forecasting system and it should be very much connected with the Flood Control Boards both at the Centre and the States. To achieve these, we recommend that a post of Member (Floods) be added and the present post of Chief Engineer (Floods) abolished. The organisation under Member (Floods) may be as detailed below:-

(a) Chief Engineer, Eastern:

47. At present there is a Chief Engineer working in the

Eastern Region and stationed at Gauhati. We recommend that this Chief Engineer should work under the Member (Floods).

(b) Director, Flood Control & Drainage:

48. The present Directorate of Flood Control may continue as Directorate of Flood Control & Drainage. This Directorate should be charged with the responsibility for proper planning of flood control measures. This Directorate should also be in a position to render advice to the various State Governments on flood control measures they have to take. The designs of flood control work may be dealt with by this Directorate, if necessary, in consultation with the other design directorates in the CW&PC.

(c) Director, Reservoir Operations:

49. At present one Director is working for the regulation of DVC Reservoirs. But there are many projects with multistage reservoirs in this country requiring application of techniques of integrated operation. The CW&PC should develop a specialised unit on integrated operations of multipurpose reservoirs. A cell of this Directorate may work at the site of any reservoir for rendering advice on the lines similar to the one at DVC. Depending on the nature of the work, posts of suitable rank (Joint Director/Deputy Director) required for such operations

should be created under this Directorate.

(d) Director, Flood Forecasting:

50. The necessity for proper flood forecasting has been continuously recognised and the recent developments in the establishment of flood forecasting units in some of the river basins is a direct evidence of the importance this subject is gaining. The CW&PC at present has developed a flood forecasting system only for the Yamuna and it should be extended to all the flood-prone basins of the country. The number of Flood Forecasting Units to be established may have to be determined in course of time. The Member (Floods) may be assisted by a Director at the Centre dealing with coordination of the work of the field units and standardising the methods of flood forecasting. The actual organisation required in the field may be worked out by the CW&PC.

(e) Director, Canals:

51. The present Directorate dealing with the designs of barrages, canals and related structures is felt sufficient and may continue. During our discussion we have been told by various State organisations that the CW&PC may evolve type designs for cross drainage works just like the one they have prepared for canal drops, etc. (draft manual on falls). The present Canals Directorate should

evolve type designs and prepare manuals on cross drainage-works.

(f) Director, Union Territories:

52. The present incumbent of this post should be given the powers of a Chief Engineer in view of the fact that technical sanction to estimates has to be accorded by him.

V. MEMBER - CHAIRMAN/VICE-CHAIRMAN:

53. It is recommended that like other Members of the Commission, the Chairman/Vice-Chairman should also deal directly with some of the functions of the Commission. When the Chairman/Vice-Chairman is from the Water Wing, the following officers should be under his control:

(a) Chief Engineer, Salandi Project:

54. The Chief Engineer, Salandi Project, may continue until the completion of the work.

(b) Chief Engineer, Field Investigation:

55. At present three investigation circles are working on investigation of various projects in the country. We feel that this may continue and the strength required may be adjusted according to the requirements.

(c) Director, Technical Coordination:

56. At present the Secretary of the Commission is

coordinating the technical work including the preparation of agenda and recording the minutes of the meetings. In addition, he is dealing with administrative matters. We have recommended later in this chapter that the administrative work should be taken away from him and the coordination of technical work may be done separately by two Directors, one for each Wing.

POWER WING

57. The Power Wing organisational structure consists at the top level of a Chairman/Vice-Chairman and four other Members, the fourth Member (Commercial) being treated as a temporary addition for the purposes of follow-up of the World Bank transmission loan.

58. With the growth of the power systems in the country and about 14.5 million kW installed capacity as at present and the large tempo of development necessary to meet the continuously growing demand for power, and also the fact that the power resources of the country are not evenly distributed, rationalisation of power development and coordination as called for in the Electricity Supply Act and the Charter of the Central Water & Power Commission, has assumed very great importance. This requires besides sound forward planning and power system studies, the fixation of future sites of power stations and development of regional super power grids leading to an All India Grid

in as short a time as possible. This work is essential to give in advance to the State Electricity Boards and Undertakings proper guidance for preparing their own plans for power as economically as possible. We consider this to be one of the most important tasks before the Commission for which the present organisation of the Power Wing requires strengthening. We, therefore, recommend that a post of Member to be designated Member (Planning & System Studies) be created for this purpose.

59. In addition to the above, there will be need for two additional Directors being created since by a certain re-arrangement of the existing Directorates, the staff requirements for the whole Commission could be met for the present. The organisational pattern arising from the above recommendation is given in Appendices III (a) and III (b) and briefly described hereunder.

I. MEMBER (HYDRO ELECTRIC):

60. The following Directorates in the Power Wing which already exist will function under the control of the Member (HE):-

- (a) Director, Hydro Electric (I).
- (b) Director, Hydro Electric (II).

These two Directorates may continue as at present.

- (c) Director, Foreign Exchange:

There are two Directorates dealing with foreign exchange

at present. This work should be consolidated under one Directorate.

(d) Director, World Bank Loans:

This Directorate should continue as at present.

II. MEMBER (THERMAL):

61. The following Directorates will be attached to the Member (Thermal):-

(a) Director, Thermal Station Designs (Mechanical)

(b) Director, Thermal Station Designs (Electrical and Instrumentation)

(c) Director, Thermal Station Designs (Civil)

These three Directorates dealing with the mechanical, electrical and civil engineering aspects respectively of Thermal Station Designs already exist in the present organisation.

(d) Director, Fuel & Efficiency (Thermal)

This Directorate will deal with the collection of accurate data about fuel resources, transportation problems and costs, chemical composition and calorific value of fuels, statistical data of fuel consumption in various power stations, efficiency control and standardisation of tests

and statistics for such control, new trends in power station practices, and relative costs of power generation from coal, oil, gas and atomic fuel.

(e) Director, Training Centre, Neyveli

(f) Director, Training Centre, Durgapur

These two Centres, each under a Director, may continue as at present.

(g) Director, Thermal Plant Construction

This Directorate should not be a permanent feature but continue only so long as it is needed.

(h) Director, Neyveli

This office located at Madras may be wound up after the Neyveli work is over.

III. MEMBER : (CHAIRMAN/VICE-CHAIRMAN):

62. The following Directorates/Units will work directly under the Chairman/Vice-Chairman:-

(a) Director, Technical Examination & Coordination

(b) Director, Plan Progress.

These are existing Directorates and they should continue.

(c) Director, Power Research Institute & Switch Gear Testing Station.

The present arrangement will continue and expanded according to needs.

IV. MEMBER (PLANNING & SYSTEMS STUDIES):

63. This Member is proposed as an addition to the existing set-up. The following Directorates will function under his control:-

(a) Director, Power Systems Planning

This is a new Directorate which will deal with the choice of generation schemes based on economic considerations and sources of power to meet the growing requirements of power at the lowest cost. It should make long term studies for the development of power in order to ensure sound evolution of the power systems in the country. Preparation of forward plans and giving guidance to states in their detailed plans during the successive plan periods will also be done by this Directorate.

(b) Director, Power Systems Studies

This will be a new Directorate to carry out studies of coordinated operation of hydro, thermal and nuclear stations for fixing the installed capacity, generation, scheduling, for making provision for maintenance and standby, and also undertake load curve studies. In addition, this Directorate will deal with power system analysis for designing inter-change facilities on the basis of generation planning, studies in regard to possibilities and economics of establishing inter-State/inter-regional links, etc.

(c) Director, Super Grid.

This is an existing Directorate to deal with planning and design of extra-high voltage lines for the establishment of super grids, integrated operation of power systems, power flow studies, and planning and design of load despatch stations. This Directorate may continue.

(d) Director, Transmission

The present Directorate of Transmission should deal with the detailed electrical and mechanical design of transmission lines and their standardisation.

(e) Director, Grid Substation

This Directorate is already existing and it deals with planning and design of grid sub-stations, design of relaying and control facilities and metering.

(f) Director, Telecommunications

The present set-up should continue unchanged. This Directorate deals with coordination between power and telecommunication lines, allocation and coordination of carrier frequencies for carrier communication/telemetry, studies of interference problems and preparation of norms, manuals and standards.

V. MEMBER (COMMERCIAL)

64. The present Member (Utilisation) will be redesignated as Member (Commercial) and the following Directorates will work under his control:-

(a) Director, Urban & Rural Distribution

It is proposed that the existing Directorate of Rural Electrification should be replaced by this Directorate, which should be responsible for evolving improved designs and layouts of both urban and rural distribution systems, standardisation, communication facilities required on power distribution systems, phased development of underground distribution in urban areas, preparation of standard manuals for distribution lines and sub-stations, voltage regulation and continuity of supply, problems on distribution systems and their solution, etc.

(b) Director, Commercial

No change is suggested in the existing set-up.

(c) Director, Statistics

The present Directorate dealing with Load Surveys may be renamed as Directorate of Statistics.

(d) Director, Power Surveys

The present name of this Directorate may also be changed from Director (Planning and Progress) to Director (Power Surveys).

(e) Director, Union Territories

This is an existing Directorate dealing with all ~~power aspects of the~~ Union Territories. This may continue as before.

VI. MEMBER (ACCOUNTS)

65. The present Member (Commercial) dealing with World Bank loans, etc. may be redesignated as Member (Accounts). This post may continue as long as it is required.

Design Cells in the Irrigation & Power Projects

66. As suggested earlier, we feel that a team of officers of CW&PC each headed by an officer not below the rank of a Deputy Director may be posted in the various major projects under construction for tackling immediate problems on site. They will also be able to gain first-hand knowledge of the application of designs made in CW&PC at site. This work is essential to maintain the requisite coordination between the field and the designs office of both the Water and Power Wings of the Commission.

67. We have, in the above analysis, tried to indicate the divisions of work in the various disciplines in the CW&PC. The detailed strength of Deputy Directors, Assistant Directors/Assistant Executive Engineers and the other staff in each Directorate or Circle may be worked out by the CW&PC based on the actual requirements.

Secretary, CW&PC

68. It was suggested to us that there is necessity to review the policy regarding manning the post of Secretary, CW&PC, and that an Engineer Officer should not be engaged

on purely administrative matters. We agree with this suggestion and recommend that the general administration of CW&PC should be carried out by a Secretariat Officer to be designated as Director (Administration). Details in this regard are given hereafter.

