

SIXTY-FIFTH REPORT

**PUBLIC ACCOUNTS COMMITTEE
(1981-82)**

(SEVENTH LOK SABHA)

SALAL HYDRO-ELECTRIC PROJECT

**MINISTRY OF ENERGY
(DEPARTMENT OF POWER)**

[Action taken by Government on the recommendations of the Public Accounts Committee contained in their 25th Report (Seventh Lok Sabha)]



Presented to Lok Sabha on

Laid in Rajya Sabha on

**LOK SABHA SECRETARIAT
NEW DELHI**

November, 1981/Kartika, 1903 (Saka)

Price Re. 1.90 p.

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Corrigenda to the 65th Report(7th Lok Sabha)
of PAC presented to Lok Sabha on 23.12.1981

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PUBLIC ACCOUNTS COMMITTEE

(1981-82)

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INTRODUCTION

I, the Chairman of the Public Accounts Committee as authorised by the Committee, do present on their behalf this 65th Report on action taken by Government on the recommendations of the Public Accounts Committee contained in their 25th Report (Seventh Lok Sabha) on Salal Hydro-Electric Project.

2. Considering that several of projects involving huge investments have shown heavy over runs of time and cost, the Committee have, in this Report, reiterated the need for preparing detailed project/programme appraisal reports in respect of Central sector projects/programmes where the estimated outlay is Rs. 100 crores and more and also where the estimated outlay/investment subsequently exceeds the above figure. Reports containing details such as original targets, both in physical and financial terms, year-wise progress made, reasons for slippages/cost over-runs, corrective steps taken from time to time etc. should be included in separate self-contained Chapters in the Performance Budgets of the respective Ministries.

3. The Committee considered and adopted this Report at their sitting held on 10 December, 1981. Minutes of the sittings form Part II of the Report.

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

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

NEW DELHI;
14 December, 1981.

23 Agrahayana, 1903 (S).

SATISH AGARWAL
Chairman
Public Accounts Committee

CHAPTER I

REPORT

1.1. This Report of the Committee deals with the action taken by Government on the recommendations and observations of the Committee contained in their 25th Report (Seventh Lok Sabha) on Salal Hydro-Electric Project which were presented to the Lok Sabha on 20 March, 1981.

1.2. Action taken Notes on all the recommendations contained in the Report have been received from the Government and these have been categorised as follows:—

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

Sl. Nos. 1—3, 5-6, 7—11, 13, 15, 16—18, 20-21, 23—26 and 28-29.

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

Sl. Nos. 12, 14 and 27.

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

Sl. Nos. 19 and 22.

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

Sl. No. 4.

1.3. After presentation of 25th Report (Seventh Lok Sabha) to the Lok Sabha on 20 March, 1981, Government were requested to furnish Action Taken replies on all the recommendations contained in the above-mentioned Report by 19 September, 1981. The Ministry of Energy furnished unvetted Action Taken replies in respect of all the recommendations by 10 September, 1981. The Ministry of Finance (Bureau of Public Enterprises) furnished their action taken notes on 30 October, 1981.

1.4. The Committee will now deal with action taken on some of the recommendations.

Widening of haul road

(S. No. 19, Para 1.144)

1.5. Expressing their apprehensions about the non-widening of haul road, the Committee in para 1.144 of their 25th Report (7th Lok Sabha) had observed as under:—

“Regardless of the observations of the local project officers regarding the short width of the road actually found by them on the spot, the Ministry has relied upon the cross-section of the road appended to the Project Report and also on the surmise that the filling portion of the road in certain lengths must have been washed away by two intervening rainy seasons. The Committee consider that the matter calls for a probe by NHPC management with a view to dispelling the impression that the previous widening of the road was actually not carried out, but was shown to have been carried out and paid for accordingly.”

1.6. In their action taken note* dated 20 September, 1981, the Ministry of Energy have stated:

“The matter has been examined and an enquiry has been ordered by the Chairman and Managing Director of N.H.P.C.”

1.7 The Committee note that in pursuance of the recommendation made in Para 1.144 of the 25th Report, NHPC management have ordered an enquiry into the case relating to widening of the haul road. The Committee would like to be apprised of the action taken against the defaulting officials found to be responsible for the lapses, if any, in this case.

Appraisal Reports regarding major projects|programme undertaken by Government

(S. No. 22—Para 1.61)

1.8. The Committee had recommended that in the cases of all Central sector projects|programmes where the estimated outlay is Rs. 100 crores or more and also in cases where the estimated outlay|investment subsequently exceeds the above figure, a separate project|programme appraisal report should be placed before Parliament during every budget session. In their reply*, the Ministry of Finance (Bureau of Public Enterprises) have stated that “The Annual Performance Budgets of the various Ministries laid on the Tables of the Parliament before taking up discussion of the Demands for Grants of such Ministries provide detailed information about the progress of expenditure in important projects and programmes under

*Note vetted in Audit.

the respective Ministries." The Government have not agreed to the Committee's recommendations for preparing separate project|programme appraisal reports in the case of projects involving an outlay of Rs. 100 crores and more.

1.9. While making the recommendation for presentation of separate project|programme appraisal reports to Parliament, the Committee were fully aware of the information that is contained in the Performance Budgets of the various Ministries but they were not satisfied with the inadequate coverage given therein to big projects involving heavy investment. It was noticed that information regarding original targets both in physical and financial terms, year-wise progress made, reasons for slippages/cost over-runs, corrective steps taken from time to time etc., were not mentioned in sufficient details to enable Parliament to have a clear perception of the actual progress made in the execution of such projects.

1.10. The Committee had observed in their 25th Report (1980-81) that the Salal Project had shown heavy over-runs of time and cost. As against the original anticipation of its completion by June 1979 at an estimated cost of Rs. 55 crores, the latest anticipation is that the first unit of the project would be commissioned by March 1987 and the total anticipated expenditure would be as high as Rs. 3.50 crores provided further delays do not occur. The Committee had also pointed out that the expenditure under the head 'Direction and Administration' had jumped from Rs. 3.75 crores in 1968 to Rs. 19.04 crores in 1976 and Rs. 25.5 crores in 1980 showing an increase of 580 per cent within a span of 12 years. In Para 1.21 of the Report, the Committee had also drawn attention to the phenomenon of time and cost over-runs in case of certain other Hydro-electric|Thermal power projects. The percentage increase in expenditure vis-a-vis the original estimate is as high as 855 in the case of Loktak Hydro-electric Project.

1.11 Considering the above, the Committee cannot emphasise too strongly the need for Parliament being kept apprised of the progress in the execution of major projects involving heavy investments.

1.12 Taking note of the fact that the Ministries are now being asked to give adequate coverage to such projects in their Performance Budgets, the Committee would for the present recommend that project|programme appraisal reports in respect of Central sector projects/programmes where the estimated outlay is Rs. 100 crores and more and also where the estimated outlay|investment subsequently exceeds the above figure, should be included in separate self-contained Chapters in the Performance Budgets of the respective Ministries.

CHAPTER II

RECOMMENDATIONS/OBSERVATIONS WHICH HAVE BEEN ACCEPTED BY GOVERNMENT.

RECOMMENDATION

1.22 Salal Hydro-electric Project was originally approved as a State Project on the basis of a project report prepared in 1968 which indicated the estimated cost as around Rs. 55 crores. In August, 1970, the Project was taken over by the Government of India for execution as a Central Project. The project estimate was revised to Rs. 113 crores in March 1974 and further revised to Rs. 222 crores in September 1976. The cost of the project as per latest estimates (November 1980), is likely to go further to Rs. 350 crores at current prices.

1.23 The Committee note that the Salal Project has been beset with problems of heavy over-runs of both time and cost. As the later sections of this Report would show, inadequate investigations at the pre-construction stage and frequent changes in designs were in a very large measure responsible for this continuing delay of a vital project. The Committee would have expected that with experience of the execution of the gigantic Bhakra-Nangal project and the Sutlej-Beas link Project (both in the Himalayan region) and with the expertise available in the country in the field of geological sciences and techniques, it should have been possible to use the latest available technology to facilitate proper planning and timely execution of this vital project. According to the Ministry of Energy, the scheme was full of "geological surprises" and consequently the project got delayed. The Committee note that this approach and process of trial and error would ultimately cost the Exchequer more than six times the original estimates.

