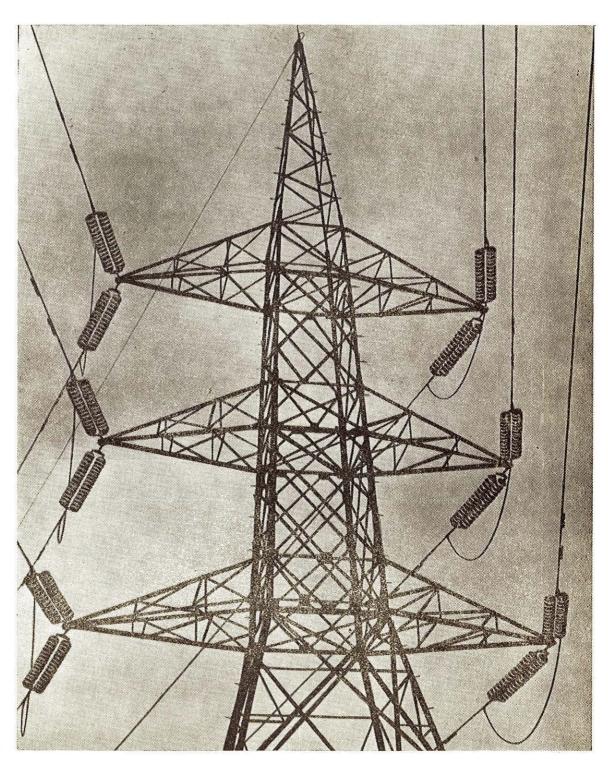


THIRD ANNUAL REPORT 1978-79

National Hydroelectric Power Corporation Ltd.



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Transmission Tower



Chairman & Managing Director	Shri S.N. Roy (Upto 19.5.1978 A.N.) Maj. Gen. T.V. Jeganathan (From 20.5.1978 F.N.)			
Directors	Shri V. Subramanian Shri K. S. Subrahmanyam Shri Y.K. Murthy (upto 31.10.1978) Shri S.N. Roy (From 20.5.1978) Shri V. Krishnaswamy (Upto 5.6.1978) Shri R. Gopalaswamy (Upto 25.7.1978) Shri A.N. Singh Shri S.B. Majumdar (Upto 10.9.1979) Shri D. Rajagopalan. (From 5.7.1978) Shri S. Ramesh (From 26.7.78 to 31.1. 1979) Shri P.M. Belliappa			
Secretary	(From 31.1.1979) Shri N.V. Raman			
Auditors	M/s S.K. Jain Associates, 23, Community Centre, Ashok Vihar, New Delhi-110052.			
Bankers	State Bank of India.			
Registered Office	'Manjusha' 57, Nehru Place, New Delhi-110019.			

NOTICE

Notice is hereby given that the Third Annual General Meeting of National Hydroelectric Power Corporation Ltd., will be held on Wednesday, the 26th September, 1979, at 12.30 P.M. in the Registered office of the Corporation at 'Manjusha' 57, Nehru Place, New Delhi-110019 to transact the following business:

Ordinary Business

To receive and adopt the audited Accounts of the Corporation for the year ended March 31,1979 along with the Auditors' Reports and the Directors' Report thereon.

By Order of the Board of Directors National Hydroelectric Power Corpn. Ltd.

> N.V. Raman Company Secretary

Place: New Delhi.

Dated: 28th August, 1979.

Note: A member entitled to attend and vote at the meeting is entitled to appoint a proxy to attend the meeting and vote instead of himself. The proxy need not be a member of the Corporation.

CHAIRMAN'S SPEECH

Gentlemen,

It gives me great pleasure to welcome you to the Third Annual General Meeting of the National Hydroelectric Power Corporation Ltd. The audited accounts for 1978-79 are before you for your kind consideration and adoption.

The Year:

In a short span of three years since its formation, your Corporation has emerged as a major instrument in the development of the country, in the vital power sector. It was entrusted with the execution of two major Hydroelectric Projects, viz., Baira Siul Project in Himachal Pradesh and Loktak Project in Manipur State, both on ownership basis. The year 1978-79 has been a year of healthy growth for the Corporation both in quantity and quality. The 700 Megawatt Salal Hydroelectric Project in Jammu & Kashmir was entrusted to the Corporation for execution on agency basis. The transfer of this Project to the Corporation is under active consideration of the Govt. of India and Jammu & Kashmir Government. Under the Technical & Economic Cooperation programme, the Government of India had agreed to construct the Devighat Hydroelectric Project in Nepal. The construction of this Project has been entrusted to your Corporation, as an agent of the Government of India w.e.f. 18th October, 1978.