69. We further recommend that each Wing should have a Director (Technical Coordination), and the Chairman may nominate one of them to function as Secretary, CW&PC. The duties of the Secretary should be confined to technical work, preparation of agenda and recording of minutes of Commission meetings, etc., and these duties should be in addition to his responsibilities as a Director (Technical Coordination) for his Wing.

Director (Administration)

70. It has been stated earlier that the general administration of both the Wings should be carried out by a Secretariat Officer and not by an Engineer Officer. At present, there are four Under Secretaries working in the CW&PC - three in the Water Wing and one in the Power Wing. We recommend that one of these four posts of Under Secretaries be upgraded to that of a Deputy Secretary and the person appointed to this post be designated as Director (Administration). He, assisted by the three Under Secretaries, will help the Chairman in all general administration concerning both the Wings of the Commission.

77.

The Director (Administration) will, however, route through the Vice-Chairman all papers concerning the Wing under his control.

CHAPTER VI

PERSONNEL - PROBLEMS RELATING TO RECRUITMENT, CAREER PROSPECTS, PAY SCALES, TRAINING, ETC.

Recruitment:

The present Central Water & Power Commission was constituted in 1951 by amalgamating the Central Water Power Irrigation and Navigation Commission and the Central Electricity Commission. It was in 1965 that the Central Water and Power Services (Class I and Class II) Rules were notified for the first time. Prior to that, recruitment in the Commission at the various levels was made on the basis of ad hoc decisions taken from time to time. Broadly speaking, the posts were filled partly by promotion, and partly by direct recruitment through the Union Public Service Commission. At that time, there was no regular quota for bringing officers on deputation from the various State Governments/State Electricity Boards. It was in pursuance of the recommendations of the Gokhale Committee (1957-59) that a deputation quota was introduced in the grades of Assistant Director and above some time in 1960. A statement showing Engineering Class I and Class II posts sanctioned for the Central Water & Power Commission as on 1.7.1968 is given at Appendix IV.

Chairman/Members:

2. At the top level, the Commission comprises at present one Chairman, one Vice-Chairman and six Members. The two

Wings of the Commission (Water and Power Wings) are functioning more or less as independent units in technical matters falling within the sphere of each. A convention has been established that when the Chairman belongs to the Water Wing, the seniormost Member of the Power Wing will be the Vice-Chairman of the Commission and vice versa. This is more or less a local arrangement as in terms of pay and status, the Vice-Chairman is just like any other Member of the Commission.

3. According to the Service Rules referred to in para 1 above, recruitment to the post of Chairman is made by selection through the Union Public Service Commission from a composite field consisting of - (i) Chief Engineers and Members of the Commission (Water and Power Wings); (ii) Director, Central Water & Power Research Station, Poona; (iii) Director, Power Research Institute, Bangalore; (iv) Chief Engineers in the States; (v) Engineering Members of State Electricity Boards; and officers of appropriate status in government and semi-government organisations. The period of appointment is up to 5 years which could be further extended by the Government in consultation with the Union Public Service Commission, if found necessary in the public interest.

4. Recruitment to the post of Member is made by selection through the Union Public Service Commission from a composite field consisting of (i) Chief Engineers/Directors in the

Central Water & Power Commission; (ii) Director, Central Water & Power Research Station, Poona; (iii) Director, Power Research Institute, Bangalore; (iv) Chief Engineers in the States; (v) Engineering Members of State Electricity Boards; and (vi) officers of appropriate status in government and semi-government organisations. The period of appointment is up to 5 years, extendable by Government in consultation with the Union Public Service Commission when considered necessary in public interest.

5. The Ministry of Irrigation and Power, as a rule, invites recommendations of the State Governments/State Electricity Boards, etc. for filling the posts of Chairman/Members. The names recommended by the latter, together with the names of eligible departmental officers working in the Central Water & Power Commission, are forwarded to the Union Public Service Commission. The Secretary of the Ministry assists the Union Public Service Commission in making the final selection.

6. A few suggestions were made to us in regard to the age limit, the tenure of appointment and the procedure for selection of Chairman and Members. The age of retirement under the Central Government at present is 58 years.

7. The Committee feels that the incumbents of top technical posts, viz. Chairman, Vice-Chairman and Members, should be retained in service up to the age of 60 so that the Government derives full benefit of their long and

mature experience. The minimum period of appointment in the Commission should, in our view, be 3 years in order that the persons selected are able to make useful contribution.

8. These top level technical posts should be treated as tenure posts. We accordingly recommend that the Government may consider the desirability of appointing a high-powered Selection Board for making these appointments on an All-India basis. We suggest that for the selection of Chairman, the retiring Chairman, and for the selection of Members, both the Chairman and the Vice-Chairman should be co-opted as Members of the Selection Board. The Chairman shall be appointed alternatively from the fields of Irrigation and Power.

9. The mode of recruitment to the other engineering grades (gazetted) in the Central Water & Power Commission is as indicated below:-

(i) Chief Engineer:

50% of the posts are filled by departmental promotion and 50% by deputationists from States. Officers who have rendered at least 5 years of service in the grades of Director or Superintending Engineer are eligible for consideration. The deputation quota in the other grades has been reduced temporarily, pending the formation of Indian Service of Engineers, from 50% to 25%. This reduction, however, could not be applied to the grade of Chief Engineer in view of the small number of posts available in that grade. The vacancies in the grade of Chief Engineer are,

therefore, being filled alternately by promotion and deputation.

(ii) Deputy Chief Engineer/Director (Selection Grade):

All the posts are filled by promotion from amongst the Directors/Superintending Engineers who have put in at least 5 years of service as Director/Superintending Engineer.

(iii) Director/Superintending Engineer:

75% of posts are filled by promotion and the remaining 25% by deputation. Deputy Directors/Executive Engineers become eligible after they have rendered $7\frac{1}{2}$ years of service in this grade.

(iv) Deputy Director/Executive Engineer:

75% of posts are filled by promotion and 25% by deputation. For eligibility, a minimum service of $4\frac{1}{2}$ years in the grade of Assistant Director/Assistant Executive Engineer has been prescribed.

(v) Assistant Director/Assistant Executive Engineer:

Recruitment to this grade is made from three sources, namely, 60% through the Union Public Service Commission Engineering Services Examination; 15% by departmental promotion of Assistant Engineers/Extra Assistant Directors who have put in at least three years of service; and 25% by deputation.

(vi) Extra Assistant Director/Assistant Engineer:

All the posts are filled by promotion from the grades of Design Assistants and Supervisors. Design Assistants, who are graduates, have a quota of $66\frac{2}{3}\%$ and Supervisors, who are diploma holders, a quota of $33\frac{1}{3}\%$. The former should have put in at least three years of service and the latter 10 years of service for the purpose of eligibility.

10. It will be seen that there is no deputation quota in the grade of Extra Assistant Director whereas the deputation quota in the grades of Assistant Director, Deputy Director and Director is 25% as against 50% in the grade of Chief Engineer. As stated earlier, no deputation quota was prescribed for any of those grades prior to 1960. It was one of the recommendations of the Gokhale Committee that half of the posts should be filled by officers on deputation from the States, the period of deputation being 3 to 5 years. In this connection, the Gokhale Committee had observed that "if the Central Water & Power Commission were to play successfully and effectively its role of the highest Consulting Organisation in the country in the field of Irrigation and Power, it was necessary that the arrangements for staffing should be so devised as to obtain the best available talent in the country". The Committee had also added that the knowledge of local conditions in different States should be adequately represented in the Commission staff by drawing officers on deputation from all the States..

11. Divergent views have been expressed before us. It has been contended, for instance, that bringing of officers on deputation from States and sending them back after a few years is not conducive to the building up of expertise in the Commission. It has also been argued that the State Governments are reluctant to part with their best officers and that the officers from States are themselves not very enthusiastic about going on deputation to the Central Water and Power Commission in view of the high cost of living in Delhi and other factors. It was further urged that movement of officers between the Central Water & Power Commission and States should be on a reciprocal basis rather than in one direction only.

12. We have given serious thought to the need for a deputation quota and we feel that deputation on a quota basis is not conducive for building up of an effective specialist organisation. The quota basis of filling posts by deputationists from States will jeopardise the very intention of building up specialisation. We have also been told that in actual practice it is not always the best men that the State Governments recommend for deputation to the Commission. While the practice of sending a few officers, irrespective of their suitability, to fill in the quota is not conducive to efficiency, every effort should be made to attract the best talent in any specialised field from any part of the country, and this, we recommend, can be done up to 25%.

Field Experience:

13. The Gokhale Committee had recommended inter alia that no officer should become eligible for promotion to the next higher rank unless he had acquired adequate field experience in his grade. Accordingly, field experience was prescribed in the Service Rules as a desirable qualification for promotion up to the level of Director. For being considered to the grade of Chief Engineer and above, field experience of two years was made an essential condition. Practical experience is necessary to give the officers a background knowledge for specialisation in designs, etc. One cannot be a good specialist without adequate field experience. An officer should remain in touch with field conditions, as otherwise his approach would be merely academic, and the product of his efforts may not be found acceptable. There cannot, therefore, be two opinions on the desirability of field experience for officers of the Central Water and Power Commission.

14. We endorse the recommendations of the Gokhale Committee in this behalf and feel that training for a period of two years should be adequate for individual officers.

15. In this connection, the Gokhale Committee has recommended that organisations like NPCC, DVC, etc. which are under the same Ministry should be able to provide opportunities for proper field training of

officers of CW&PC. This recommendation was accepted by the Government, but we find that in actual practice during the last decade not many officers of CW&PC could be sent for training in these organisations. We strongly reiterate the recommendation of the Gokhale Committee and feel that the Ministry of Irrigation and Power should make suitable arrangements with NPCC, DVC, etc., for providing field experience to officers of the CW&PC.

16. Further, at present, the Ministry of Irrigation and Power is directly executing the Farakka Barrage Project and the Badarpur Thermal Project. It should not be difficult for these organisations which are also under the direct control of the Ministry of Irrigation and Power to take a considerable number of officers from the CW&PC for giving them the required field experience.

17. The CW&PC engineers should also be deputed to other important projects of State Governments and State Electricity Boards for specific periods. In this connection, we have been told by various State representatives that they are not in a position to take officers from the present CW&PC on training for various reasons including their lack of knowledge of accounts and proper knowledge of local conditions. We understand that the CW&PC has at present a scheme of departmental examination which includes a paper on accounts. Further, we feel that the lack of knowledge of the local conditions should not be an impediment for an officer to be

posted to a project. Officers in other departments like C.P.W.D., Railways, M.E.S., etc. are liable to be transferred on construction jobs to any place in India the local conditions of which they will not be aware of. If this has not stood as an impediment in their case how could it be in the case of CW&PC officers? It may further be stated that it is customary with all aid-giving institutions to make it obligatory for their representatives to be associated with the projects they help building up. The Committee, therefore, recommends that, in principle, the projects undertaken by the Ministry of Irrigation & Power or receiving assistance from the Central Government should take a few officers of the Central organisations for giving them the requisite field experience.