1.36. The Committee are surprised to learn that the basic fact that the river bed had a "major shear zone" which subsequently necessitated a change of site could not be discovered during investigations conducted by the J&K Government over a period of four years (1961—64) but came to light only after the Project Report had been finalised. Normally, decisions in regard to the location of projects are taken only after evaluating the results of various investigations conducted on alternative sites. In the case of Salal Project, however, a decision was taken in June 1964 to locate the project at the present site (Dhyangarh) on the consideration of the topograph and layout alone" and detailed investigations only followed this decision. The Committee feel that the project planning in the case of Salal

Project left much to be desired right from the very beginning based as it was on inadequate data. Secretary, Department of Power conceded during evidence that "there were elements in the feasibility report which one might say, were a little unrealistic". No wonder, during the course of execution, the project authorities had to face various "geological surprises" which led to prolonged investigations and experimentation in treatment of foundations with consequent escalation in cost.

1.37 The Committee cannot too strongly emphasise the need for undertaking detailed geological surveys and investigations and collecting/collating all relevant data before such projects are sanctioned. That this is not a solitary instance of this nature is clear from the observations made by the Y. K. Murthy Committee appointed to examine the procedure for investigation and implementing the multi-purpose and hydro-electric projects. In its report submitted in June 1978, the Murthy Committee had observed that a number of projects had taken longer to complete, benefits had come later than expected, the capital costs had been larger than originally planned and consequently the returns on capital cost had been smaller than expected. The Murthy Committee had also observed that these difficulties could be traced largely to inadequate investigations, incomplete understanding of the geological problems and defective project planning. The above observations are equally valid in the case of Salal Project as well.

1.38 The Committee trust that the Ministry of Energy would draw suitable lessons from their experience of execution of the Salal Project while planning for such projects in the Himalayan region."

[Sl. No. 1 and 6 Paras 1.22, 1.23 and 1.36 to 1.38 of 25th Report of P.A.C. (7th L.S.)]

Action taken

Heavy over runs of both time and cost which have beset the Salal Project have been a cause of serious concern to the Government also. While a significant major reason in the case of Salal Project is the extraordinary geo-technical problems which were faced during construction of this project situated in the geologically young Himalayan region, the experience in the country has been that other hydro-electric projects also have been subjected to cost over runs in varying degrees. Concerned with the over runs of both time and cost in hydroelectric projects, Govt. of India had constituted various expert committees from time to time to conduct in-depth studies on hydro-electric projects in order to analyse the reasons contributing to cost and time over runs and recommended remedial measures for future projects. Among those more important studies by such committees are those conducted by the Naegamwala Committee in the year 1973, and the Y. K. Murthi

Committee in the year 1978. The recommendations made by these committees have been accepted by the Government. The experience gathered from the projects constructed so far, as well as the remedial measures suggested by these committees will go a long way to minimise time and cost over runs in future projects. The increasing awareness of modern technology and their application both at the stage of investigation of future projects and in the construction thereof that has come about will also significantly assist in resolving these problems in the future. Awareness of the need for modern management practices, engineering as well as commercial, in the execution of large hydroelectric projects over the last few years has already made significant impact in the speeding up of projects in hand and it can be stated confidently that there should be considerable reduction in cost and time over runs in the construction of projects hereafter. It may however be pointed out that hydroelectric projects are location specific and are dependent on a number of facts such as geological, topographical and other natural factors which are not always within control and cannot therefore be ruled out.

[Ministry of Energy Deptt. of Power O.M. No. 3/15/80/USG/DO-V dated 10-9-1981]

Recommendation

The Committee find that there has been a steep escalation due to labour and material costs since the project was taken over by the Government of India. The 1976 estimate had projected an increase of Rs. 76 crores over the original estimate of 1968 under this head. The latest estimate of November 1980 shows a further increase of Rs. 89 crores. Thus, out of a total increase of Rs. 295 crores (Rs. 350 crores—Rs. 55 crores), the escalation in labour and material cost alone amounts to Rs. 165 crores i.e. nearly 56 per cent of the total cost escalation. The Committee have learnt that this project which was initially estimated to cost Rs. 55 crores would ultimately involve an extra expenditure of Rs. 165 crores towards labour and material costs alone not to mention other costs. The Committee would like to be apprised of the detailed reasons for such abnormal rise in cost. They would in particular like to be assured that all necessary steps have been taken for proper materials management at all stages of execution of the project.

[S. No. 2 paras 1.24 of 25th Report of P.A.C. (7th L.S.)]

Action Taken

The original project estimate for the Salal Project sanctioned by the Ministry of Irrigation & Power in March 1970 was based on the rate analysis made in April, 1968 by the Government of J & K based on the rates analysed in Ramganga project estimate of 1965-66. The revision of the project estimate became necessary on account of the following factors.

2. The changes in proposals on account of shifting of Power House and provision of Tail Race Tunnel, raising of ultimate installed capacity of the Power House from 3 x 90 to 3 x 115 MWs and other corresponding modifications, increase of cost due to changes in design of diversion arrangement, escalation of prices of various items of material since April, 1968, increase in cost of electrical works in view of increase in scope of transmission work and increase in cost of building due to decision for departmental construction of Rockfill Dam. The following are the details of increase in the estimated cost (as per Revised Estimate 1976) of some of the important components of the project alongwith the broad reasons therefor.

| | <i>Rs. in lacs.</i> |
|--|------------------------------|
| (i) Increase due to changes in proposals. | |
| (a) Extra cost of excavation for Power House due to its shifting and its depressing to given additional head | 274.12 |
| (b) Extra cost of retaining cum protection wall for Power House | 297.00 |
| (c) Extra cost for Tail Race Tunnel. | 1865.00 |
| (d) Extra cost of concrete Coffor Dam between Penstocks and Spilwav | 101.00 |
| (e) Extra cost for additional length of Penstocks. | 53.00 |
| (f) Extra cost of buildings due to departmental constructions of Rockfill Dam. | 300.00 |
| (ii) Increase due to changes in Designs and Quantities as per latest drawings of C.W.C. including changes in diversion arrangements | 3063.37 |
| (iii) Increase in cost of Electrical works due to escalation in BHEL prices and other supplies | 3418.43 |
| (iv) Increase in cost of Electrical works due to increase in the scope of transmission and distribution as per detailed studies made in C.E.A. | 480.57 |
| (v) Increase on account of items not provided for or due to inadequate provisions made in the original estimate | 1406.00 |
| (vi) Extra cost of other items of civil works on account of escalation of cost of material and labour upto the time of present revision and due to higher rates of tender allotments | 4190.31 |
| (vii) Increase in provision for Direction & Administration due to increased wages etc. and due to rockfill dam being taken up departmentally | 1250.00 |
| | 16699.90 |
| | Rs. 16699.90 lacs |
| | Say Rs. 167.00 crores |

3. As per information supplied to the Committee in reply to post evidence list of points (S. No. 1) on Salal Project, the preliminary exercise made in November, 1980, indicated that the revised estimated cost of this project would be of the order of Rs. 350 crores. The difference of Rs. 128 crores envisaged over and above the revised sanctioned estimate of Rs. 222 crores (1976) is on account of the following main reasons.

| | <i>Rs. in Crores.</i> |
|---|-----------------------|
| (i) Increase in the volume and scope of work due to design and other changes, | 31.00 |
| (ii) Increase in the scope of work due to provision of new items. | 8.00 |
| (iii) Increase in cost due to price escalation. | 89.00 |

4. A substantial proportion of the increase in cost is accounted for by escalation of material and labour costs over the original as well as extended period of construction of the project.

A comparative picture of the increase in the price indices of the essential materials, cement, steel, explosives, petrol and lubricants and machinery is given below:—

| Material | Prices obtaining in | |
|------------------------------|---------------------|-------------------------------------|
| | 1968 | 1981 |
| (1) Cement | Rs. 300 per M.T. | Rs. 626 per M.T. |
| (2) Steel | Rs. 1000 per M.T. | Rs. 3000—4000 per M.T. |
| (3) Petrol & | Rs. 1.30 per Ltr. | Rs. 2.70 per Ltr. |
| Lubricants | Rs. 3.37 „ „ | Rs. 10.00 „ „ |
| (4) Explosives | Rs. 4000 per M.T. | Rs. 12,300 per M.T. |
| (5) Boiler quality | Rs. 2000 per M.T. | Rs. 24,000 per M.T. Imported) |
| Steel Plates | | Rs. 18,000 per M.T. (Indigenous) |

Machinery

| Items | Cost in 1968 | Actual procurement cost. |
|--|--------------|--------------------------|
| (1) Dozers 385—410HP | 3.50 Lacs | 17.00 lacs |
| (2) 25 T Dumpers | 5.00 „ | 9.00 „ |
| (3) Dozers (Tyre) | 4.00 „ | 14.5 „ |
| (4) 4.6 Cub. Mtrs. Electric Shovel | 12.00 „ | 46.00 „ |

(2) The minimum fair wage payable to the labour during the year 1970 (when some of the contracts were finalised and the wage payable was incorporated therein) and wages actually paid by the project in the year 1980 are as under:

| Year | Rate per item. |
|--|----------------|
| 1970 (for unskilled workers) | 2.40 |
| 1980 „ „ | 7.00 |

(3) The comparative figures of All India Consumer Price index for Industrial Workers (General) is as under:

| (Base 1961-62-100) | Price Index |
|------------------------|-------------|
| year 1968 | 215 |
| 1980 | 390 |

5. The following steps have been taken to streamline the materials management at the project and at the apex levels by the NHPC to ensure proper planning, acquisition and utilisation of various materials and machinery.