You will be happy to know that considerable progress has been made in the construction of Loktak Hydroelectric Project during the year. The serious setbacks, encountered in the tunnels, were overcome by concerted efforts all around. With the presence of methane gas in the tunnels, the tunnelling work had to be reoriented with flame-proof equipment. Also, as the tunnels were passing through highly squeezing soil and rock strata, conventional

tunnelling methods had to be changed. The excavation of the tunnel is now being done by Alpine Miners, imported from Austria—a change from the conventional blasting methods. We have also adopted the New Austrian Tunnelling Method (N.A.T.M.), a modern technology for tunnel supports, which envisages shotcreting and anchoring, and where necessary, rib supporting of the tunnel, all in quick succession, within a very short period after excavation. In order to hasten up the concrete lining of the tunnel, we are planning to adopt a new technology of continuous concrete pour with telescopic shuttering, which would enable us to do concrete lining at the rate of 400 to 500 metres per month, against 100 metres, that is being achieved by our existing conventional methods. This equipment also will be imported. I am proud to inform you that your Corporation is the first organisation in the country to adopt these modern techniques in tunnelling.

Recently, there was some movement on the penstock hill slopes, damaging the penstocks already laid. Action is being taken to reconstruct these saddles. In spite of these setbacks, I am confident that Loktak Project will be commissioned by March 1982, according to schedule.

The work on the Baira Siul Hydroelectric Project is progressing satisfactorily. All the works connected with the commissioning of the first unit, with the help of the waters of Siul River, are going on as planned and the first unit will be commissioned by February/March 1980. The commissioning of the rest of the Project is dependent on the construction of the dam across Baira River. This work had a set back due to the unprecedented heavy rains and snowfall in Himachal Pradesh in March

1979. In spite of this, the works are being reorganised to complete the Baira Dam in time, so as to commission the whole Project by June 1981 as scheduled.

The Salal Hydroelectric Project which was handed over to us in May 1978 was faced with serious design problems, due to poor geology at site. The Central Water Commission, who are our designers and consultants for this project, are seized of this problem. All the issues have now been identified and discussed at length by the Technical Advisory Committee (T.A.C.) of the Project in various meetings. The T.A.C. has given its recommendations and the Central Water Commission are now in the process of finalising the drawings. Despite all this, the diversion of the river through the diversion tunnel is still being planned to be done in October 1980. Tenders for the construction of the power house complex are under process.

On the Devighat Project, the necessary infrastructure has been built up. The actual work on the Project complexes, however, could not really get started, as the Government of Nepal has yet to hand over the land to the Project authorities. The matter is being pursued with the External Affairs Ministry and the Government of Nepal. In the meanwhile, action is on hand for award of contracts for some major works in the Project. I may mention that a 300 ft. long Bailey Bridge has been constructed across the River Trisuli within 4 months which would be a record in any Project. This has enabled communication across the river to the right bank where all the Project complexes are located, in record time

On the transmission lines sector, we made considerable progress. The sub-station at Gangtok was commissioned in June 1979 and the power from Lower Lagyap Hydroelectric Project is now distributed through this substation.

FUTURE:

(i) New Projects

The Koel Karo Project in Bihar, Dulhasti Project in Jammu & Kashmir, and Nathpa Jhakri Project in Himachal Pradesh are three new projects that may be handed over to your Corporation in the near future. Other States also appear to be thinking of handing over some of the projects in their States to your Corporation. Already action is nearing finalisation to transfer to your Corporation the Koel Karo Project in Bihar, for which the Saudi Fund has agreed to give a loan of 106 Million Saudi Riyals (Rs. 26.5 crores). This followed the visit of an official delegation of Government of India, including officials of N.H.P.C. to Saudi Arabia in the first week of September 1979. The work on this project can be started after the Government of Bihar officially transfers the project to your Corporation. The Government of India is also making efforts for the early transfer of the Dulhasti Project in Jammu & Kashmir to your Corporation.

(ii) Organisation:

Though the bulk of the personnel were drawn initially on deputation from various Govt. Departments and other public sector undertakings, a beginning has been made to build up our own cadres, according to a well designed manpower policy, catering to our fast growing future needs. The build up during the year has been substantial.

In tune with the modern concept for better efficiency and coordination at the Corporate Office, functional cells, like Contracts and Material Management, Plant & Equipment, Procurement, Design etc., have been created, which feed the various Desks, established for the individual projects.