18. We have been told by various State Governments and Electricity Boards that another important reason for their inability to take officers of Central Government for field training is that they may not be in a position to meet the expenses in this connection. As suggested earlier, it will be worthwhile for the CW&PC to meet the pay and allowances of their officers while they are acquiring field experience. We understand that similar arrangements exist for executive training of the Central Secretariat Service officers who are deputed to the State Governments.

19. The CW&PC may not be able to keep the places of the officers on training unfilled for as long a period as two

years. It should be possible to create a suitable training reserve for this purpose as recommended later in this Report. Officers not availing themselves of opportunities thus created for acquiring field experience should not be considered for promotion to higher posts.

Career Prospects

20. The eligibility periods for promotion from one grade to another in the Engineering Services of the Central Water and Power Commission have been indicated in earlier paras. Until recently, the officers of the Central Water and Power Commission used to get promotion soon after the eligibility period was completed. The position now is different. The following table shows the number of officers eligible for promotion in each category, with years of service the seniormost has put in, and those who are still awaiting promotion:

No. of eligible officers in the Central
Water & Power Commission awaiting promotion.

Grade	Eligibility period	Water Wing		Power Wing	
		Number of eligible officers	Service in the grade put in by the senior most eligible officer	Number of eligible officers	Service in the grade put in by the senior most eligible officer
1.	2.	3.	4.	5.	6.
Director	5	15	9 years	4	9 years
Dy. Director	7½	27	10 years	8	9 years
Asstt. Director	4½	103	5 years	42	5 years
Extra Assistant Director	3	34	8 years	47	5 years

21. It is clear from the above data that promotions in many cases are now taking place later than the prescribed eligibility period. An officer who has completed the eligibility period is apt to feel frustrated if he does not get promotion soon.

22. Promotions in the past have been rather rapid resulting in persons getting promotions much before they reached anywhere near the maximum of their pay scale. The promotion of an officer is at present dependent on the availability of a higher post. The expansion in the years to come may not be of the same order as in the past. The general approach on the subject should be that one should get at least two promotions in one's career beyond the point of entry. This is perhaps the minimum that should be assured in working out the cadre structure in every organised service. There is going to be some stagnation in the grade of Assistant Directors which forms the base for Class I service. The number of posts in the grade of Assistant Director in the Water Wing is 214 as against 165 in the Power Wing. The number of duty posts at the level of Deputy Director and above totals 126 in the Water Wing and 101 in the Power Wing. In all other Class I Services, the pattern is different. The junior Class I level posts form a training grade and the posts at that level are not treated as duty posts. There, the base is not so wide as in the Central Water and Power Commission. The number of

junior level posts in other organisations is roughly about 1/3 of the total number of all the duty posts at the higher level. The base in the Central Water and Power Commission is so wide that a direct recruit who joins now through the Union Public Service Commission may not be able to get the senior scale before 6 to 8 years or even more, as against five years in the Railways, Central Public Works Department and the Telegraph Engineering Services. This imbalance has to be corrected. The broad based pyramidal structure into which the Central Water and Power Commission has developed is not conducive to building up of an efficient consulting organisation. The work done by the Commission is of a highly specialised nature and the employment of a large number of class I junior scale officers with inadequate avenues of career prospects should be avoided.

23. The Committee was informed that the Indian Service of Engineers (ISE) will be constituted shortly and the officers of the CW&PC satisfying the conditions of eligibility will be considered for appointment to that Service. A discussion on the possible effects of the introduction of the Service revealed that while many of the officers of the rank of Deputy Director and above would stand a fair chance of selection, a number of junior officers of the rank of Assistant Director might be left out. Therefore, it is recommended that after the ISE cadres are formed, there should be no further recruitment to the

present cadre of Assistant Directors outside the ISE. Further, at least 25% of the posts at this level should be surrendered and a corresponding increase in the number of Deputy Directors made. Depending on the need for senior specialised posts and the work load, some posts of Joint Directors may be created so that the work load can be shared between the Director and Joint Director in those Directorates where the volume of work is heavy.

Scales of Pay

24. The existing scales of pay in the Central Water & Power Commission follow the standard pattern recommended by the Second Pay Commission. The present salary structure of the gazetted engineering cadre is as shown below:-

Chairman	Rs.3000/- (fixed).
Member	Rs.2750/- (fixed).
Chief Engineer	Rs.2000/- (fixed).
Dy. Chief Engineer/ Director (Selection Grade).	Rs.1300-100-2000.
Director	Rs.1300-60-1600-100-1800.
Dy. Director	Rs.700-40-1100-50/2-1250.
Assistant Director	Rs.400-400-450-30-600-35- 670-EB-35-950.
Extra Assistant Director.	Rs.350-25-500-30-590-EB-30- 800-EB-30-830-35-900.

25. The staff representatives pleaded that the existing scales of pay were not conducive to the retention of experts and the building up of a good designs organisation. Nor were the promotion prospects bright. It was suggested that either running scales should be allowed or the number of posts may be increased at the higher level. The grant of running scales, it was argued, was the only solution. It was further stated by the staff representatives that an integrated scale had been adopted in the Income-Tax Department merging the junior and senior Class I grades.

26. We have given very serious thought to the problem of stagnation and scales of pay in this specialist organisation. In fact, some other scientific organisation in the country have also faced this problem. We have made an effort to study the methods obtaining in the various organisations and to suggest the best way out of these seemingly difficult problems.

27. A system of time-scales, it is argued, will bring in complacency inimical to the growth of high class scientific work as suggested by the Second Pay Commission. While we agree that unrestricted opportunities of promotion without proper accent on merit is not conducive to the growth of a specialist organisation, denying adequate opportunities for the really deserving can be more injurious. To strike at a mean between these two, perhaps it would be desirable to have a system of time-scales. We

suggest that officers who complete eligibility in their grade should be considered for promotion and in deserving cases the promotions should not be stopped for reasons of lack of posts in the higher cadre. This can be achieved by having a flexible cadre structure and by giving the organisation the liberty to have an ex cadre post till such time as necessary. For the growth of specialist organisations like the CW&FC the usual rigid cadre structure with limitation of posts in each cadre should not be applied.

28. In order to avoid stagnation and provide incentives at the level of Deputy Directors, the posts of Joint Directors in the scale of Rs.1100-1400 should be created as already suggested.

29. At the junior level we have considered that creation of a cadre between the junior Class I and senior Class I cadres may not be workable. A system as the one obtaining in other Central Services like Income-Tax and Indian Audit and Accounts Service may be advantageously adopted here. Of course, it has been argued that a specialist organisation like CW&FC engaged in designs, research, innovations etc. should not be treated on par with non-technical organisations where the nature of work is more routine. We feel that this is exactly the reason why a specialist organisation should have at least the same career prospects if not better than those obtaining in routine departments.

In this connection, it may also be observed that certain engineering organisations like the Punjab State Electricity Board have accepted this principle and integrated the junior and senior scales of pay.

We also suggest that Class I junior and senior scales of pay may be clubbed as follows and those who do not get selected for appointment to the ISE may be given this grade:

Rs.400-40-600-EB-700-40-1100-50/2-1250.

Pay Scale of Chief Engineer

30. The present pay scale of Chief Engineer in the CW&FC at Rs.2,000/- p.m. (fixed) is not adequate considering the duties and responsibilities attached to the post and we recommend that it should be revised to Rs.2000-125-2250 which scale is in line with the pay scale recommended for the ISE.

31. The scales of pay in regard to other posts, being the same as recommended for the ISE, may remain unchanged.

Scientific Posts

32. There are a few scientific posts at the Research Station, Poona, but we understand that those posts and the scientific posts at the Central Soil Mechanics Research Station in New Delhi are borne on a combined cadre. We

recommend that all scientific posts should be combined and should form a uniform structure. The revision of pay scales of scientific posts in the CW&FC should be considered along with other Services in the country.

Deputation, Leave and Training Reserve

33. We have been told that the cadre strength of the Central Water and Power Commission is yet to be fixed making provision for deputation and leave reserves. Provision of deputation, leave and training reserves is an accepted feature of all organised services. The cadre strength for the Central Water & Power Commission should be suitably determined making adequate provision therefor.

Foreign Training

34. Facilities for training abroad are available under the various foreign aid programmes such as the Colombo Plan. The cost of training is generally met by the host country. The period of training ordinarily is six months to one year. The training programmes now are project-oriented. The number of engineers of the Central Water & Power Commission who have been trained abroad comes to 15-20% of the sanctioned strength. Generally, officers of the rank of Assistant Director and Deputy Director in the age group of 30-40 years have been sponsored for training. The Ministry of Irrigation & Power have set up a Selection

Committee composed of Chairman, Central Water and Tower Commission, Vice-Chairman, Central Water & Tower Commission, and the Joint Secretary (Administration) to coordinate and scrutinise the proposals received from the States as also those formulated by the Central Water and Tower Commission. While making selections, certain basic points relating to background, experience, age, field of training, usefulness of training, etc., are kept in view. The proposals are finally screened by the Ministry of Finance who have set up a special committee for this purpose. The officers sent for foreign training have to execute a bond that they would serve the sponsoring agency for a period of 4 years on return from training.

35. The officers trained abroad are generally posted in a Directorate where the knowledge acquired could be most profitably utilised. On completion of training, the officers are required to submit detailed reports, relevant extracts of which are circulated for information of all concerned. Regular follow-up action on suggestions made in the reports is, however, not being taken and there is a tendency to treat action on these reports as a mere routine matter. While it is accepted that for a highly expert body like the Central Water & Tower Commission, its officers are required to keep themselves abreast of the latest developments in their own field in order to build up expertise in various branches of irrigation,

flood control, power engineering, designs and research, no special study appears to have been made so far of the gaps in the expertise required of the Commission. We would suggest that advance action be taken to formulate training programmes on a systematic basis under the guidance of a Member of the Central Water & Power Commission. As regards selections, only candidates of proved merit should be recommended to derive the best advantage from training. Follow-up action should be taken promptly on the reports of trainees and new ideas gained should be shared by others. It would be worthwhile if each candidate, on conclusion of his course, could contribute an article in the official journal of the Ministry of Irrigation and Power (Bhagirath) highlighting the directions in which improvements in India are possible in regard to planning, designs, research, construction, operation and maintenance of projects, etc. These articles would be of interest to other engineers and would act as a stimulant for evolving new techniques. A card system should be introduced so that the qualifications, experience, foreign training, various postings, etc. of each officer are available for ready reference. This would facilitate consideration of proposals for rational postings with regard to the officers' attainments, aptitude etc.