(a) A Contract & Procurement Group has been formed at the Corporate office to plan and procure all heavy machinery, essential material like cement, steel, explosives and P.O.L. etc.

(b) An efficient monitoring system at the Circle level, project level and the Corporate level has been introduced to ensure close monitoring of the requirements and supplies of the essential materials.

6. The planning for the requirement of essential material and machinery is done minutely at the highest level. The proposals alongwith the annual funds requirement of the project is scrutinised by the Ministry and is submitted to Planning Commission. The proposals are fully considered and discussed before the funds are released. Thus, there is adequate machinery to ensure proper planning, procurement, utilisation and monitoring of the materials for use in the project.

[Ministry of Energy, Deptt. of Labour O.M. No. No. 315/80-USG|DO|V, dated 10-9-81]

Recommendation

The other areas where the original estimates of costs have registered a steep escalation due to increase in scope of power generation and increases due to change in designs and quantities of work. The revised estimate of 1976 visualised increases of the order of Rs. 25.93 crores and Rs. 33.63 crores on these counts respectively over the original estimates. A further increase of Rs. 31 crores is anticipated under these two heads in the latest exercise carried out in November, 1980. The Committee have commented on these increases in later sections of this Report.

[S. No. 3, Para 1.25 of the 25th Reoprt of PAC (7th L.S.)]

Action taken

Wherever the comments of the Committee are available in other sections of the Report, action taken or proposed to be taken has been indicated against each such recommendation.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15|80-USG|DO|V dated 10-9-81]

Recommendation

An increase of Rs. 14.06 crores in the revised estimates of 1976 over the original estimates, is attributed to non-provision and inadequate provisions in the original project report.

The Committee desire that more care should be taken in the preparation of detailed project estimates so that a clear picture is available to the Parliament of the cost-benefit ratio of a project before the same is sanctioned and pitfalls in planning are avoided. The Committee have discussed this aspect at greater length in a subsequent section of this Report.

[S. No. 5 Para, 1.27 and 1.28 of 25th Report of PAC (7th L.S.)]

Action taken

Government fully shares the concern of the Committee that adequate care should be taken in the preparation of detailed project estimates. Based on the experience of scrutinising and evaluating detailed project estimates of hydro-electric projects submitted by the executing agencies in the past, the Central Water Commission has issued detailed guidelines for the preparation of detailed project estimates in 1972. More recently, the Commission had appointed a Committee to review these guidelines after an indepth examination and also based on experience gathered in the examination of such project estimates recommended the review of the guidelines have been prepared by the Committee and has since been circulated to all States and project authorities in 1981. The N. H.P.C. which is the agency for execution of hydro-electric projects in the Central Sector has also been furnished these guidelines and it is expected that they will take sufficient care in the preparation of detailed project reports based on these guidelines to ensure that the shortcomings and omissions experienced in earlier estimates are avoided to the maximum extent possible.

[Ministry of Finance, Deptt. of Power O.M. No. 3/15/80-USG/DO-V dated 10-9-81]

Recommendation

The Committee note that the Project Report drawn up in 1968 envisaged the commissioning of 3 units of 90 MW each in June 1975, June 1976 and June 1979 respectively. The dates of commissioning were, however, revised from time to time and according to the latest indications the first unit of the project is now likely to be commissioned not earlier than 1987. This inordinate delay has been largely responsible for the enormous increase in cost estimate of the project. As any further delay in the completion of the project would cause further escalation in the cost of the project, the Committee would like the Ministry of Energy to take all possible steps to complete the project at the earliest.

[S. No. 7 Para 1.43 of 25th Report of PAC (7th L.S.)]

Action taken

With a view to complete the project as per the latest schedule of commissioning, a systematic monitoring of implementation of project and critical appraisal of performance has been set up both at the project level and at the Corporate office. Details of organisation of project monitoring group have already been furnished to the PAC along with replies to post-evidence list of points on Salal Project. It may be stated that the system is being worked and a careful watch kept over the progress of various components of the project. A close review which was required particularly in view of the complex geo-technical pro-

problems of the project requiring urgent solutions by the Designers and Consultants to the project on the design problems, is being maintained. The reports of the Progress of the construction works of the project are received monthly by the Corporate office of NHPC and copies are forwarded to the Ministry of Energy, Central Electricity Authority and Planning Commission. Exception reports are prepared after critical scrutiny of the progress reports, indicating slippages, their effect on construction schedules, bottlenecks faced by the projects and assistance required to overcome them are prepared for necessary remedial action wherever required. Meetings at regular intervals with project G.Ms are also held in the Corporate Office to review the progress of construction work of the project. The progress of the project also comes in for review at meetings of the Board of Directors of the Corporation at frequent intervals.

Periodical meetings are held with principal contractors like M/s H.C.C., M/s N.P.C.C. and M/s Gamons to review the progress of work, together with resource input. The shortfalls are discussed and steps devised to overcome them. The schedule of work is drawn up for adherence.

All efforts necessary to procure the essential materials and stores to ensure progress of work as per scheduled programme are being made.

It is expected that the steps taken and the systems operating at all levels will ensure speedy execution of various components and consequent completion of the project according to the schedule already drawn up.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15/80-USG/DO/V dated 10.9.1981.]

Recommendation

1.61. The Committee note that a Central Hydro-Electric Project Control Board was set up in July 1970 with a view to ensure efficient, economic and early implementation of hydro-electric projects taken up by the Central Govt. at Salal, Baira Siul and Loktak in the States of J&K, Himachal Pradesh and Manipur respectively. The Control Board constituted a Standing Committee and authorised it to take decisions on behalf of the Board on such technical, financial and other matters as were delegated to it from time to time. A high powered "Committee of Direction" was also constituted to give directions on policy matters and to oversee the execution of the project in accordance with the sanctioned estimates.

1.62. The Committee deeply regret to note that during the period of 8 years of its existence, the Control Board met only once during each of the years 1973, 1975 and 1976 and 1978, twice during the 1971 and

1972 and thrice during 1974. The Committee find that it did not meet at all in 1977. Thus, the total number of meetings of the Control Board which was put in charge of supervising this project, was 11 during a period of 8 years. The Standing Committee which was supposed to take decisions from time to time, also met only 11 times in 8 years. The Committee are deeply distressed to note that the Committee of Direction which was a high powered body entrusted with the task of overseeing the execution of the project within the sanctioned estimates, did not meet at all. No wonder, this elaborate machinery devised to control and monitor the execution of the project failed to deliver the goods and the project is now, faced with problems of heavy over-runs both of cost and time. The Committee consider it to be a serious lapse on the part of the Ministry that no meeting of the high powered Committee of Direction of which the Minister of Irrigation and Power/Energy was the Chairman, was convened during the period of as many as 8 years. The Committee expect that such lapses will not recur.

1.63 The Committee find that it was only in May 1978 that the project was handed over to NHPC for execution for the reason that "Government was feeling greatly handicapped as in the existing framework. enough feasibility for more expeditious decisions was not possible. The company form of management was considered to be more conducive to quick decision making and effective implementation of the programme".

1.64 The committee cannot but express their deep distress over the failure of the Government to provide the basic organisation framework necessary for the speedy execution of the Salal Project. No review of the functioning of the Control Board was undertaken at the highest level and the project languished for want of direction and coordination among the various agencies involved in its execution.

1.65 Now that the NHPC have been entrusted with the task of execution of the Salal Project, the Committee trust that no further slippages in the completion of the Project will be allowed to occur.

[S. No. 8 and 9 Paras 1.61 to 1.65 of 25th Report of PAC (7th L.S.)]