The future power needs of the country by the turn of the century are estimated to be of the order of 1,25,000 MW. Of this, hydro



power contribution would have to be about 40,000 MW of installed capacity by 2000 A.D. Here lies the magnitude of the problem and also the future of your Corporation.

In our great endeavour to fight the war against power shortage in the country, we have the whole-hearted support of our consultants, the Central Electricity Authority, the Central Water Commission, and abundant goodwill, help and assistance from the Ministry of Energy (Deparment of Power), Ministry of External Affairs, His Majesty's Government of Nepal, State Governments concerned, all other Central agencies, the various specialised agencies, such as the Geological Survey of India, Survey of India, the Directorate General of Mines Safety and others. We derive our strength mainly from the enthusiasm, zeal, hard-

work, experience and devotion to duty of the employees of the Corporation at all levels both in the Corporate Office and in the field. I am sure with this indomitable strength and your constant guidance in policy making, the Corporation will grow from strength to strength and will be the premier instrument for development of Hydro-power in the country.

I now request you to consider and adopt the audited accounts for 1978-79.

Maj. Gen. T.V. Jeganathan. PVSM; AVSM (Retd.) Chairman

New Delhi 26-9-1979.

DIRECTORS' REPORT TO THE SHAREHOLDERS

Gentlemen,

I take great pleasure in presenting to you, on behalf of the Board of Directors, the Third Annual Report on the working of the Corporation, incorporating the audited accounts for the year ended March 31, 1979 and the Auditors' Reports thereon. I am happy to report that the year 1978-79 was one of continued growth in the activities of the Corporation.

2. OPERATIONS

- 2.1 Hydroelectric Projects: During the year the work on the construction of the Loktak & Baira Siul Hydroelectric Projects continued. In addition, as already mentioned in the last year's Report, the Salal Hydroelectric Project in Jammu & Kashmir was entrusted to the Corporation on 'Agency' basis by the Govt. of India w.e.f. 15th May, 1978. The formalities for the transfer of this Project to the Corporation are yet to be finalised. The Govt. of India signed an agreement with His Majesty's Govt. of Nepal to undertake the construction of the Devighat Hydroelectric Project in Nepal under the Technical & Economic Cooperation Programme between the two countries to help Nepal to develop its economy. The Corporation has been entrusted with the job of execution of this Project as an agent of the Govt. of India, w.e.f. 18th October, 1978.
- 2.2 Transmission Lines: Apart from the Projects mentioned above, the Corporation continued its work in respect of the various Transmission Lines entrusted to it by the various State Governments/Public Sector Undertaking.

3. SALIENT FEATURES OF THE PROJECTS

3.1 The salient features of the Projects are given in Annexure-1.

4. CORPORATE PERFORMANCE

- 4.1 Loktak Hydroelectric Project: As in last year the construction activities on this Project during 1978-79 showed steady progress. The progress of work on various complexes is given below:
- (a) Ithai Barrage: All the civil works are complete, and erection of hoist bridge, crest gates and other hydro-mechanical equipment are nearing completion. All these are scheduled to be completed by June 1980.
- (b) Open Channel: The total length of 2270 m. is complete except for some rectification work.
- (c) Cut & Cover Section: Up till now a total length of 912 m. out of a total of 1073 m. is complete. During the year a length of 192m. was completed. This work is scheduled to be completed by March 1980.
- (d) Head Race Tunnel: As you are aware, tunnelling is the most critical item for the completion of the Loktak Hydroelectric Project. During the year, all efforts were made for making maximum progress.

(i) Power Channel Face of Head Race Tunnel:

The power channel face was taken up departmentally in August 1978 and till now a length of 92.34 m. has been bored out of a total length of 150 m. The difficulty experienced at this face is mainly due to lake deposits and soft and running ground conditions. This reach is expected to be completed by October 1979.



- (ii) Reach 0-1: This reach of the tunnel is also being done departmentally. Difficulty is experienced in this face also due to bad geology with flowing ground conditions but it is heartening to mention that a progress of about 40 m. was achieved in May 1979. A total length of 583.6 m. has already been excavated out of 672 m., out of which a length of 327 m. was done during the year under Report. The completion schedule of this face is December 1980, but in view of the higher rate of boring achieved in this face, it is expected that the work will be completed by December 1979, which will result in saving of about a year which can be utilised for lining.
- (iii) Reach 2-3 and 6-7: These have been entrusted to M/s Patel Engineering Company. The excavation at these faces were completed in August 1978 and lining work is almost complete.
- (iv) Reach 4-5: This is the most difficult reach of the tunnel with a total length of 3849 m. In order to overcome the geo-technical problems arising out of adverse geological conditions, stringent safety measures have been taken. Two sophisticated point excavators (Alpine Miners) have been imported from Austria and the tunnelling operations in this critical reach have been mechanised with the help of these Alpine Miners. The first Alpine Miner was put into operation at face 5 during January 1979, the other one in May 1979 at face 4. Flameproof Locomotives have also been obtained and put into operation. The latest method of tunnel roof-supporting known as the 'New Austrian Tunnelling Method' (NATM) has been adopted. The Alpine Miners have been used in the country for the first time for tunnelling.