Recognition of Merit and Incentives

36. We understand that advance increments as an incentive for outstanding work are being given to officers of

other scientific organisations like CSIR and Defence Research and Development Organisation. As the CW&IC is an organisation of high technical stature aimed at developing specialised knowledge in irrigation and power engineering, it would be only appropriate to extend the same practice to CW&IC also. We recommend that the Chairman, Vice-Chairman and Members of the Commission should review cases of outstanding work, in accordance with the procedure laid down, every year and should give suitable advance increments, merit certificates, etc. to their officers.

37. Some of the scientific organisations in the country (for example Defence Research & Development Organisation, Council of Scientific & Industrial Research, etc.) provide opportunities to do research work in their laboratories leading to the award of doctorate degrees by some of the universities. The CW&IC also being high-level organisation in the Irrigation and Power fields should provide such opportunities for their officers to register themselves for research degrees in the IITs and other universities and use the laboratories under the Commission for research work.

38. Study leave should be liberally granted to those who wish to pursue such studies on their own.

39. It has also been represented to us that in the interest of encouraging higher learning, the CW&IC should give incentives to officers with higher qualifications as

is the practice in some of the State Governments. We recommend that the officers with post-graduate and other higher qualifications may be given incentives by way of special pay so that the higher qualifications are adequately rewarded and the flight of personnel with higher qualifications can be arrested.

Representations from Associations of CW&IC

40. The Committee has given due consideration to the representations received from the staff associations of CW&IC mentioned in Appendix V. We are given to understand that the constitution of the Indian Service of Engineers (ISE) will cover most of the interests of Class I Officers. Nevertheless, the Committee feels that there are still certain aspects affecting the service conditions of gazetted officers who may not be encadred in the ISE as also the promotion prospects at the higher level, which demand some consideration. Some remedial measures have been suggested in this report.

41. Similarly, the present condition of the non-gazetted staff, particularly the stagnation in the cadre of Senior Draftsmen, needs to be looked into. It is hoped that the Ministry of Irrigation & Power will examine these personnel matters in regard to the non-gazetted staff of the CW&IC.

CHAPTER VIISUMMARY OF RECOMMENDATIONSInter-State Projects

1. The Central Government should assume greater responsibility for the regulation and development of inter-State rivers and river valleys.
(p.17, para 13)
2. The CW&PC should assume the responsibility for collecting and compiling reliable hydrological data in respect of major inter-State rivers and for preparing basin-wise plans. The responsibilities to be borne by the Commission in this respect are given in para 12 of Chapter II.
(p.16, para 12)
3. The Ganga Basin and the Indus Basin Wings in the Ministry of Irrigation and Power should be merged with the CW&PC at a convenient point of time.
(p.17, para 14)
4. The CW&PC should be charged with the responsibility to prepare Master Plans for irrigation, flood control and for hydro-electric and thermal power for the whole country. Within these limits a perspective plan for the next twenty years or so should be prepared, fixing suitable priorities for the schemes so that the investigations, designs and construction proceed systematically in a phased manner.
(p.18, para 15)
5. There should be a performance audit showing the physical targets, the shortfalls and their causes. The past experience of the shortfalls etc. should be useful for the planners at the time of preparing subsequent Plans.
(p.18, para 16)

Status and Composition of CW&PC

6. The CW&PC should form part of the Ministry with Secretarial status for the Chairman and the Vice-Chairman. The Chairman should be a Special Secretary and the

Vice-Chairman should be an Additional Secretary... There does not seem to be a better alternative than this in the present circumstances to ensure the smooth and efficient working of CW&PC.

(p.20, para 4)

7. The two Wings of the CW&PC (Water Wing and Power Wing) should not be bifurcated. The Commission should continue to function as a composite body as at present, providing opportunities for each Wing to develop its expertise.

(p.23, para 8)

Functions of CW&PC

8. The CW&PC should be able to give advice of a high order expeditiously. It should inspire confidence amongst the States, the State Electricity Boards and other organisations consulting the Commission, and should be able to help them on problems which they are not in a position to solve or for which they desire to obtain a second opinion.

(p.49, para 2-4)

9. The detailed technical examination of projects by the CW&PC should normally be for projects costing Rs. 10 crores and more. Projects costing below Rs. 10 crores may be examined on a suitable proforma basis, to be prescribed by the CW&PC in consultation with the Planning Commission. This would not, however, bar some of the States which do not have proper arrangements for technical scrutiny of projects to seek the advice of CW&PC on projects costing less than Rs. 10 crores also.

(p.26, para 4)

10. In the case of projects having inter-State ramifications, the present practice of complete examination by the CW&PC should continue irrespective of the estimated cost of these projects.

(p.26, para 5)

11. The Central Water & Power Commission should keep a watch on the progress of all river valley projects in the country.

(p.26, para 6)

12. The Chairman and Members of the CW&PC should continue to be associated with the Control Boards and Committees as before.

(p.27, para 7)

13. While the Commission can certainly be asked to give technical information on any aspect mentioned in a Parliament question, avoidable references should not be made by the Ministry of Irrigation & Power to the CW&PC.
(p.27, para 8)
14. The CW&PC should render high level expert advice in regard to (a) even distribution of construction plant and machinery on the projects under execution, (b) ideal plant layout on each project and (c) proper maintenance of plant and machinery so as to prevent avoidable idling of capital investment. For this, the officers of the Commission should be trained suitably.
(p.28, para 9)
15. It is highly desirable that all projects should get the approval of CW&PC for procurement and disposal of the equipment, particularly imported equipment. The Government of India must continue to insist on this condition before any foreign exchange is allocated for the purpose. With regard to indigenous equipment, the ideal way appears to be that the CW&PC should collect data of surplus equipment and spare parts lying at various project sites in the country and build up an extremely efficient and expeditious service in these matters so that the States are attracted to come forward voluntarily to seek the advice of CW&PC.
(p.29, para 10)
16. The working procedure in the offices of the Commission should be so modified that the officers entrusted with the functions mentioned in paras 9 to 15 above, consult their counter-parts posted in other specialised sections, as far as possible, on a personal level, when necessary, without wasting time on inter-sectional correspondence.
(p.30, para 13)
17. The CW&PC should play an effective role in flood control. Details of the functions to be performed by the Commission in this regard are mentioned in para 16 of Chapter IV.
(p.31, para 16)
18. It is not considered desirable that the Commission should involve itself directly in ordinary construction activities. Nevertheless, it is essential that opportunities should be provided to the staff to get the required field and construction experience.
(p.32, para 17)

19. The designers of the CW&PC should be available for tackling problems at the sites of the projects ~~they~~ design. For this purpose, design cells of the Commission headed by an officer not below the rank of a Deputy Director should be established at the site of each of the major projects executed by the Centre or such projects which have been either designed by the CW&PC or where advice has been given by it.
(p.33, para 20)
(p.75, para 66)
20. Some fields have been suggested in para 21, Chapter IV, in which the CW&PC could develop specialisation with profit. Suitable units devoted to such studies can be established in CW&PC.
(p.33, para 21)
21. The Central Electricity Authority should concern itself with arbitration work only and its functions other than arbitration should be added on to the Power Wing of the CW&PC after undertaking such legislation as may be necessary. The Committee has endorsed the view of the 1st Reorganisation Committee in this respect.
(p.38, paras 26,27)
22. The CW&PC will have to assume the following new responsibilities in the field of power:-
- (i) establishment of inter-connected super-grids between States and development of an all-India grid;
 - (ii) day-to-day watch on the power situation in different regions of the country to bring about such adjustments as may be necessary for optimum utilisation of power systems; and
 - (iii) control over operation of Central Power Stations to be set up at coal washeries after linking them with super-grids.
(p.40, para 28)
23. The CW&PC should take the lead in organising seminars on important aspects of design and construction of major river valley schemes and power projects. The officers of the CW&PC should also participate in the deliberations of the Institution of Engineers and other professional organisations.
(p.41, para 29)

24. The officers of the CW&PC particularly at the level of Assistant Director and Deputy Director, should be encouraged: (i) to go on study tours to the project sites, (ii) to participate in short-term specialist courses organised by the universities, (iii) to go on deputation for post-graduate courses in the various institutions and universities of the country.

(p.42, para 30)

25. The various specialised directorates in the CW&PC should be encouraged to bring forth their work in the form of standard manuals and brochures incorporating the latest methods and giving information regarding the special designs and calculations of important features of projects.

(p.42, para 31)

26. The CW&PC should carry out a sustained and systematic programme of publicity through the various information media including popular and technical publications, exhibitions, documentary films, etc.

(p.43, para 33)

27. The CW&PC should obtain information on the development of irrigation and power through our missions in friendly foreign countries who are likely to approach us for advice on these matters.

(p.44, para 34)

28. The Commission should preferably be located along with the Ministry of Irrigation and Power at one place to cut short avoidable correspondence and to make the assistance of the technical officers readily available to the Ministry.

(p.44, para 36)

29. The library should be also shifted along with the main office of CW&PC.

(p.45, para 37)

30. The expertise built up by CW&PC should be utilised for export to friendly foreign countries which are in the process of development. The organisation should be registered with international bodies like the United Nations, etc., for rendering consultancy services. The services of eminent engineers, both retired as well as those who are still in service, should be made use of for this purpose. There should be a compendium maintained in the Commission giving details of the qualifications and experience

of those engineers. The Foreign Technical Assistance Cell which is now existing in the Ministry of Irrigation & Power should be transferred to the CW&PC. The CW&PC should equip itself with literature showing the progress already made in those countries which are likely to seek technical assistance from India.

(p.44, para 34)
(p.45-48, paras 38-43)

Organisational Structure

31. At present all the functions in the Commission are carried out and examined in the various specialised directorates and the advice given by the different directorates is coordinated. The Members or the Chief Engineers incharge give the consolidated advice, or the Commission sometimes acting section-wise for Water and Power Wings respectively renders such advice in important cases. This system has worked well and should be adopted in the future also.