Action taken

The N.H.P.C. to whom the project was transferred in May 1978 on agency basis is taking all necessary steps for coordinating the work with all the technical agencies for the preparation of designs and drawings, arranging dependable contractors, enlisting the assistance of well-known specialists in the engineering fields, arranging supplies of essential materials like cement, steel, diesel, power etc. by maintaining continuous liaison with the concerned authorities (i.e. the Cement Controller of India, the

SAIL and other agencies). The monitoring system at the project level and the Corporate level ensures that all critical items are attended to at appropriate level and at proper time so that no slippage is allowed to occur in the time schedule of the project. These steps having been taken and with the geotechnical and design problems well under control, the Government share the hope of the Committee that no further slippage in the completion of the project would be allowed to occur for want of effective direction and management. The work of the project will continue to be monitored closely and all possible steps taken to obviate any further slippage in the schedule.

[Ministry of Energy, Deptt. of Power O.M. No. 3|15|80-USG|DO-V
dated 10-9-81]

Recommendation

It is established that when the contract for Diversion Tunnel was awarded to M/s N.P.C.C. in March, 1972 the additional conditions stipulated by the firm demanding price escalation in the cost of labour and material and extra payment for dewatering were not settled beforehand and the firm was allowed to proceed with the work "on the consideration that they modify some of their special conditions". The reason indicated by the Ministry to the Committee for taking this course of action was the consideration that "valuable time would be lost in the process of fresh bids and tenderer was a public undertaking". The additional conditions preferred by the firm had considerable financial implications for the Project. Moreover, without assessing the financial implications of these additional conditions, it could not have been possible for the project authorities to make any worth-while comparison with the rates quoted by other contractors. The Committee, therefore, consider that notwithstanding the contracting firm being a public undertaking, the Project authorities should have done the exercise of computing the value of the additional conditions in terms of money while deciding to award the contract to the firm and at the time of awarding the contract to the firm these conditions should have been duly incorporated in the contract so as to avoid any ambiguity and scope for controversy on this score.

[S. No. 10 Para 1-70 of 25th Report of PAC (7th L.S.)]

Action taken

Government agrees with the observations of the Committee that all conditions should be settled and duly incorporated in the contracts for works, to avoid ambiguity or controversy subsequently.

The internal procedures in force in NHPC (which is executing the Salal Project) are framed to provide adequate safeguard against such eventualities for all major contracts for civil works, the NHPC procedure provides for pre-qualification of contractors. Thereafter the draft tender documents are circulated amongst the pre-qualified contractors and all the terms and conditions of the tenderers are discussed with them and a common set of terms is evolved which is incorporated in the final tender documents. The tenderers are not permitted to include any fresh conditions while submitting their tenders. Failure to abide by this condition renders them non-starters for that particular tender. This procedure has already been put into practice.

With the steps taken for the settlement of special conditions at the pre-bid stages itself, it is expected that the recurrence of cases of this type would be avoided in future.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15/80—PSG/D.O.V dated 10-9-81]

Recommendation

1.82 The contract for diversion tunnel was awarded to M/s National Projects Construction Corporation in March, 1972 for Rs. 170.23 lakhs. Subsequently, due to increase in the scope of work involving construction of adit, dome and shaft, the value of the contract was increased to Rs. 220.95 lakhs. In fact the expenditure on these works completed by National Projects Construction Corporation amounted to Rs. 400 lakhs upto October, 1980. The total expenditure on the diversion tunnel is now estimated to be as high as Rs. 692.10 lakhs as against only Rs. 47.14 lakhs provided for in the original estimate and Rs. 595.46 lakhs in the revised estimate of 1976.

1.83 The Committee regret to observe that before giving the go-ahead to the contractor on the basis of the original design of installing the gate structure at the entry portal of the diversion tunnel, the Technical Advisory Committee (TAC) did not fully consider the implications of "slumped rock mass" indicated by the Geological Survey of India. The TAC, instead decided that with a modified design it could be possible to instal the gate structure at the entry portal which ultimately proved to be a total miscalculation. Apart from rendering infructuous the expenditure of Rs. 8.45 lakhs already incurred before shifting the gate structure to the middle of the tunnel, it resulted in a delay of over 6½ years in completion of the diversion tunnel thus throwing the entire project schedule out of gear, not to mention the huge escalation in costs all round.

1.84 The Committee trust that the unfortunate experience in this case would impel the planners to take geological investigations more seriously in future so that projects of this nature are not beset with difficulties in crucial areas the way Salal Project has been.

[S. No. 11 Paras 1.82-1.84 of 25th Report of PAC (7th L.S.)]

Action taken

It may be pointed out that the Technical Advisory Committee had taken the findings of GSI indicating the slump rock mass at the entry portal of the diversion tunnel into consideration in their meeting held in August, 1972 and came to the conclusion that even with this slump rock mass indicated by the GSI, a gate intake structure with a modified design could still be located at the entry portal of the tunnel. It was only on the basis of specific geological appraisal of part-bored length of the tunnel from the inlet end which indicated certain geotechnical problems in addition to the slumped rock mass observed by GSI earlier which altogether ruled out the possibility of construction of a gate intake structure at the entry portal. The TAC therefore examined the problem at its second meeting held in March, 1973 wherein taking into account the further geological appraisals of part-bored length of the tunnel from the inlet end that they decided to shift the gate intake structure from the entry portal to Centre of the tunnel. The decision to locate the gate intake structure at the centre of the tunnel as against at the entry portal called for various confirmatory tests, such as model tests which were simultaneously conducted at the Roorkee University as well as CWPRS, Pune. On the basis of detailed designs which were evaluated after the model tests, the gate intake structure had been completed. The scope of work underwent a substantial change to the extent of at least 6 times of the original work which accounted for the escalation in cost as well as the extra time required to do the increase in work. While clarifying the position as above, the Committee's observation that the planners should take geological investigations more seriously to take full note of their implications in avoiding time and cost over runs is taken note for further guidance.

[Ministry of Energy, Deptt. of Power O.M. dated 3/15/80-USG/D.O.V dated 10-9-81]

Recommendation

The Committee do believe that the benefits of the studies made, the experiences gathered and the processes employed in treating the foundations of the concrete dam would be fully made use of while taking up similar projects elsewhere.

[S. No. 13 Para 1.95 of the 25th Report of PAC (7th L.S.)]

Action taken

The Government share the belief of the Committee that the benefits of the studies made, the experiences gathered and the processes employed in treating the foundations of the concrete dam would be fully made use of while taking up similar projects elsewhere. It is submitted for the information of the Committee that the following steps have been taken in this regard:

- (1) A policy decision has been taken by the Government that NHPC which has been set up for the construction of hydro-electric projects in the Central Sector, would be responsible or investigation of the projects that it would execute in future. This policy decision is designed to secure to NHPC the advantage of the experience gathered from the construction of the projects in hand such as Salal, the various geotechnical problems that surfaced during such construction, so that from the very stage of investigation, the various pitfalls and snags could be fully anticipated and provided for.
- (2) The experience gathered in over-coming the problems of foundation treatment in Salal will serve the NHPC rightly in dealing with similar problems on future projects. The NHPC has set up a design wing which has been developed into a strong self-contained unit to evolve basic designs for on-going and future projects. This Design Wing will be closely associated with the project investigating teams of the NHPC from the very initial stages of such investigation, so that project designs are evolved based on the geological, hydrological and other investigation data. The Design Wing will of course be close touch with the CWC/CEA and draw on their expertise wherever required. The NHPC has already made a beginning in inducting highly sophisticated technology from advanced countries like Canada in the field of investigation and is also considering engagement of top consultants from advanced countries for technology transfer in construction of future projects in order to out-down the construction time on complicated structures which can benefit from advanced technology.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15/USG/Do-V dated 10-9-81]

Recommendation

The Committee note the work of consolidation grouting of formation rock below spill-way was awarded to M/s. NPCC in December, 1974 without prior thorough investigation and trials. As a result, the execution

of the work by the contractors became "experimentation on an almost continuing basis" so much so that in May, 1976, the contractor relinquished the work saying: "we only wish that these ideal conditions were well established before the award of work to us". The Committee learn that the trial grouting got done through M/s. Cementation Co. was confined to "a conventional size of test plot". No wonder the work parameters evolved did not suit the different rock strata encountered in the area of operations. Considering the varying nature of rock strata in the Himalayan Ranges, the only prudent course was to have trials done more extensively covering different rock formations in the area. Belatedly, the project authorities realised that the nature of the job required to be done needed skilled men and specialised equipment which were already available with Beas Organisation. In the process valuable time was lost.

[S. No. 15 Paras 1.120 of 25th Report PAC (7th L.S.)]

Action taken

The conclusions of the Committee have been noted. The experience gathered on the Salal Project, which is one of the first in the young Himalayas with complex geology would certainly be of immense value in dealing with similar problems that may be encountered in execution of other projects in this type of strata in future.