M/s Geoconsult of Austria and M/s Leonhard Moll of West Germany are helping us in convergency measurements and shotcreting and rock bolting respectively. Experts of these firms are training our personnel in the "NATM" technique.

The work at both the faces has picked up. The boring done during the year is 178 m. In May 1979, a monthly progress of 40 m. at face 5 and 29 m. at face 4 was achieved. Due to increased confidence of the teams working at faces 4 and 5 and the efforts being put in, boring on this reach is expected to be completed by end 1980. The lining in this reach is planned to be done by using latest continuous pour technique for which equipment will be imported. Your Corporation will be again a pioneer in adopting this technique in India.

- (e) **Penstocks**: The progress on penstocks erection was about 78 per cent by March 1979. The work is expected to be completed by March 1981.
- (f) Power House: Civil works of Units I and II were completed while work was in progress on Unit III.
- (g) Electrical Works: The work of the generating units is in full swing and is going ahead according to schedule. The work of Unit I and II is almost complete. For Unit III, the speed ring and spiral casing have been completed; erection and testing of pressure relief valve are under progress; work on alignment of runner shaft and guide bearing and installation of working mechanism has been completed. The stator of the unit generator is ready for winding; erection of power transformers has started. The work of this Unit is expected to be completed by November 1979.
- (h) Completion schedule: All the three units are scheduled to be commissioned by March 1982.

4.2 Baira Siul Hydroelectric Project

The work on this Project is scheduled to be completed in two stages as below:

STAGE I: Power House, Switch Yard, Penstocks, Valve House, Surge Shaft, Siul Weir Complex and Head Race Tunnel from Siul upto Surge Shaft and all other allied works required to run one machine with the help of waters of Siul river will be completed by February/March 1980.

STAGE-II: All other remaining works including Bhaledh Weir Complex, Bhaledh Feeder Tunnel, Baira Dam Complex and Head Race Tunnel from Baira Dam to Siul would be completed by June 1981.

(a) Progress of works: The progress of works required for completion of Stage-I of the Project has been very satisfactory. It is heartening to inform that boring of Head Race Tunnel from Baira Dam to outlet has been completed. Remaining work of Head Race Tunnel, viz., overt concreting, invert concreting and grouting are in progress and would be completed in time.

Other civil works required for completion of Stage-I, viz., Siul Weir Complex including Desilting Tunnels, Valve House, Drop Shaft, Surge Shaft, Penstocks, Power House and Tail Race Channel are also in an advanced stage of completion. It is expected that the Stage-I of the Project would be completed as per schedule i.e. by February/March 1980.

(b) Stage-II: A major hill slide occurred just downstream of the Baira Dam site in February 1977, resulting in the submergence of the Baira Dam site area including the diversion tunnel. As the level of the top of the debris in the river bed was much higher than the invert level of diversion tunnel, it became essential to construct an additional diversion (Diversion Tunnel No. 2). This work had been completed in January 1979, and work was in progress for connecting diversion tunnel and additional diversion tunnel and also the cleaning of diversion tunnel. Unfortunately, the areas in Himachal Pradesh including the Project area were subjected to unprecedented bad weather, heavy rains and snowfalls from

2nd March to 9th March, 1979. The conditions were so bad that air dropping of food and medical supplies was arranged with the help of civil authorities and defence personnel. There were land slides all over the area and all roads leading to the Project area via Bathri-Chowra, and also the State Highway via Chamba were blocked at numerous places. The conditions of the roads in the Project area which are generally fair weather type, was much worse. These were damaged so badly and at so many places that it was not even possible to go on foot on these roads.

Besides causing damage to the roads and buildings, there has been a set-back to the main work required for completion of Stage-II. Due to heavy rains the diversion tunnel, part of which had been cleaned, again got silted up. Also the work on ramp in open channel connecting original diversion tunnel (Diversion Tunnel No. 1) and diversion tunnel No. 2 got undone and the entire work had to be started afresh.

Due to the set back suffered on account of unprecedented bad weather and the continued high discharge in Baira river due to snow melting, all the planned works could not be done during the last working season. It is, however, planned to catch up with the backlog during the working season 1979-80.