(p.49-50, paras 5-6)

Water Wing

32. One more Member in charge of Floods be added. This is in pursuance of the recommendation in para 17 of this chapter.
33. With the increase in the design and research activities, the work load on the Member (D&R) is too heavy and in the interests of specialisation, the Member (D&R) should be relieved of certain items.
34. The Director, Concrete & Masonry Dam Designs, will look after the design of masonry and concrete gravity dams and appurtenant works. He may have a specialised cell, if necessary, under a Joint Director for the design of gates and structures.
35. The present Director (Power House Designs) will be renamed as Director, Hydro-Electric Civil Designs. He will deal with the designs of hydro-electric power houses and other appurtenant structures.

(p.50, para 7)
(p.50, para 8)
(p.51, para 9)
(p.51, para 10)

36. The present Dams Director-II is dealing mostly with earth and rockfill dams design. We feel that this arrangement is adequate and may continue hereafter. A Cell under a Joint Director may work on Instrumentation in Directorate of Earth Dams.
(p.51, para 11)
37. The Directorate of Farakka Barrage Design may continue as long as it is concerned with the design of the Farakka barrage project and should thereafter be placed under the Member (Floods).
(p.52, para 12)
38. The Central Water & Power Research Station, Poona, can contribute a good deal by evolving improved techniques of measurements of discharges and determination of run-off. It should coordinate and advise the field staff engaged on the basin-wise studies in the methods and means of measuring stream flows.
(p.53, para 15)
39. The Commission may examine the proposals submitted by the Director, CWPRS to strengthen the organisation and take necessary measures in this direction.
(p.53, para 16)
40. The CWPRS at Khadakwasla should be a self-contained Unit. Construction of quarters for the officers and staff working in the laboratory should be undertaken in a phased manner.
(p.54, para 18)
41. The two Research Stations (The Central Water & Power Research Station, Poona, and the Central Soil Mechanics Research Station, New Delhi) should both work as part of Central Water & Power Commission. They should continue to be under the charge of Member (Design and Research).
(p.54, para 21)
42. The Committee agrees with the view expressed in the report "Preparatory Plan for setting up a Research and Coordinating Centre in Soil Mechanics and Foundation Engineering" that the Centre should start with its nucleus in the existing Central Soil Mechanics Research Station, New Delhi, working under the Central Water & Power Commission. But providing opportunities for advanced research leading to post-graduate and doctorate courses in the field of soil mechanics

and foundation engineering should not be a primary concern of this Centre.

(p.55, para 24)

43. There are six Directors working under the Member (Planning & Progress). Three more Directors, viz. the Director (Standards & Manuals), the Director (Plant Layout) and the Director (Publicity) should be created under this Member.
(p.57, para 23)
44. We feel that the Directorate of Progress Recording may be renamed as Directorate of Planning and Progress. If necessary, depending on the quantum of work, a Joint Director for Planning may be created at a later date.
(p.57, para 30)
45. The Directorate of Cost Control should do basic work in revising the Rates & Cost Committee Report. It should bring it up-to-date and the CW&PC should publish the latest edition as early as possible.
(p.57, para 31)
46. The new Directorate of Standards and Manuals should be charged with the responsibility of preparing manuals and standards and arranging their publication.
(p.58, para 32)
47. The Committee agrees with the importance of statistical work being done by a separate Directorate of Statistics which should form the store house for all statistics connected with the development of irrigation in the country.
(p.58, para 33)
48. An additional Directorate of Plant Layout may be established to render advice on construction plant layout in all major projects.
(p.59, para 36)
49. A full-fledged Directorate should deal with publicity work. This Directorate should include the present Deputy Director (Seminars), the Library and Information Bureau and the Editorial Section of Bhagirath. There is a lot of scope for properly organising the library and streamlining its administration.
(p.59, para 37)
50. The Committee recommends the inclusion of one more Directorate under the Member (Water Resources) to deal with ground water resources. Further, the basin-wise studies should also be carried out under his control.
(p.60, para 38)

51. The Directorate of Surface Water Resources should be charged with the responsibility of compilation, coordination and processing of the data to be supplied by the staff working on basin-wise studies. This Directorate should also attempt standardisation of the methods of collecting the basin-wise data.
(p.60, para 39)
52. The Director (Flood Estimation) should be made responsible for preparation of Hydrographs in all major river basins at important locations and arriving at suitable empirical factors for estimation of floods for various regions of the country.
(p.61, para 40)
53. The Directorate of Waterways and Irrigation should develop specialised knowledge on the crops and crop pattern in the commanded areas of various projects and should be able to render high level advice on the economical utilisation of water. The CW&PC should properly advise the State Irrigation Departments on optimum use of water to avoid problems of water logging and water wastage.
(p.61, para 41)
54. The new Directorate of Ground Water Resources should study the utilisation of ground water resources and it should be capable of rendering competent advice to the units working on ground water problems in the States.
(p.62, para 42)
55. There is no further need for the Directorate of Soil Conservation. The soil conservation work in River Valley Projects may be done in the Flood Control Directorate, under a Deputy Director. This post may be filled in by an officer on deputation from the Forest or Agriculture Department.
(p.63, para 44)
56. Regular studies should be made by the CW&PC in the field of flood control and it should be in a position to coordinate all activities in the flood control field throughout the country. The Commission should also be responsible for the development of a proper flood forecasting system and it should be very much connected with the Flood Control Boards both at the Centre and the States. To achieve these, a post of Member (Floods) may be added to CW&PC and the present post of Chief Engineer (Floods) be abolished.
(p.64, para 46)
57. At present there is a Chief Engineer working in the Eastern Region and stationed at Gauhati. This Chief Engineer should work under the Member (Floods).
(p.64, para 47)

58. The present Directorate of Flood Control may continue as Directorate of Flood Control & Drainage. This Directorate should be charged with the responsibility for proper planning of flood control measures.

(p.65, para 48)

59. CW&PC should develop a specialised unit on integrated operations of multi-purpose reservoirs. A cell of the Directorate of Reservoir Operations may work at the site of any reservoir for rendering advice on the lines similar to the one at DVC. Depending on the nature of the work, posts of suitable rank (Joint Director/Deputy Director) required for such operations should be created under this Directorate.

(p.65, para 49)

60. The CW&PC should develop flood forecasting systems for all the flood-prone basins of the country. The Member (Floods) may be assisted by a Director at the Centre dealing with coordination of the work of the field units and standardising the methods of flood forecasting. The actual organisation required in the field may be worked out by the CW&PC.

(p.66, 50)

61. The present Canals Directorate should work under the Member (Floods) and it should evolve type designs and prepare manuals on cross drainage works.

(p.66, para 51)

62. The Director (Union Territories) should be given the powers of a Chief Engineer in view of the fact that technical sanction to estimates has to be accorded by him.

(p.67, para 52)

63. Like other Members of the Commission, the Chairman/Vice-Chairman should also deal directly with some of the functions of the Commission. When the Chairman/Vice-Chairman is from the Water Wing, the following officers should be under his control:

- (1). Chief Engineer, Salandi Project.
- (2). Chief Engineer, Field Investigation.
- (3). Director, Technical Coordination.

(p.67, para 53)

64. The Chief Engineer, Salandi Project, may continue until the completion of the work.

(p.67, para 54)

65. At present, three investigation circles are working under the Chief Engineer (Field Investigation). This may continue and the strength required may be adjusted according to the requirements.

(p.67, para 55)

Power Wing

66. A post of Member to be designated Member (Planning & System Studies) should be created in the Power Wing.

(p.68, para 58)

67. There are two Directorates dealing with foreign exchange under the Member (Hydro Electric) at present. This work should be consolidated under one Directorate.

(p.69, para 60)

68. The Directorate of Thermal Plant Construction should not be a permanent feature but continue only so long as it is needed.

(p.70, para 61)

69. The Directorate of Neyveli project may be wound up after the Neyveli work is over.

(p.71, para 61)

70. The following Directorates/Units of the Power Wing will work directly under the Chairman/Vice-Chairman:-

1. Director, Technical Examination & Coordination.
2. Director, Plan Progress.
3. Director, Power Research Institute & Switch Gear Testing Station.

(p.71, para 62)

71. There should be a new Member (Planning & System Studies) with the following Directors under him:-

1. Director, Power Systems Planning.
2. Director, Power Systems Studies.
3. Director, Super Grid.
4. Director, Transmission.
5. Director, Grid Substation.
6. Director, Telecommunications.

(p.72-73, para 63)

72. The new Directorate of Power Systems Planning will deal with the choice of generation schemes based on economic considerations and sources of power, make long term studies for the development of power, and guide the States in the preparation of forward plan.

(p.72, para 63)

73. There will be a new Directorate of Power Systems Studies to carry out studies of coordinated operation of hydro, thermal and nuclear stations for fixing the installed capacity, generation, scheduling, etc. and studies in regard to possibilities and economics of establishing inter-State/inter-regional links, etc.
(p.72, para 63)
74. The present Member (Utilisation) will be redesignated as Member (Commercial).
(p.73, para 64)
75. The existing Directorate of Rural Electrification should be replaced by the Directorate of Urban and Rural Distribution, which should deal with both urban and rural distribution systems.
(p.74, para 64)
76. The present Directorate dealing with Load Surveys may be renamed as Directorate of Statistics.
(p.74, para 64)
77. The present name of the Directorate of Planning & Progress may be changed to the Directorate of Power Surveys.
(p.74, para 64)
78. The present Member (Commercial) dealing with World Bank loans etc. may be redesignated as Member (Accounts). This post may continue as long as it is required.
(p.75, para 65)
79. The detailed strength of Deputy Directors, Assistant Directors/Assistant Executive Engineers and the other staff in each Directorate or Circle may be worked out by the CW&FC based on the actual requirements.
(p.75, para 67)
80. Each of the two Wings of CW&FC should have a Director (Technical Coordination), and the Chairman may nominate one of them to function as Secretary, CW&FC. The duties of the Secretary should be confined to technical work, preparation of agenda and recording of minutes of Commission meetings, etc., and these duties should be in addition to his responsibilities as a Director (Technical Coordination) for his Wing.

(p.76, para 69)

81. The general administration of CW&PC should be carried out by a Secretariat Officer and not by an Engineer Officer. One of the existing four posts of Under Secretaries should be upgraded to that of a Deputy Secretary and the person appointed to this post be designated as Director(Administration). He, assisted by the three Under Secretaries, will help the Chairman/Vice-Chairman in all general administration concerning each of the Wings of the Commission.

(p.76, para 70)

82. The Director (Administration) will route through the Vice-Chairman all papers of common interest.

(p.76-77, para 70)

Personnel

83. The incumbent of top technical posts, viz. Chairman, Vice-Chairman and Members, should be retained in service up to the age of 60 so that the Government derives full benefit of their long and mature experience. The minimum period of appointment in the Commission should be three years in order that the persons selected are able to make useful contribution.