[Ministry of Energy, Deptt. of Power O.M. 3/15/80-USG/DOV
dated 10-9-81]

Recommendation

The Committee view with concern the hurry in awarding the work for treatment of shear zones in blocks 9 to 11 before the drawings of the part of work were available even if it was done with a view to save time. They feel that had the work been awarded after the receipt of drawings, the benefit of competitive rates for the work would have been available.

[S. No. 16 Para 126 of 25th Report of PAC (7th L.S.)]

Action taken on the recommendation

Guidelines have been prepared by NHPC and will be issued after approval by the Board of Directors of NHPC.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15/80-USG/D.O.-V
DOV dated 10-9-81]

Recommendation

The Committee note that the estimated cost of Rockfill Dam has increased successively from Rs. 14.52 crores in the original estimate of 1968 to Rs. 22.89 crores in the first revised estimate of 1974 and further to

Rs. 40.29 crores in the second revised estimate of 1976. The cost is estimated to go up still further to Rs. 58 crores as per latest available indications. The five fold increase in the cost is attributed to the increase in (i) the cost of replacement of material in the dam, (ii) wages, (iii) cost of indigenous and imported machinery (iv) increase on account of treatment of adverse geological features etc.

1.134 In this context, the Committee noticed that in February, 1974 it was decided to undertake the work departmentally. The Committee were informed during evidence that "a study of comparative economics based on precise evaluation of tenders was not done and is not available." They further note that one of the considerations for taking a decision to get the work done departmentally was to utilise the surplus men and machines from the Beas Ptroject.

1.135. It is surprising that although tenders were invited they were not evaluated with a view to ascertaining whether it would at all be more economical to get the work done departmentally and that a decision in this regard was taken without evaluating the cost involved. The Committee consider it to be a very casual way of taking decisions in matters where expenditure of crores of rupees is involved. Considering the huge escalation in costs, the Committee would like the Ministry to enquire as to whether it would have been more economical to get the work done through contract labour taking into account the cost of machines, haulage, establishment of workshops, expenditure on overhauling, repair and maintenance, the wear and tear of machines, extra labour force employed thereon etc. The Committee would like to emphasise that decisions in matters like this should be taken after a careful study of the economics of the proposal.

[S. No. 17 Paras 1.133, 1.134 and 1.135 of 25th Report (7th L.S.)]

Action taken

The consideration which weighed with the Government to undertake the construction of Rockfill Dam departmentally have already been explained in detail. As against the estimated cost daly loaded for estimated price increase of 20 per cent of 26.9 crores, the tenders that were received from the contractors ranged in value between Rs. 32.5 and 39.2 crores without taking into account the financial implications of the special conditions that had been quoted by the different tenderers. It may be pointed out that had these special conditions been pursued with the private contractors in discussions they would only have added to the tendered value which as pointed out above was already higher than the departmental estimate. The escalation in cost of the construction of this Dam that has taken place since then is due to the increase in cost of materials, machinery, wages, which

was as much applicable to work done by contractors as the departmental construction the Bulk of the machinery for the construction of the Rockfill dam was obtain from the Beas project where they were surplus and were available at a very low cost and had the advantage of fuller utilisation of such equipment which would otherwise have remained idle and was in the overall national interest. The Government, however, is in full agreement with the Committee that where decisions involving substantial expenditure are concerned, they should be taken after careful study of the relevant economics of different proposals in order to arrive at the most economical solution.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15|80-USG|DO V
dated 10.9.81]

Recommendation

The Committee note that the road for haulage of fill material to the Rockfill Dam was constructed up to a width of 20 feet approximately in October, 1974. In March, 1975 it was widened to 40-46 feet and in December, 1976 it was further widened to 50-59 feet. This indicates lack of planning on the part of project authorities.

[S. No. 18 Para 1.143 of 25th Report of PAC (7th L.S.)]

Action taken

The matter has been examined and an enquiry has been ordered by Chairman and Managing Director of N.H.P.C.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15|80|USG|DO V
dated 10.9.81]

Recommendation

It is admitted that after the Salal Project was approved in 1968 as a State Project, the Planning Commission has had no occasion to review the Project until 1976 when a revised estimate indicating a more than fourfold increase in cost of the project was cleared by the Public Investment Board (PIB) and approved by the Cabinet. Between 1968 and 1976 several important decisions were taken which had changed the entire complexion of the Project involving manifold cost increase over that envisaged in the original proposal cleared by the Planning Commission in 1968. One such decision was to take over the project as a Central Project in 1970. Another major decision taken in 1971 was the change in the location of power house from left bank to the right bank of the river as a corollary to the increase in the proposed capacity of the Power

House from 270 MW to 345 MW. The Committee are surprised as to how such decisions involving major financial commitments not originally envisaged, could be taken without consultation with the approval of the Planning Commission. The Committee are of the firm opinion that this escalation had already taken place, the approval of the PIB in 1978 was more or less a formal affair. There was at that stage hardly any choice with the Planning Commission, the PIB and the Cabinet except to approve the on-going Project.

[S. No. 20 Para 1.159 of 25th Report of P.A.C. (7th Lok Sabha)]

Action taken

The conclusions of the Committee have been noted for future guidance.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15/80/USG/D.O.-V
Dated 10-9-81]

Recommendation

The Committee would like to emphasise that proper policies and procedures should be evolved with a view to ensuring that whenever any State Project is proposed to be taken over for execution by the Government of India, prior approval of the Planning Commission and PIB is obtained. Further, as soon as it is found that the project cost is likely to exceed more than 20 per cent of the approved estimated cost of project, the fact should be brought to the notice of the Planning Commission, PIB and the Cabinet for review and approval.

[S. No. 21 Para 1.160 of 25th Report of PAC (7th L.S.)]

Action taken

The procedures currently in force provide for prior approval of the PIB/Cabinet to any project being taken up for execution in the Central Sector by NHPC which is the agency created for this purpose. Such procedures also enjoin that when project costs are likely to exceed 20 per cent of approved estimates, the facts are duly brought to the notice of PIB (Planning Commission being a part of it)/Cabinet for record and approval.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15/80/USG/DO-V
Dated 10-9-81]

Recommendation

The Committee observe that between the years 1968—1976, the estimated unit cost of power generation from Salal Project has gone up from 3.37 paise to 11.24 paise at the generation and from 3.73 paise to

12.70 paise at the grid station (based on 8 per cent interest). The latest estimate however, shows a further increase in the anticipated cost of power generation to 20 paise per unit at the generation end.

Considering the steep escalation in the anticipated cost of the project from Rs. 55 crores in 1968 to Rs. 350 crores at present, the Committee desire that a detailed study of the cost effectiveness of the project should be undertaken. The Committee would like to be apprised how the Salal Project compares in this respect with other hydro-electric projects in the country.

[S. No. 23 Paras 1.168 and 1.169 of 25th Report of PAC (7th L.S.)]

Action taken

The important parameter of cost effectiveness of hydroelectric projects is considered to be the unit cost of generation. Following is the appraisal as to how Salal Project compares with other hydroelectric projects in the country.

(i) The anticipated cost of generation of Salal H. E. Project at Power House Bus based on Provisional Estimate of November, 1980 is found to be 18.26 p. as per details given in annexure (the method of computation adopted is the same as in the project reports of the below-mentioned schemes for the purpose of comparison). The anticipated cost of generation of various hydroelectric projects recently sanctioned by C.E.A. which are under execution/proposed to be taken up for execution is as under.

| S. No. | Schemes | Installed capacity (MW) | Annual energy generation Gwh. | Estimated cost (Rupees in lakhs) | Generation cost P/Kwh | Year of report ^{revision} of estimate |
|--------|---------------|-------------------------|-------------------------------|----------------------------------|-----------------------|---|
| 1. | Pale Maneri | 142.5 | 725 | 12616 | 19.25 | 1980 |
| 2. | Kopili | 150 | 806 | 11665 | 18.81 | 1980 |
| 3. | Tehri | 1000 | 2910 | 13709 | 17.69 | 1979 |
| | | | | 82730/ power | | (revised) |
| | | | | 48130/ power | | |
| 4. | Lakhwar-Vyasi | 420 | 852 | 22888 | 17.29 | 1979 |
| 5. | Thein Dam | 480 | 1502 | 21468 | 15.78 | 1978 |

A perusal of the above detail shows that the cost of generation of Salal H. E. Project as brought out in annexure compares favourably with the various hydroelectric projects even though the year of preparation of estimate of these hydroelectric projects varies from 1978 to 1980, against the provisional estimated cost of Salal H. E. Project worked out in November, 1980.