(c) Electrical Works: Erection works of generating Units is in full swing and is going ahead according to schedule. Unit-I and II are almost complete except for installation of cable racks and laying of cables and erection of disc valves. For Unit-III assembly of spiral casing has been completed, erection of pressure relief valve is under progress, prefinal assembly of guide apparatus has been completed, assembly of runner and shaft is in progress. All the switchyard equipment has been completed. The work of laying compressed air pipe lines for the ABCB's and Isolotors is complete.



(d) Completion Schedule: Stage-I of the Project is expected to be completed by February/March 1980. The Stage-II of the Project is programmed to be completed by June 1981 as planned earlier.

4.3 SALAL HYDROELECTRIC PROJECT

(a) Progress of works: The construction of Salal Project (Stage-I) is being executed in two major phases viz; (i) Pre-diversion works, and (ii) Post-diversion works.

The main thrust at present is towards the completion of Diversion Tunnel and the essential works of the Concrete dam and Rockfilldam so as to achieve the diversion of the river in October 1980. The progress of works for main items of works is given below:

(b) Diversion Tunnel:

- (i) Tunnel Excavation: The main excavation of diversion tunnel had been completed by April 1978. Only small quantity of work is left which pertains to excavation at the inlet and some miscellaneous excavation.
- (ii) **Tunnel Lining**: Out of 36,000 cubic m. of lining 35,271 cubic m. has been done till the end of March, 1979.
- (iii) **Grouting**: The grouting of tunnel is in progress. Out of total estimated quantity of 50,000 bags, 35,376 bags grouting had been done till March 1979.
- (iv) Erection of gates and hoists: The work of erection of gates and hoists was taken up in December 1978. Only 28.5 tonnes of erection had been done till March 1979. The work is in progress and it is expected that the erection of gates and hoists would be completed by December 1979.

(c) Rockfill Dam

- (i) Excavation and stripping: About 58% work on excavation and stripping of the dam foundation has been completed. The balance work relates to the portion which will be available after the diversion of the river.
- (ii) Foundation treatment: Work on prediversion foundation treatment has been completed to an extent of about 70% by March 1979.
- (iii) Fill Placement: Placement of fill in pre-diversion stage is in progress and had been completed to an extent of about 40% by March 1979. The balance work of pre-diversion placement can be started in a big way only after the foundation treatment of core base is completed and the area is available for fill placement.
- (d) Concrete Dam : The concrete dam consists of 25 blocks out of which first three are non-overflow blocks, next 12 are spillway blocks and the remaining are power dam and non-overflow blocks. The major problem in completing the essential works for achieving the river diversion in October 1980 is the foundation treatment of concrete dam blocks 16 to 25. The Central Water Commission supplied design drawings for the foundation treatment of blocks of 16 to 25 in Feb. 1979. According to these drawings the quantities of excavation and concreting in these blocks had increased substantially and a number of more technical implications had also been noticed. The implementation of these drawings would have resulted in a serious set back to the programme of river diversion by October 1980.

To sort out the problem, a series of meetings of the Technical Advisory Committee were arranged. After detailed deliberations, the Technical Advisory Committee has recommended a minimum excavation considered absolutely essential to be carried out and has

also suggested certain parameters for design of Foundation Treatment of Power Dam blocks so as to ensure their safety. Based on the model studies carried out at CWPRS, Pune, regarding spillway energy dissipation arrangements, downstream protection works for spillway blocks have also to be carried out to safeguard against erosion as a result of impinging jet from Flip Bucket while diverting the river flow over the spillway blocks. Design drawings for Foundation Treatment works of Power Dam blocks as well as for downstream protection works of the spillway have been taken up in hand by the Central Water Commission and on their receipt the construction works would be started.

(e) Power House:

- (i) Construction of protection wall Stage-I: About 90% work had been completed till March 1979.
- (ii) Sub-structure Stage-I: The work on sub-structure Stage-I power house was taken up in Dec. 1978 by M/s NPCC. Due to certain reasons the work was withdrawn from them & realloted to M/s Hindustan Construction Company in March 1979.
- (iii) Tail Race-Tunnel: The above work was alloted to M/s. Gammon India Ltd. in August 1978. Preparatory works for taking up excavation of the main tunnel are in progress.
- (f) Electrical Works: The procurement of plant and machinery for Units I, II and III was in progress. The percentage of material delivered by March 1979 is as follows:—

3×115 MW Generating Unit-I: 95%

Unit-II: 90%

Unit-III: 50%

Initial spares for Generating Units: 25%

Air Compressors : 95%

All the equipment has been properly stored. The power system studies comprising the long duration transient as well as dynamic stability studies and dynamic over voltage studies for the Salal Hydroelectric Project are in progress. All the 8 numbers 248 KVA set installed for construction power requirements have been commissioned in addition to existing 2 numbers 875 KVA. The work of installation of earthmate of power house is in progress.