(p.80, para 7)

84. The top level technical posts of Chairman/Vice-Chairman and Members should be treated as tenure posts. The Government may consider the desirability of appointing a high-power Selection Board for making these appointments on an all-India basis. For the selection of Chairman, the retiring Chairman and for the selection of Members, both the Chairman and the Vice-Chairman should be co-opted as Members of the Selection Board. The Chairman shall be appointed alternatively from the fields of Irrigation and Power.

(p.81, para 8)

85. While the practice of sending a few officers, irrespective of their suitability, to fill in the posts in CW&PC on quota basis is not conducive to building up an effective specialist organisation, every effort should be made to attract the best talent in any specialised field from any part of the country, and this, we recommend, can be done up to 25%.

(p.84, para 12)

86. The Committee endorse the recommendations of the Gokhale Committee with regard to the necessity of field training and feel that training for a period of two years should be adequate for individual officers.

(p.85, paras 13-14)

87. In principle, the projects undertaken by the Ministry of Irrigation & Power such as the Farakka Barrage Project and the Badarpur Thermal Project, or receiving assistance from the Central Government should take a few officers of the Central organisations for giving them the requisite field experience. The Ministry should also make suitable arrangements with NFCC, DVC, etc., for the same purpose. In addition, the CW&FC engineers should be deputed to important projects of State Governments and State Electricity Boards for this purpose.
- (p.85-87, paras 15-17)
88. It will be worthwhile for the CW&FC to meet the pay and allowances of their officers while they are acquiring field experience.
- (p.87, para 18)
89. The general approach in the matter of promotions should be that one should get at least two promotions in one's career beyond the point of entry. This is perhaps the minimum that should be assured in working out the cadre structure in every organised service.
- (p.89, para 22)
90. The broad based pyramidal structure into which the Central Water and Power Commission has developed is not conducive to building up of an efficient consulting organisation. This imbalance has to be corrected.
- (p.90, para 22)
91. After the Indian Service of Engineers (ISE) cadre is formed, there should be no further recruitment to the present cadre of Assistant Directors outside the ISE. Further, at least 25% of the posts at this level should be surrendered and a corresponding increase in the number of Deputy Directors made.
- (p.90, para 23)
92. It would be desirable to have a system of time-scales. Officers who complete eligibility in their grade should be considered for promotion and in deserving cases the promotions should not be stopped for reasons of lack of posts in the higher cadre. This can be achieved by having a flexible cadre structure and by giving the organisation the liberty to have an ex cadre post till such time as necessary. For the growth of specialist organisations like the CW&FC the usual rigid cadre structure with limitation of posts in each cadre should not be applied.
- (p.92-93, para 27)

93. In order to avoid stagnation and provide incentives at the level of Deputy Directors, the posts of Joint Directors in the scale of Rs.1100-1400 should be created depending on the need for senior specialised posts and the work load.
(p.90-91,93, paras 23, 28)
94. The junior and senior scales of pay may be clubbed as follows and those officers who do not get selected for appointment to the ISE may be given this grade:
Rs.400-40-600-EB-700-40-1100-50/2-1250.
(p.93-94, para 29)
95. The present pay scale of Chief Engineer in the CW&PC at Rs.2,000/- p.m. (fixed) is not adequate; it should be revised to Rs.2000-125-2250 which scale is in line with the pay scale recommended for the ISE.
(p.94, para 30)
96. The scales of pay in regard to other posts, being the same as recommended for the ISE, may remain unchanged.
(p.94, para 31)
97. All scientific posts should be combined and should form a uniform structure. The revision of pay scales of scientific posts in the CW&PC should be considered along with other Services in the country.
(p.94, para 32)
98. Provision of deputation, leave and training reserves is an accepted feature of all organised services. The cadre strength for the CW&PC should be suitably determined making adequate provision therefor.
(p.95, para 33)
99. Advance action should be taken to formulate programmes for sending officers for foreign training on a systematic basis under the guidance of a Member of the Central Water & Power Commission. Only candidates of proved merit should be recommended and follow-up action should be taken promptly on the reports of trainees and new ideas gained should be shared by others. It would be worthwhile if each trainee could contribute an article in the Bhagirath highlighting the directions in which improvements are possible in India. A card system should be introduced so that the qualifications, experience foreign training, various postings, etc. of each officer are available for ready reference.

(p.96-97, para 35)

100. The Chairman, Vice-Chairman and Members of the Commission should review cases of outstanding work, in accordance with the procedure laid down, every year and should give suitable advance increments, merit certificates, etc. to their officers.

(p.97, para 36)

101. The CW&PC should provide opportunities for their officers to register themselves for research degrees in the IITs and other universities and use the laboratories under the Commission for research work.

(p.98, para 37)

102. Study leave should be liberally granted to those who wish to pursue higher studies on their own.

(p.98, para 38)

103. The officers with post-graduate and other higher qualifications may be given incentives by way of special pay so that the higher qualifications are adequately rewarded and the flight of personnel with higher qualifications can be arrested.

(p.98-99, para 39)

104. There are certain aspects affecting the service conditions of gazetted officers who may not be encadred in the ISE as also the promotion prospects at the higher level, which demand some consideration. Similarly, the present condition of the non-gazetted staff, particularly the stagnation in the cadre of Senior Draftsman, needs to be looked into. The Ministry of Irrigation & Power may examine personnel matters in regard to the non-gazetted staff of the CW&PC.

(p.99, para 40)

(S. Bhagavantam)
CHAIRMAN

(M.R. Chopra)
MEMBER

(K.P.S. Nair)
MEMBER

(Moti Ram)
MEMBER

(H.R. Bhatia)
MEMBER

(K.G.R. Iyer)
MEMBER

NOTE OF DISSENT BY SHRI H.R. BHATIA

I am not in agreement with recommendations No.7 and 21 of the Report and record my views as under:-

Recommendation No. 7:

I feel that a stage comes in the growth of an organisation when a single organisation becomes a bottleneck rather than a strength in advancing the progress of work entrusted to it. This is particularly so when the sphere of work of the organisation is not inter-related over a wide field of its activity. Such a stage has come in the case of Central Water and Power Commission.

Both irrigation and power are developing rapidly in the country. A large portion of the water resources of the country are still un-utilised, mostly due to lack of investigations and accurate river flow data for which basin-wise studies are still necessary and have been recommended in the report. On the power side, the load has been almost doubling up every five years during the last two decades, and although the doubling-up period may be somewhat longer in the future years, in physical terms the progress of power development to be achieved will be much larger as the base becomes bigger and bigger. Although hydro-electric power will have to be given high priority for obvious reasons as a national policy, there are limitations to its rate of growth

in view of the need for long-term investigations and studies, relatively long period of construction, and costly construction machinery required, which will require phasing of these projects suitably consistent with resources. It is estimated that in future years, at best 40 per cent. of the fresh power generation may be contributed by hydro resources and the balance 60 per cent. will be contributed by thermal and nuclear sources. The technical expertise involved in the design and construction of thermal and nuclear power plants is entirely different from that of hydro-electric power plants, and there is no common ground in this field between the Power Wing and the Water Wing of the Commission. Even the Civil Engineering Design of Thermal Power Houses is a specialised field quite apart from hydro-electric power houses. Further, the large development in the field of Power Transmission and Distribution envisaged in future to keep pace with increasing power generation has no common ground with the Water Wing of the Commission. Similarly, the Power Wing of the Commission can make no contribution in the initial investigation of water resources and their utilisation aspects for irrigation and navigation. Flood control is also particular to the Water Wing only. In the light of these conditions, there seems to be no purpose in keeping the two Wings linked together in a single organisation. The insignificant gain in keeping a common Secretariat for administrative work will be outweighed manifold by the gain in progress and efficiency of the two Wings working separately.

The main argument advanced for a joint organisation is the need for a close coordination between the two Wings. In the first place, the field of coordination between the two Wings is very limited and pertains only to the generation of hydro-electric power. I do not think such a coordination will suffer in any way when the two Wings are reorganised as independent organisations under one and the same ministry. In fact, a close coordination of both these organisations will be necessary with the National Projects Construction Corporation, which is the construction wing under the Ministry of Irrigation and Power. Also, if the Power Wing is able to coordinate its activities with the Atomic Energy Commission, which is entirely a separate organisation under a different Ministry, the argument of proper coordination under a joint organisation falls through, especially as both the Water Wing and the Power Wing will be functioning under one Ministry.

Recommendation No. 21:

It is recommended in the Report that the Central Electricity Authority should concern itself with arbitration work only and its functions other than arbitration should be taken away and entrusted to the Power Wing of the joint Commission, after undertaking a suitable legislation. It may be recalled that such a recommendation was made by the First Reorganisation Committee also, but the Government of India, after a thorough examination, turned down

this recommendation. According to the papers circulated to the Committee at an early stage of its deliberations, the observation which the Government of India then made on this recommendation is very significant and is reproduced below:-

"(i) The Central Electricity Authority is charged inter alia with the development of a sound, adequate and uniform National Power Policy and particularly with the coordination of the activities of the planning agencies in relation to the control and utilisation of national power resources. In view of the heavy programme of power development in the country, any change in the constitution of the Central Electricity Authority and reduction of its functions to a mere Arbitration Board would be a retrograde step."

The constitution of the Central Electricity Authority is envisaged in the Electricity Supply Act of 1948 in the interest of rapid power development in the country. In the light of the progress which has been made in the power field up to date, the need of the time is to strengthen this organisation rather than weakening it. The recommendation made in the report, if acted upon, will, therefore, mean reversing the process instead of advancing it. I am, therefore, unable to be a party to this recommendation. The CW&PC, as constituted at present, is a designs and consulting organisation, and while it can examine and give advice on the technical and financial aspects of a project, it has no authority to start a project ab initio. The functions of the Central Electricity Authority, on the other hand, include planning ab initio and coordinating

the activities of the planning authorities in the country functioning in the field of electric power. There seems to be no point in introducing fresh legislation for taking away these functions from the Central Electricity Authority and entrusting them to the Commission. The right course would appear to be to merge the Power Wing of the Commission with the Central Electricity Authority and let it function as an independent organisation under the same Ministry. Even though I have recommended the separation of the Power Wing and the Water Wing as independent organisations, I am very clear in my mind that the functioning of the two organisations, along with NPCC, which should be fully developed to function as an efficient construction wing, must be controlled by a single Ministry.