In this connection, it is also pointed out that the Salal Project is purely a power development scheme which on completion of stage-I shall deliver 12.26 MW of firm power to the Northern Grid. The project also envisages provision for future addition of three similar units of capacity of 115 MW in stage-II which will increase energy generation by 50 per cent with additional cost of less than 20 per cent.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15/80-USG/DO-V dated 10.9.81]

Annexure

Salal Hydroelectric Project

Unit cost of generation at
Power House Bus:

| | |
|--|-----------------------------|
| 1. Installed capacity 3 x 115 | 345 MW |
| 2. Cost of the Project | Rs. 35,000 lakhs |
| 3. Transmission cost | Rs. 1,552 lakhs |
| 4. Total sum at charge | Rs. 33,448 lakhs |
| 5. Total units generated | 2062 MU |
| 6. Units available at bus bar of PH (After allowing 0.5% for auxiliaries) | 2051.69 MU |
| 7. Fixed and running charges: | <i>Rupees in lakhs.</i> |
| i) Interest @ 8% on item 4 | 2675.84 |
| ii) O & M charges @ 1% on item 4 | 334.48 |
| iii) Depreciation @ 1.7% on item 4 | 568.61 |
| iv) General reserve @ 0.5% on item 4 | 167.24 |
| 8. Cost of energy per unit | Rs. 3746.17 18.26 paise. |

Recommendation

The Committee do not find any merit in inviting tenders for the tail race tunnel and issuing the tender documents without the drawings and designs of the work required to be done and thereafter extending the date of

receipt of tenders as was done in the present case. In future, tenders for works should be invited only after the designs and drawings of the work proposed to be done are complete in all respects and these should be made available to the prospective tenderers along with other Tender Documents.

[S. No. 24 Paras 1.189 of the 25th Report of PAC (7th L.S.)]

Action taken

Guidelines have been prepared by NHPC and will be issued after approval by the Board of Directors of NHPC.

[Ministry of Energy, Deptt. of Power O.M. 3/15/80-USG/Do-V dated 10-9-81]

Recommendation

The Committee feel that payment of advance of Rs. 50 lakhs without interest to M/s. Gammon India Ltd. without settling before hand certain special conditions of the agreement was imprudent as in the event of contractor's refusal to agree to the special conditions the money advanced would itself have become difficult to recover. The Committee consider that in such cases, the conditions of the agreement should invariably be settled prior to payment of advance. The Committee would also like that this matter is examined in depth in consultation with the Ministry of Finance and suitable guidelines issued so that the interests of Government are adequately safeguarded.

[S. No. 25 Para 1.190 of the 25th Report of PAC (7th Lok Sabha).]

Action taken

The general guidelines for the contracts have been formulated. These are being submitted to the Board of Directors of NHPC and thereafter to the Ministry of Energy for approval. These will then be submitted to the Ministry of Finance and any amendments made by them will be taken into consideration.

[Ministry of Energy, Deptt. of Power O.M. 3/15/80/USG/Do-V dated 10.9.81]

Recommendation

The Committee find that the work of construction of the tail race tunnel was scheduled to be completed within 58 months of the start of the work i.e. by 24 September, 1982. However, the progress is very slow as only

256 metres of tunnel boring has been completed till October, 1980 out of the total length of 4820 metres required to be excavated. In fact that the excavation work of tunnel boring was originally scheduled for completion by January, 1981 i.e. within 40 months of the start of excavation work as per the terms of the contract. The firm has submitted revised target date for the completion of Tail race tunnel by March 1984. The Chairman-Cum-Managing Director, Salal Project was candid enough to inform the Committee during evidence that the Chief Executive of the firm had not responded to his invitation for discussion and that he was doubtful if they would adhere even to the revised schedule.

The Committee take a serious view of the whole matter and desire that this should be sorted out at the earliest with the contracting firm. In case the firm expresses its inability to adhere even to the revised schedule, notwithstanding the facility of interest free advance of Rs. 50 lakhs given to it, the Committee would like the Ministry to invoke the penal provisions in the agreement and take alternate steps to get the work done by the stipulated date.

[S. No. 26 Paras 1.198 and 1.199 of the 25th Report of PAC (7th L.S.)]

Action taken

A series of meetings have been held at periodical intervals with the representative of M/s. Gammon India Ltd. to review the progress achieved by them and the factors responsible for their poor progress.

The various deficiencies on the part of firm in the matter of resource inputs have been pointed out to them in these meetings and a firm undertaking obtained from the firm that they would make good of these shortcomings according to a programme that was submitted by them in this behalf. With the close monitoring and periodical meetings held with the firm both at site and at highest level in NHPC, it is expected that the firm would improve its performance and complete the work according to the revised schedule.

The Corporation would have no hesitation in invoking the penal provisions of the agreement with the firm and take alternative steps to get the work done should it become necessary.

[Ministry of Energy. Deptt. of Power O.M. dated 3/15/80-USG/D.O. V
10-9-81]

Recommendation

The Salal Project presents a typical example of vital projects getting bogged down during construction for various reasons, some of which could

have been easily foreseen. The Project has shown heavy over-runs of time and cost as can be seen from the fact that whereas it was initially expected to have been commissioned by June 1979 at an estimated cost of Rs. 55 crores, the latest anticipation is that the first unit of the project would not be commissioned before March 1987 and the total expenditure involved would be as high as Rs. 350 crores provided further delays do not occur. What comes out prominently from the Committee's enquiry is the utter inadequacy of pre-construction investigations which resulted in frequent change in designs and construction drawings. In fact, geological, geophysical and geo-technical investigations had to be continued over the years in respect of several major components of the project during execution. This resulted in substantial increases in the quantities of work required to be done with consequent increases in cost and delay in execution. Had adequate investigations for preparation of detailed designs and drawings been conducted before awarding the work for various components of the project, the parameters of the problem could have been more precisely delineated and numerous changes that had to be made therein resulting in higher costs, could have been avoided.

[S. No. 28 Para 1.206 of the 25th Report of PAC (7th L.S.)]

Action taken

Government have taken note of the Committee's observations in this regard. Government are aware and greatly concerned about the time and cost over runs of the projects. Government have appointed a number of Committees to go into the problems of delay in the implementation of the projects. The latest one was the Y.K. Murthy Committee which submitted its report in 1978. The recommendations of the Committee have since been accepted. It is hoped that in the light of the suggestions made by these Committees and with the implementation and experience gained at Salal Project, time and cost over runs will be minimised on future projects to be executed by the agencies of this Ministry.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15/80/USG/DO-V
dated 10-9-81]

Recommendation

Yet another unfortunate aspect of the history of this project is the lack of direction from the top and insufficient coordination among the various agencies involved in its execution. It was only as late as in May 1978 that decision was taken to hand over the Project to the National Hydro-Electric Power Corporation—a public sector undertaking, for execution on agency basis since it came to be realised that execution of such projects through departmental efforts was not conducive to expeditious decision

making. The tardy implementation of the project is therefore the direct result of the failure of management at the top level to come to grips with the completely of the job they had undertaken upon themselves. The Committee trust that the lacunae pointed out by them in this report would be gone into in depth so that suitable remedial measures can be taken for the future.

[S. No. 29 Para 1.207 of the 25th Report of PAC (7th L.S.)]

Action taken

Government have fully taken note of the recommendations of the P.A.C. Whatever shortcomings have been noticed will be borne in mind. It will be ensured that the future projects are given the best of management at all levels and it is hoped that the cost and time over runs will be minimised.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15|80|USG|DO-V
dated 10-9-81)]

CHAPTER III

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

Recommendation

1.92 The Committee observe that the Concrete Dam comprising spillway, power dam and non-overflow blocks, posed "extra-ordinary design problems" due to its unique location on a narrow saddle and the "un-anticipated geological problems". It took several years for the concerned agencies to find out suitable solutions to these problems and in fact it was only in October, 1980 that the final excavation drawings for blocks 16 to 25 of the dam were released by the Central Water Commission.

1.93 The Committee find that as a result of design changes, quantities of a number of components of the concrete dam structure viz., excavation, drilling, grouting and concreting have increased substantially thereby pushing up the cost of the dam from nearly Rs. 17 crores (as per 1968 estimates), to Rs. 77.5 crores (November, 1980 estimates) i.e. by nearly 356 per cent.

1.94 The Committee are not persuaded by the contention of the Ministry that "no amount of pre-construction investigations will precisely indicate the magnitude, disposition and physical nature of all the geological infirmities of the foundation". As the heterogenous formation of the Himalayas is well known, the Committee cannot resist the impression that adequate efforts were not made initially to pool the experiences of execution of other projects in the Himalayas, to sift the available data and to harness the latest techniques of pre-construction investigations. Had enough attention been paid to these aspects, the parameters of the problem could have been more easily delineated, solutions would not have taken so long to come by and considerable amount of time and money could probably have been saved.