(g) Completion schedule: The project is scheduled for commissioning during 1985-86.

4.4 DEVIGHAT HYDROELECTRIC PROJECT

(a) A beginning was made about the middle of December 1978 with the posting of first batch of staff to the Project site. The construction of some staff quarters, stores/ godowns, approach roads, pre-construction survey, building etc. was commenced. Specification drawings and technical specifications for Head regulator, cut and cover section, cross drainage works are in progress; whereas, specifications and specification drawings for forebay, intake, penstocks, power house and tail race have been finalised. Some of the heavy construction equipment were obtained from His Majesty's Govt. of Nepal on loan and some equipment has been purchased. The supply order for the main generating sets has been placed on B.H.E.L.

The pre-qualification bids received from various contractors are being processed.

(b) Electrical Works: The design and planning work for electric and mechanical works are in progress. The specifications for Devighat main generating plant including hydroelectric turbines and generators with auxiliaries have been finalised. Design and planning for providing infrastructural facilities such as construction power arrangements,



telephone facilities, transportation and plant handling are being actively done.

- (c) The Project had to face some bottlenecks as mentioned below:
- (1) Land Acquisition: The land on the left bank of the Trisuli river was handed over only towards the end of April, 1979 whereas land on the right bank of the river has not been handed over till now. The matter is being pursued with His Majesty's Government of Nepal through the good offices of the Ministry of External Affairs, Government of India.
 - (2) Customs Clearance: All the construc-

tion equipment, materials, etc., are to be imported from India. The Indian Customs Check Post at Raxaul refused to allow these to be taken into Nepal. The matter was taken up with the Ministry of External Affairs and the Ministry of Commerce and it has been resolved satisfactorily.

(3) Construction Power: As per the Indo-Nepal Agreement, His Majesty's Govt. of Nepal should provide 2MW of construction power free of cost. Only very recently His Majesty's Govt. of Nepal have arranged 63KVA and further supply of 500 KVA is expected shortly.

4.5 TRANSMISSION CONSTRUCTION UNITS

(a) The progress achieved upto the end of March 1979 on various T.C. Lines was as under:-

Particulars of Transmission works	completion work	Overall percentage of work completed upto 31st March, 79	
1. Transmission system in Sikkim Area			
(i) 66 KV double circuit transmission line from Gangtok to Kalimpong,	October, 1980	34%	
(ii) 66/11 KV substations at Gangtok (10 MVA)	June, 1979	78%	
(iii) 66/11 KV substations at Gangtok Melli (10 MVA).	October, 1980	32%	
(iv) 66 KV single circuit transmission line from Gangtok to Dikchu.	November, 1979	40%	
2. 132 KV S/C transmission line from Ramnagar to Gandak	March, 1980	41%	
3. 132 KV S/C Transmission line from Liematak to Jiribam	December, 1980	36%	
4. 400 KV S/C transmission lines for the Singrauli Super Thermal Power Station.	Singrauli to Obra August, 1980; Singrauli to Kanpur January, 1981.	42%	
5. 220 KV lines for Salal Hydroelectric Project.(i) S/C transmission line from Jammu			
to Sarna. (ii) S/C transmission line on D/C towers	June, 1981	8%	
from Sarna to Dasuya.	June, 1980	25%	

The sub-station at Gangtok was duly completed in June, 1979 after necessary precommissioning tests. This Sub-station is now receiving Power from the Lower Lagyap H.E. Project.

(b) Difficulties:

(1) Transmission System in Sikkim Area:

The possession of the land for Melli Substation was handed over to the Corporation only towards the end of this year. The approach road to the sub-station site is under construction. The actual work of erection of equipment has been programmed to be taken up after the current monsoon season.

The West Bengal authorities indicated the site for their sub-station at Kalimpong very recently and intimated the position of terminal towers at Kalimpong end. The survey of Melli and Kalimpong line is nearing completion. The Gangtok-Dikchu transmission line was required to be completed on priority and, therefore, all the efforts were concentrated on the completion of this line. After the foundation work on this section of the line has been completed, the erection gang of the Contractor would be diverted to Gangtok-Melli section of the line.

Apart from the above technical difficulties, the transmission works in Sikkim area were also largely effected by prolonged heavy rains in that area during the year 1978-79.