4th March, 1969.

Sd/- H.R. Bhatia
(H.R. BHATIA)
MEMBER
CW&PC Reorganisation Committee.

APPENDIX-I

FUNCTIONS OF CENTRAL WATER & POWER COMMISSION

(As defined in the Resolution No.EL-1-201(5) dated 21.4.1951 of the Government of India, Ministry of Natural Resources and Scientific Research).

The Commission will be charged with the general responsibility of initiating, coordinating 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

APPENDIX-I

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, coordinate 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 arrang. 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 coordinate research on the various aspects of river valley development schemes such

APPENDIX-I

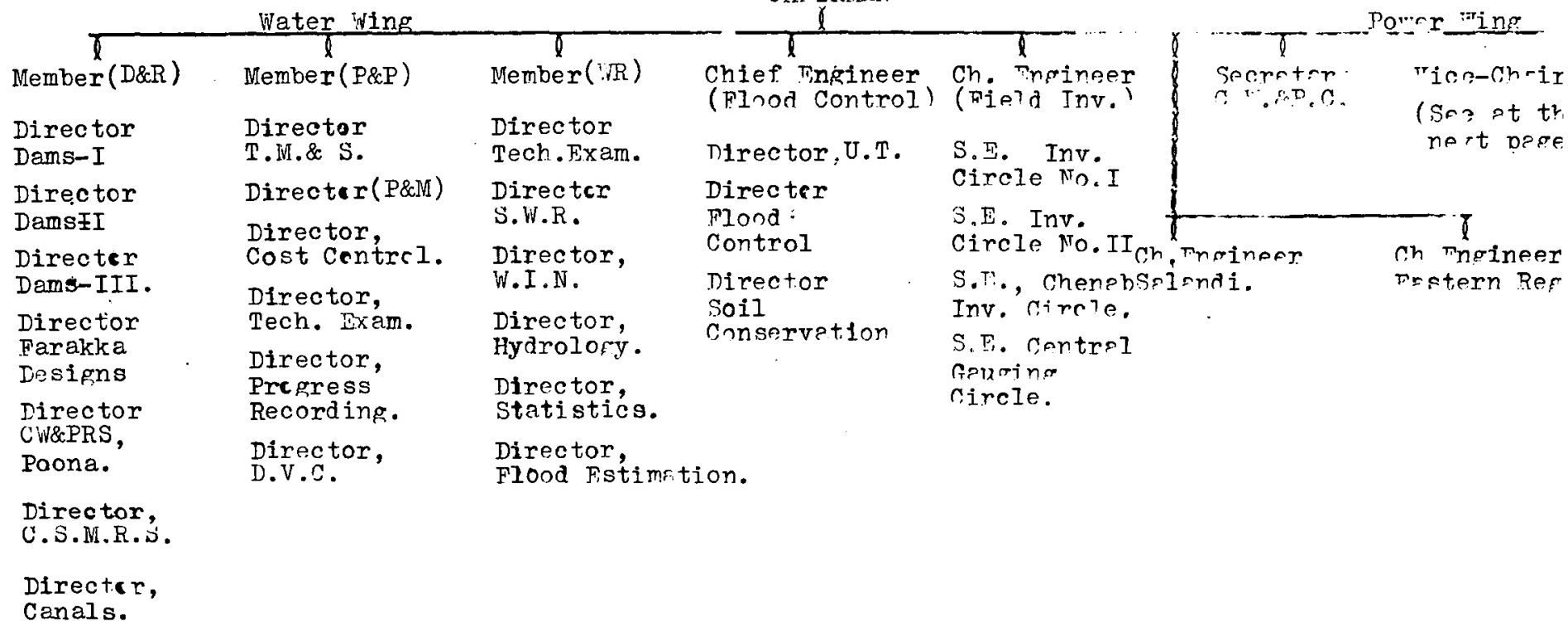
as flood control, irrigation, navigation, power development etc., and the connected structural and design features; and

- (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.

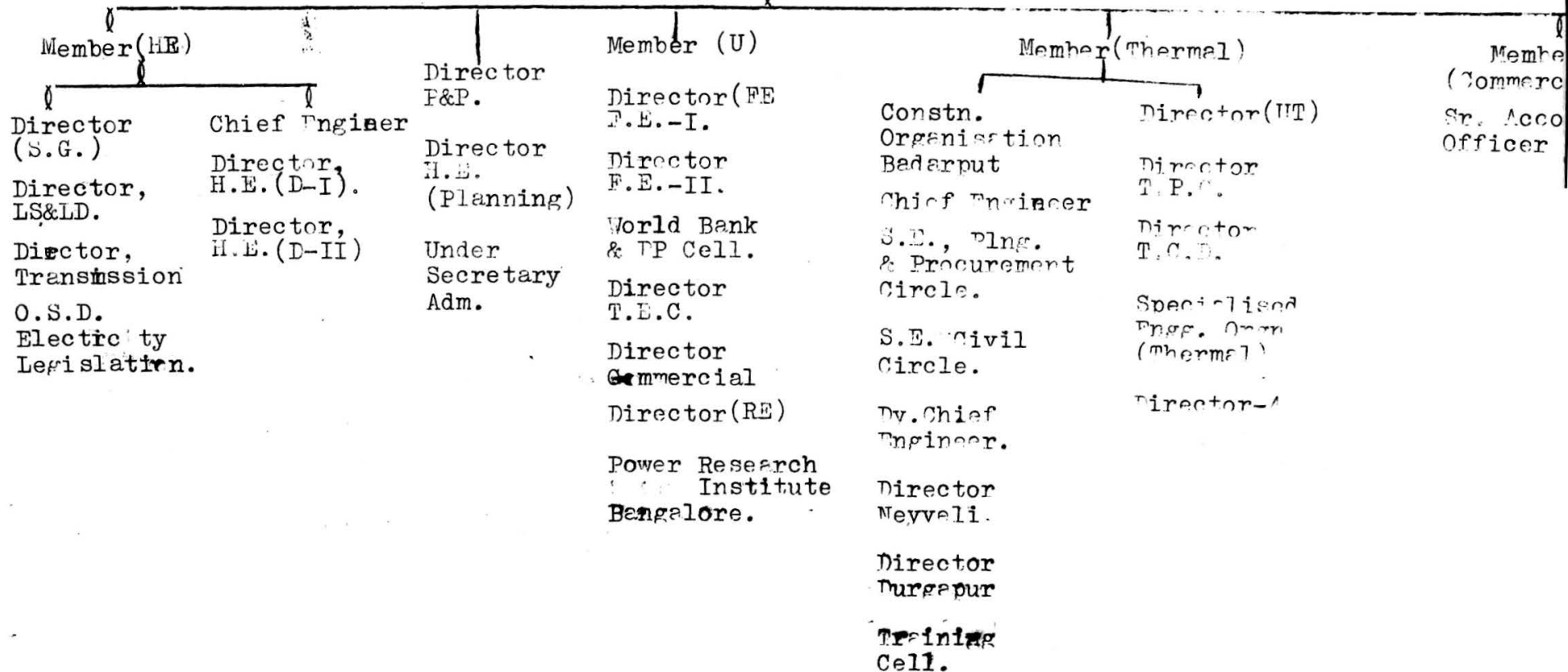
ORGANISATION CHART OF
CENTRAL WATER & POWER COMMISSION (Existing)

APPENDIX-II

CHAIRMAN

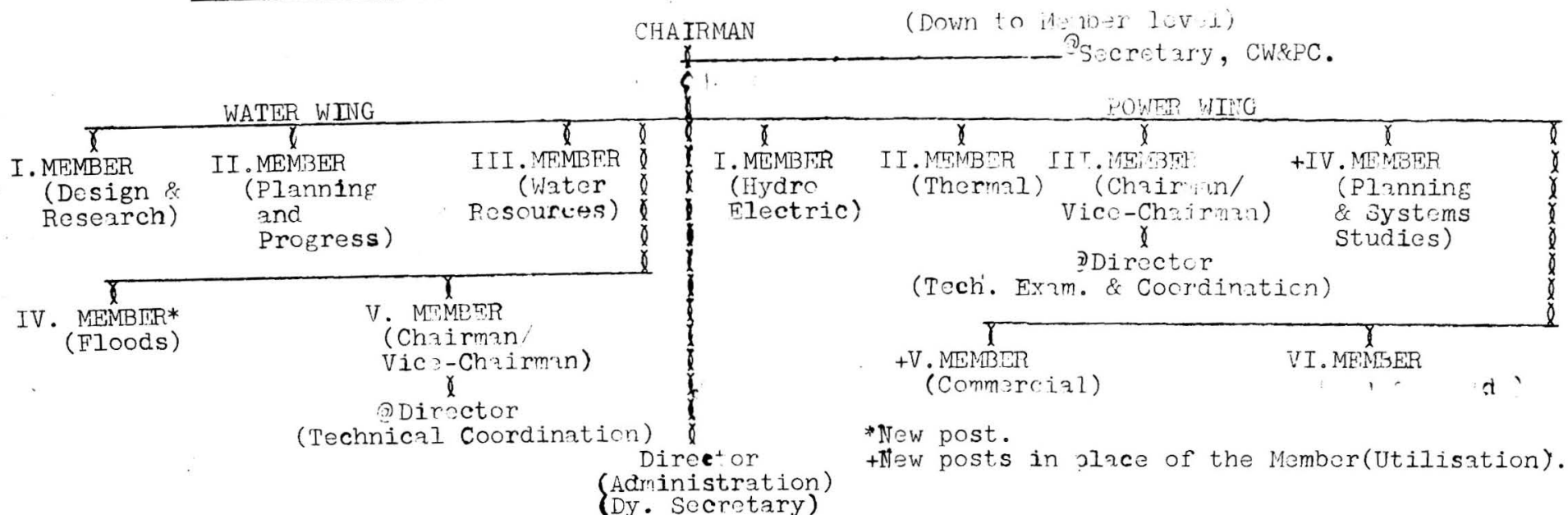


VICE-CHAIRMAN



APPENDIX-III(a)

PROPOSED ORGANISATIONAL STRUCTURE OF THE CENTRAL WATER & POWER COMMISSION



Notes:

Like other Members, the Chairman and Vice-Chairman will also deal directly with certain functions of the Commission as indicated.