[S. No. 12 Paras 1.92, 1.93 and 1.94 of the 25th Report (7th L.S.)]

Action taken

It may be pointed out that Salal is the first major project to be undertaken in the interior reaches of the Himalayas. There has been no comparable project of the magnitude of Salal which was completed at the time when investigations of the Salal Project were undertaken. The geology of

the projects located in young Himalayas is extremely heterogeneous and complicated. Salal Project is a typical example of such projects. Project Report stage investigations comprise besides surface geology mapping, logging of over 3000 rft. of drill holes and over 6000 rft. drifting which is quite extensive as compared to other similar projects. However, in any heterogeneous rock formation like this project in Himalayas no amount of such sampling will precisely indicate the magnitude, disposition and physical nature of the various geological infirmities. Unless these important characteristics of the geologically adverse features are precisely known, detailed construction drawings cannot be prepared. All these basic designs pre-requisites for preparation of detailed construction drawings can be precisely known only after the foundations are exposed after actual excavation and geo-technical assessment thereof is made. Progressive investigations for the preparation of the detailed designs were carried out and solutions to the problems thrown up as a result of construction stage investigations were found. This took time inspite of the efforts made to enlist the technical skill and cooperation of top engineers available in the country.

However, it is hoped that the experiences gained in the execution of Salal Project would be utilised fruitfully to overcome the investigational problems in other projects to be undertaken by NHPC and that time and cost over runs would be avoided to a great extent.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15/80/USG/Do-V
dated 10-9-81.]

Recommendation

1.104 The 1968 and the 1974 estimates of the Salal Project provided for savings of Rs. 2.96 crores and Rs. 4.24 crores respectively on account of anticipated re-use of the material excavated from the concrete dam site in the rockfill dam. This envisaged either simultaneous construction of the concrete and rockfill dams to enable direct use of the material or in the alternative, safe stock-piling of the excavated material for future use in the rockfill dam. The experience during construction has shown that it was not found possible either to synchronise the construction of concrete and rockfill dams or to safely stockpile or store all the material excavated from the concrete dam site as envisaged in the project estimates.

1.105 Out of a total of 21.2 lakh cu.m. of re-usable material anticipated to be recovered, only 6.70 lakh cu.m. are stated to have been used for creating enabling works (for the excavation work) such as approach roads and working platform 5.12 lakh cu.m. of material is stated to have been stock-piled out of which 2 lakh cu.m. is proposed to be used in the main

concrete dam and 3.12 lakh cu.m. is meant for re-use in the rockfill dam. Thus, only 11.8 lakh cu.m. of the excavated material out of anticipated total excavated material of 21.2 lakh cu.m. has either been utilised or will be utilised. The remaining 9.4 lakh cu.m. is reported to have been "washed away in floods" and is being treated "as a spoil".

1.106 The Committee also note that even for the 5.12 lakh cu.m. of excavated material which was stock-piled for re-use, no credit was shown in the estimate either for concrete dam or for the rockfill dam where it was intended to be used. The lapse is sought to be explained away by maintaining that the entire stock-piled material was advertised as a quarry for concrete dam. The Committee consider that this was not a regular procedure to adopt.

[S. No. 14 Paras 1.104, 1.105 and 1.106 of the 25th Report of PAC
(7th L.S.)]

Action taken

In the first revised estimate of the Salal Project, the material to be excavated from the foundation of the Concrete Dam, was shown as material available for use on the Concrete Dam itself to the extent of 5.12 lakhs cum. Accordingly, credit available for the Concrete Dam in the original estimate was deleted from the revised estimate.

As against 5.12 lakhs cum. of material available for use on the Concrete Dam, the contractor was permitted to use 2 lakhs cum. only and the balance 3.12 lakhs cum. therefore became available for use as filter material in the Rockfill Dam. In the contract agreement with M/s. H.C.C. for Concrete Dam, the fact of availability of excavated material has been duly reflected. Therefore, the question of credit for recovery on this account to Concrete Dam does not arise.

In reply to question No. 13(e) to the list of points received from the Public Accounts Committee (1979-80), the fact of the balance material of 3.12 lakhs cum. being used on Rockfill Dam has been indicated. The revised estimate of the Salal Project which is under preparation at present, credit to the extent of cost of 3.12 lakhs cum. would be given to the Concrete Dam by charging this to the Rockfill Dam.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15/80/USG/Do-V
dated 10-9-81.]

Recommendation

The Committee are disturbed to find that a major Project like the Salal Project has of late been facing acute shortage of critical items like cement

and steel. Only 10 per cent of the requirements of cement were met during 1980 (upto October, 1980) and what is worse the supplies were not evenly spread over. The Committee were informed that even the sources of supply are the Southern States like Tamil Nadu which is more than two thousand Kms. away from the project site. The Committee do not find any rational justification in allocating cement for Salal Project from such far off places which not only adds to the cost of inputs on account of higher transportation charges but also leads to delays. The Committee recommend that the Ministries of Steel and Industry should make arrangements for supply of steel and cement for the project from the nearest available sources and as per schedule of requirements. The Committee further recommend that for such a critical project, Govt. must ensure timely supply of essential inputs like steel and cement. This is a serious matter which needs immediate attention of the concerned authorities so that such deficiencies do not held up the progress of the Project any further.

[S. No. 27 Para 1.205 of the 25th Report of PAC (7th L.S.)]

Action taken

Government agrees with the recommendation of the Committee. The matter has been taken up with the Ministry of Steel and Ministry of Industry.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15/80/USG/DO-V
dated 10-9-81)

Action taken by the Deptt. of Industrial Development

The requirement of cement in Jammu and Kashmir State are met mainly from cement factories located in Rajasthan, Madhya Pradesh and Tamilnadu. The entire Northern Region is deficit in the matter of availability of cement *vis-a-vis* demand. Therefore, a part of the requirement of cement has to come from cement factories in South where cement is surplus compared to the allocated quantity. All the States in the Northern Region object to allocation being given from the Southern factories. The allocations of cement have, therefore, been made in such a manner that States having substantial allocations like Delhi, Uttar Pradesh, Punjab and Jammu and Kashmir share some part of the allocation from Southern factories. The movement of cement from Tamilnadu cement factories to Jammu and Kashmir takes place by rail. It is also convenient for Railways to move cement from Tamilnadu factories to Northern Region. Since there is a uniform price of cement for destination station, it does not cost more to the project.

The quarterly allocation and despatches of cement for Salal Project which is under the Central Sector is substantial as will be seen from the following figures:—

| <i>Period</i> | <i>Allocation</i> | <i>Despatches</i> (tonnes) |
|------------------------------|-------------------|-------------------------------|
| July-September, 1980 . . . | 25,300 | 8,542* |
| October-December, 1980 . . . | 12,900 | 11,169 |
| January- March, 1981 . . . | 12,000 | 10,737 |
| April-June, 1981 | 11,230 | 9,737 (upto 11th June, 1981) |

*The despatches as against allocation during the Quarter July-September, 1980 was less mainly on account of transport constraints.

It is not possible to make the entire allocation for this project from the cement factories located in North, *i.e.* Haryana, Rajasthan, Madhya Pradesh. Allocation of entire quantity from these States is also not free from risk of short supply. The cement factories in Northern Region are suffering from heavy power cuts, off and on. Moreover, the factories in the Northern Region have practically switched over to the manufacture of puzzolana cement whereas the irrigation and power projects need at least 50 per cent of their requirements of Ordinary Portland Cement, which is made in Tamilnadu factories. The Cement Controller has also allotted a quantity of 3,000 tonnes of Ordinary Portland Cement from Rajgangpur factory in Orissa to meet the requirements of this Project. While every effort is being made to meet the requirements of cement of the priority sectors of Irrigation and Power, the solution to the problem of cement supply in Jammu and Kashmir State lies in the coming into production of the Khrew Cement Factory in that State. The commissioning of this plant, which is overdue by more than 2 years, is now stated to be expected in September-October, 1981. It will then be possible to meet a major portion of the cement requirement of Jammu and Kashmir State locally.