(2) 132 KV Ramnagar-Gandak Transmission Line:

The progress on this line was generally satisfactory except the difficulty of transportation of line material which was very much affected due to non-availability of Railway Wagons. Alternative arrangements for road transportation of line material were made.

(3) 132 KV Liematak-Jiribam Line:

Lack of adequate approach roads and rail

transport facilities in the area and difficult terrain posed some problems. But by and large, work was proceeding as per schedule.

(4) 400 KV transmission lines for the Singrauli Super Thermal Power Station:

The progress of the lines was slightly behind schedule because of difficulties due to short-availability of steel for tower structure and to some extent other raw materials for the transmission line materials.

Besides the above specific technical difficulties, the common problem which was faced by almost all the works was transportation of cement and other transmission line materials, due to non-availability of railway wagons and also shortage of Diesel/Petrol.

The difficulties faced were sorted out to some extent, by taking up matters at different official levels with railways, cement factories, etc.

5. FUTURE PROJECTS

The following projects are likely to be awarded to the Corporation for execution:

The first one is the Hydroelectric Project at Dul Hasti in Jammu & Kashmir State with a 10 km. long tunnel and an underground power station housing 3 units of 130 MW each. This job is proposed to be mechanised Another project for the near extensively. future is the Naptha Jhakri Hydroelectric Project in Himachal Pradesh with an installed capacity of 1020 MW, in an underground power house at the end of 27.8 km. long tunnel. The N.H.P.C. has been selected for executing the 710 MW Koel-Karo Hydel Project in Bihar with 2 earthdams, a transbasin water carrier, and an underground power station. These new projects are estimated to cost, at current price levels, a total of



Rs. 854 crores, a challenge which this Corporation is fully geared to meet.

6. PERSONNEL & INDUSTRIAL RELATIONS

- (a) Personnel: Specialists Groups of Personnel on Design, Contracts and Materials Management, Plant & Equipment have been strengthened and further efforts are on to augment these Groups.
- (b) Corporation's own Permanent Cadre: With a view to forming Corporation's own cadre, the scheme for recruitment of Executive Trainee (Engineering) was continued during the year. As of now 40 Executive Trainees are in position. As a further step in this direction, an exercise for the absorption of suitable deputationists has been undertaken.

Open market resources have also been tapped to attract expertise at suitable levels by issue of open advertisements on All India basis.

- (c) Rules/ Policies: Emphasis continued to be laid on the formulation of Corporation's own policies and rules, with a view to evolving Corporation's own philosophy and culture. In addition to 13 rules/policies mentioned in the last year's Report the following rules/policies have also been put into operation:
 - 1. Norms for issue of stationery;
 - 2. Leave Travel Concession;
 - 3. Leave Encashment;
 - 4. Children Education Allowance;
 - 5. Gratuity Rules;
 - 6. Grant of Conveyance & Festival Advance;
 - 7. Grievance Policy & Procedure;
 - 8. Model Standing Orders;
 - 9. Conduct, discipline and appeal Rules.

Draft Rules relating to Promotions, Leave, Medical Attendance, House Building Advance, House Rent Allowance, Project Allowance have also been prepared and are expected to be finalised shortly. After all these Rules/Policies have been approved, it is proposed to bring out a compendium containing Corporation's Rules & Regulations in Personnel & Administration area for general guidance.

- (d) Training & Management Development: The planning & execution of hydroelectric Projects presents a complex management task calling for a high degree of coordination and control in many disciplines. This underlines the need for introduction of systematic and scientific management in various disciplines, which in turn calls for special objective training at all levels. The Corporation has, therefore, reviewed the need for an intensive training programme to be undertaken on a planned basis with a view to developing a professional base of trained manpower and has negotiated with one of the institutions of an All India character inviting them to undertake intensive training and human resources development programmes exposing all executives and supervisors to diverse aspects of management concepts and techniques, including particularly structured and tailor-made programmes to meet the specific requirements of the organisation. It is hoped that the above will help in developing a cohesive and well-knit team of employees with an integrated outlook and sense of belonging to the Corporation.
- (e) Use of Hindi: The Corporation took several steps for propagation of use of Hindi in its day-to-day working required under the Official Language Act. Hindi Cells have been set up in the Corporate Office and also in the Projects. Official Language Implementation Committee at the Corporate Office and Projects have also been formed to review the progressive use of Hindi.

(f) Industrial Relations: Industrial Relations continued to be cordial throughout the year.