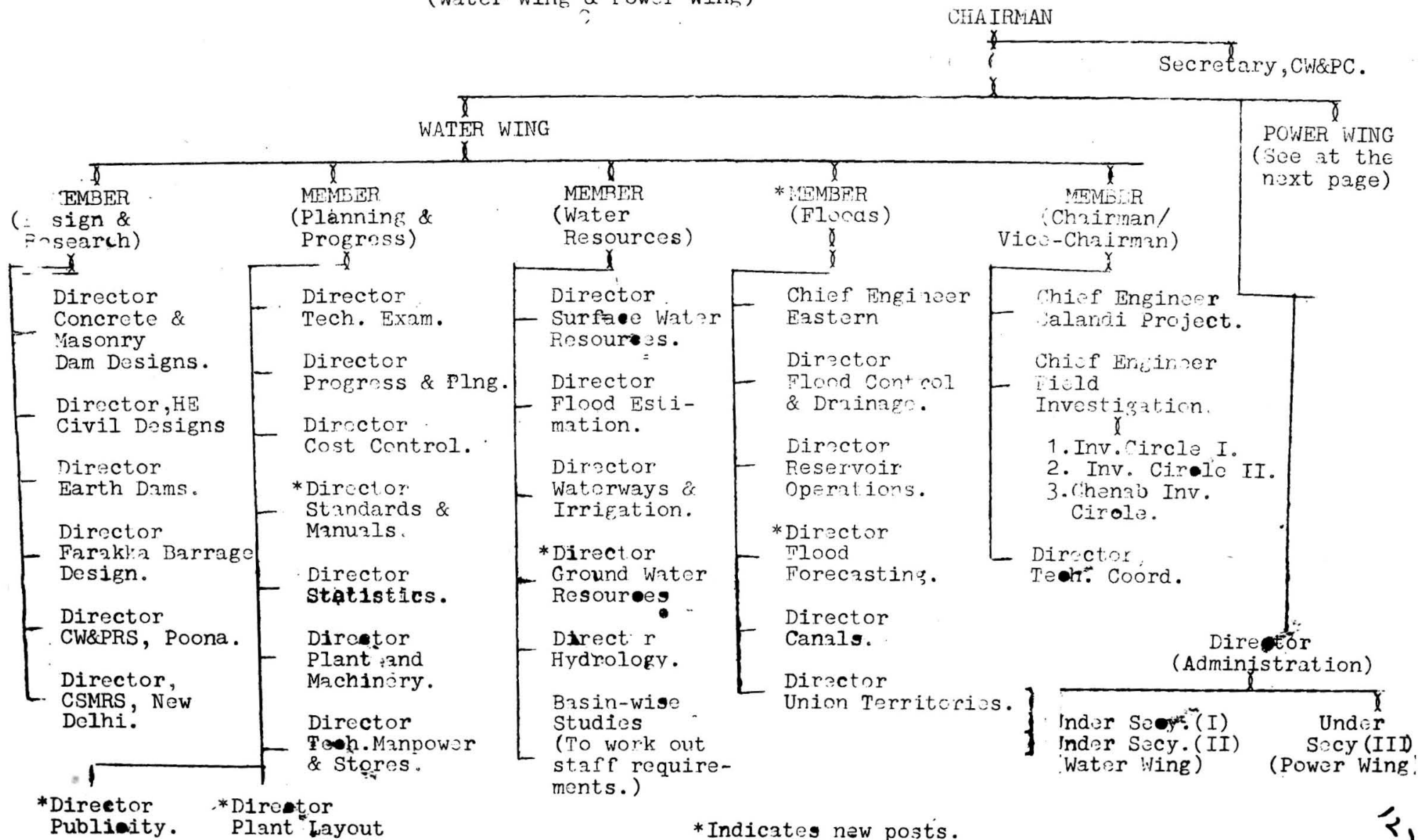
@ One of the two Directors (Technical Coordination) will be nominated by the Chairman to function as Secretary to the Commission.

One of the existing four posts of Under Secretaries will be upgraded to Deputy Secretary to be designated as Director of Administration.

The Director of Administration will route through the Vice-Chairman only papers concerning his Wing.

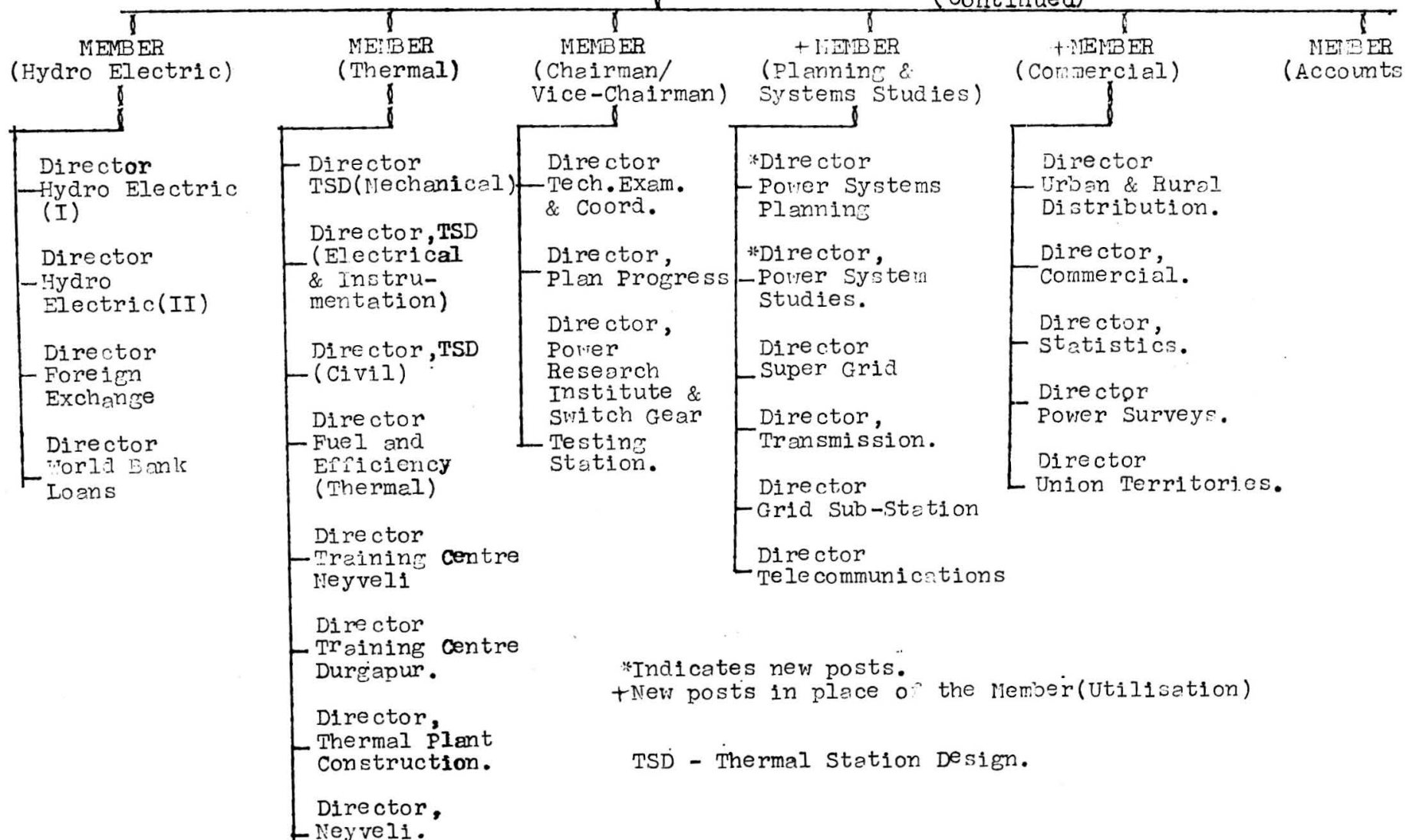
APPENDIX-III(b)

PROPOSED ORGANISATION CHART OF THE CENTRAL WATER & POWER COMMISSION
(Water Wing & Power Wing)



POWER WING

APPENDIX III(B)
(Continued)



*Indicates new posts.

+New posts in place of the Member(Utilisation)

TSD - Thermal Station Design.

APPENDIX-IV

STATEMENT SHOWING CLASS I AND CLASS II
POSTS SANCTIONED FOR CW&PC AS ON 1.7.68

- - - -

WATER WING

1	Chairman.....	1
2	Member.....	3
	Chief Engineer.....	4
	O.S.D. (C.E.'s Rank).....	-
	Director (C.E.'s Rank).....	1
	Secretary, CW&PC.....	1
	Director.....	19
	Superintending Engineer.....	4
	Chief Research Officer Gr.I.....	7
	Chief Research Officer Gr.II.....	15
	Tank Superintendent.....	1
	Deputy Director.....	77
	Executive Engineer.....	14
	Assistant Director.....	177
	Assistant Engineer.....	17
	Assistant Executive Engineer.....	39
	Research Officer.....	59
	Under Secretary.....	3
	Accounts Officer.....	1
	Assistant Accounts Officer.....	1
	Assistant Surgeon.....	1
	Assistant Research Officer.....	42
	Section Officer.....	18
	P.S. to Chairman.....	1
	Assistant Met.....	1
	Extra Assistant Director.....	85
	Superintendent Budget.....	1
	Chief Librarian.....	1
	Administrative Officer.....	1
		<u>595</u>

POWER WING

	Vice-Chairman.....	1
	Member.....	4
	Chief Engineer.....	2
	Deputy Chief Engineer.....	1
	Director.....	21
	Superintending Engineer.....	2
	O.S.D.....	1
	Sr. Deputy Director.....	7
	Deputy Director.....	84
	Executive Engineer.....	6

APPENDIX-IV
(Continued)

Assistant Director.....	183
Assistant Executive Engineer.....	11
Programmer.....	3
Extra Assistant Director.....	78
Assistant Engineer.....	3
Senior Accounts Officer.....	2
Under Secretary.....	1
Administrative Officer.....	1
Section Officer.....	9
Interpreter.....	1
	<u>414</u>

APPENDIX V

List of Staff Associations of CW&PC who
submitted representations to the CW&PC
Reorganisation Committee

- - -

1. CW&PC Engineers (Class I) Association.
2. CW&PC Deputed Engineers (Class I) Association.
3. CW&PRS Engineers Class I Association.
4. Corps of Post-Graduate Engineers of CW&PC.
5. Statistical & Scientific Employees Association (CW&PC).
6. Scientific Officers of Power Research Institute,
Bangalore.
7. CW&PC Engineers (Class II) Association.
8. Drawing Staff Association.
(Ministry of I & P, its attached and subordinate
offices).
9. CW&PC Class I Engineers
(Combined Engineering Services Exam. Recruits)
Association.