(Ministry/Department of Industrial Development No. 8-204/81-Com.
dated the 29th September, 1981)

CHAPTER IV

RECOMMENDATIONS OR OBSERVATIONS REPLIES TO WHICH HAVE NOT BEEN ACCEPTED BY THE COMMITTEE AND WHICH REQUIRE REITERATION

Recommendation

Regardless of the observations of the local Project Officers regarding the short width of the road actually found by them on the spot, the Ministry has relied upon the cross-section of the road appended to the Project Report and also on the surmise that the filling portion of the road in certain lengths must have been washed away by two intervening rainy seasons. The Committee consider that the matter calls for a probe by NHPC management with a view to dispelling the impression that the previous widening of the road was actually not carried out, but was shown to have been carried out and paid for accordingly.

[S. No. 19, Paras 1.144 of the 25th Report of PAC (7th L.S.)]

Action taken

The matter has been examined and an enquiry has been ordered by the Chairman and Managing Director of N.H.P.C.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15/80|USG|DO-V
dated 10-9-81].

Recommendation

In this connection, the Committee find that at present there is no method by which Parliament is concurrently kept apprised of the progress in the implementation of various Central Sector Projects and Programmes in which huge amounts have been voted by Parliament. The Committee find that the information made available to Parliament through the budget documents or annual reports of the concerned Ministries is sketchy and quite inadequate for making a proper appraisal of the progress of various on-going projects. The Committee, therefore, strongly recommend that in the cases of all Central Sector Projects|Programmes where the estimated outlay is Rs. 100 crores or more and also in cases where the estimated outlay/investment subsequently exceeds the above figure, a separate project|programme appraisal report should be placed before Parliament during

every budget session. Such report should indicate clearly the physical and financial targets, progress made and reasons for delays, non-fulfilment of targets etc. (year-wise). These Reports, Project-wise/programme-wise should be made available before the debates on the Demands for Grants start, so that Parliament is fully kept apprised of all such projects programmes.

[S. No. 22 Paras 1.161 of the 25th Report of PAC (7th L.S.)]

Action taken

The observations of the Committee are noted. This is a general recommendation, on which, it is understood, the Ministry of Finance will take necessary action. The guidelines issued by the Ministry of Finance would be considered by the Ministry.

[Ministry of Energy, Deptt. of Power O.M. No. 3|15|80|USG|DO-V dated 10.9-81]

Action taken by the Ministry of Finance (Bureau of Public Enterprises)

The Annual Performance Budgets of the various Ministries laid on the Table of the Parliament before taking up discussion on the Demands for Grants of such Ministries provide detailed information about the progress of expenditure in important projects and programmes under the respective Ministries. In other words, every attempt is being made to keep the Parliament fully informed of the progress made, both in physical and financial terms, by all major projects being executed under the respective Ministries. The observations of the Public Accounts Committee are, however, being brought to the notice of the Administrative Ministries/Deptts. of the Government reiterating the need for adequate coverage of the information asked for in the above-noted recommendations, in their Annual Performance Budgets. Against this background, Government is of the view that no separate Project/Programme Appraisal Report need be prepared by the Government.

[Ministry of Finance, Bureau of Public Enterprises No. BPE/14(41)/Adv. (F)|81 dated 30.10.81]

CHAPTER V

RECOMMENDATION OR OBSERVATIONS IN RESPECT OF WHICH GOVERNMENT HAVE FURNISHED INTERIM REPLIES

Recommendation

The Committee are disturbed to find out that yet another area where costs have gone up manifold is "Direction and Administration". The estimated expenditure under this head has jumped from Rs. 375.70 lakhs in 1968 to Rs. 1904.35 lakhs in 1976 and Rs. 2550.00 lakhs in 1980, showing an increase of 580 per cent within a span of 12 years. The Committee would like the Ministry of Energy to analyse in depth with the help of the Chief Cost Accounts Officer of the Ministry of Finance the reasons for the abnormal increase in expenditure under this head with a view to exploring areas where economies could be effected.

[S. No. 4 Para 1.26 of the 25th Report of PAC (7th L.S.)]

Action taken

The requisite data as furnished by National Hydro-electric Power Corporation has been forwarded to the Chief Cost Accounts Officer of the Ministry of Finance. The Ministry of Finance have been requested to get in touch with NHPC for any further information in this respect. The results of the analysis would be communicated to the Committee in due course.

[Ministry of Energy, Deptt. of Power O.M. No. 3/15/80/USG|Do-V
dated 10.9.81]

SATISH AGARWAL

NEW DELHI;

Chairman

Public Accounts Committee.

December 14, 1981

Agrahayana 23, 1903 (Saka)

Appendix I

MINUTES OF THE SITTING OF PUBLIC ACCOUNTS COMMITTEE (1981-82) HELD ON 10-12-1981.

The Committee sat from 1500 hrs. to 1600 hrs.

PRESENT

| | |
|----------------------------------|-----------|
| Shri Satish Agarwal | Chairman |
| Shri Tridib Chaudhuri | } Members |
| Shri K. P. Singh Deo | |
| Shri Mahavir Prasad | |
| Shri M. V. Chandrashekara Murthy | |
| Shri Satish Prasad Singh | |
| Shri Hari Krishna Shastri | |
| Shri Patitpaban Pradhan | |

Representatives of the Office of the C & A G

| | |
|------------------------------------|--------------------------|
| Shri K. C. Das | ADAI(R) |
| Shri R. S. Gupta | Director (Receipt Audit) |
| Shri G. N. Pathak | D. A. D. S. |
| Shri S. R. Mukherjee | D.A. C.W. & M. |
| Shri M. S. Malhotra | J. D. (R) |
| Shri N. C. Royachoudhury | J. D. (C&CE) |
| Shri R. S. Gupta; | J. D. (DADS) |

Secretariat

| | |
|-------------------------------|-----------------|
| Shri H. G. Paranjpe | Joint Secretary |
| Shri D. C. Panda | C.F.C.O. |
| Shri K. C. Rastogi | S.F.C.O. |
| Shri K. K. Sharma | S.F.C.O. |

The Committee considered the following draft Reports of the Public Accounts Committee and approved the same with modifications shown in Annexures I*, II*, & III. The Committee also

*Not printed.

approved some minor modifications arising out of the factual verification of the draft Report by Audit:—

- (i) * * * * *
- (ii) * * * * *

- (iii) Draft 65th Action Taken Report (7th Lok Sabha) on action taken on the recommendations contained in the 25th Report (7th Lok Sabha) relating to Salal Hydro-electric Project.

The Committee then adjourned.

ANNEXURE—III

Amendments/Modifications made in the draft 65th Report (7th Lok Sabha) of Public Accounts Committee.

| Page | Para | Line(s) | For | Read |
|------|------|---------|--|--|
| 3 | 1.7 | 5-11 | “The Committee expect that appropriate action would be taken against the defaulting officials found to be responsible for the lapses, if any, in this case. The Committee would like to be apprised in due course of the findings of the enquiry and the precise action taken in pursuance thereof.” | “The Committee would like to be apprised of the action taken against the defaulting officials found to be responsible for the lapses, if any, in this case.” |
| 5 | 1.9 | 1 | “the coverage given to the projects.” | “the inadequate coverage given therein to big projects.” |
| 5 | 1.10 | 2 | “Report that” “has” | “Report (1980-81) that” “had” |
| 5 | 1.10 | 8 | “is” | “would be” |

APPENDIX--II

CONCLUSIONS/RECOMMENDATIONS

| Sl. No. | Para No. | Ministry/Department Concerned | Conclusion/Recommendations |
|---------|----------------|-------------------------------|---|
| 1 | 2 | 3 | 4 |
| 1 | 1.17 | Energy (Deptt. of Power) | <p>The Committee note that in pursuence of the recommendation made in Para 1.141 of the 25th Report, NHPC management have ordered an enquiry into the case relating to widening of the haul road. The Committee would like to be apprised of the action taken against the defaulting officials found to be responsible for the lapses, if pay, in this case.</p> |
| 2 | 1.11 & 1.12 | -do- | <p>Considering the above, the Committee cannot emphasise too strongly the need for Parliament being kept apprised for the progress in the execution of major projects involving heavy investments.</p> |
| | | | <p>Taking note of the fact that the Ministries are now being asked to give adequate coverage to such projects in their Performance Budgets, the Committee would for the present recommend that project/programme appraisal reports in respect of Central sector projects/programmes where the estimated outlay is Rs. 100 crores and more and also where the estimated outlay/investment subsequently exceeds the above figure, should be included in separate self-contained Chapters in the Performance Budgets of the respective Ministries.</p> |

P.A.C. No. 834

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**PUBLISHED UNDER RULE 382 OF THE RULES OF PROCEDURE AND CONDUCT
OF BUSINESS IN LOK SABHA (SIXTH EDITION) AND PRINTED BY THE
GENERAL MANAGER, GOVERNMENT OF INDIA PRESS,
MINTO ROAD, NEW DELHI.**