7. FINANCIAL RESULTS

(a) Capital & loan:

The authorised capital of the Corporation remained at Rs. 200 crores. The paid-up capital increased by Rs. 9.8298 crores and the loans by Rs. 17.03 crores during the year. The total share capital as on 31.3.1979 was Rs. 83.3763 crores, entirely subscribed by the Central Govt. The total amount of loan entirely received from the Central Govt. stood at Rs. 60,67,43,600 as on 31.3.79 and interest accrued and due on loan was Rs. 6,20,17,860 as on that date.

(b) Expenditure:

During the year under review, the actual expenditure incurred on the Projects was as under:—

(Rs. In Lakhs)

Project	Works	Interest during construction	Total	
(i) Loktak	1186.08	164.54	1350.62	
(ii) Baira Siul	1255.22	339.86	1595.08	

The expenditure on Projects/T.C. works being handled by the Corporation was as under:—

- (1) Salal (including transmission lines) ... Rs. 2337.70 Lakhs.
- (2) Devighat ... Rs. 118.60 ,
- (3) All transmission construction works ... Rs. 877.36 ,,
- (c) Entertainment:

Expenditure on entertainment during the

year totalled Rs. 22,596.00. The break up of the expenditure unitwise is as under:—

		Rs.
Corporate Of	fice:	14,680.00
Baira Siul	:	2,926.00
Loktak	•	4,990.00

In addition, the following expenditure was incurred on entertainment by the Salal and Devighat Projects:—

(i) Salal Project:	8867.00
(ii) Devighat Project : (i) On entertainment of re-	
presentational character:	3587.00
(ii) Other entertainment :	981.00
	4568.00

Rs.

(d) Advertisement and publicity:

The total expenditure under this head comes to Rs. 2,87,895 out of which the corporate office share is Rs. 1,80,441. The break up of this expenditure is as under:—

		Rs.
(i)	On propaganda and publicity	6708.59
(ii)	Advertisements through D.A.V.P.	2416.02
(iii)	Advertisements through other sources	2,78,770.39

Working out the ratio between the expenditure under this head and the total income cannot be attempted as this company has not, as yet, commenced revenue operation.

(e) Guest Houses:

Expenditure on maintenance of guest houses at Baira Siul and Loktak Projects is Rs. 1,61,266 and Rs. 1,74,188 respectively. This includes expenditure on field hostels also.



(f) Rent, Maintenance and other Misc. expenditure on Corporate Office

Following is the expenditure on maintenance, furniture and fixture etc., in Head Office of the Corporation during the year:

			Rs.
(i) Rent of (Office Buildin	g :	8,62,977
(ii) Furniture	(Capital cos	t) :	96,680
(iii) Office equ	uipment	:	1,32,388
(iv) Maintena	nce of cost	of	
(i) to (iii)		:	53,190
(v) Electricit	y and wate	er	
charges			41,455
postage a	enditure, and stationery and telegram es and tele misc. exper	S, X	
diture		:	6,43,950

(g) Foreign Tours:

Brief particulars of foreign tours undertaken by the employees of the Corporation during 1978-79 are given in Annexure-II.

(h) Social Overheads:

The expenditure of revenue nature on township, education and health facilities is as under:—

(Rs. in lakhs)

			,
	Township	Education	Health facilities
Baira Siul	9.00	0.32	2.06
Loktak	2.00	0.51	1.04
Corporate C	Office —	-	1.05

Note:—The residential buildings in townships at projects are mostly of temporary nature to last for the period of construction.

8. OBSERVATIONS OF THE AUDITORS

Our comments on the observations made by the auditors in their report are given in Annexure-III to this Report.

9. AUDITORS

M/s. S.K. Jain Associates were reappointed auditors of your Corporation for audit of the accounts of the year 1978-79.

10. DIRECTORS

During the year, Shri S.N. Roy handed over charge of the post of Chairman & Managing Director of your Corporation to Maj. Gen. T.V. Jeganathan w.e.f. 20.5.78. Shri S.N. Roy, Shri K. S. Subrahmanyam, Shri V. Subramanian, Shri A.N. Singh and Shri S.B. Majumdar continued to be Directors. Shri D. Rajagopalan and Shri P.M. Belliappa were appointed on the Board w.e.f. 5.7.1978 and 31.1.1979 respectively. Shri V. Krishnaswamy, Shri R. Gopalaswamy and Shri Y.K. Murthy ceased to be Directors w.e.f. 5.6.78, 26.7.78 and 1.11.78 respectively. Sh. S. Ramesh who became a Director w.e.f. 26.7.78 ceased to be a Director w.e.f. 31.1.1979. The Board place on record their appreciation of the valuable services rendered by Shri S.N. Roy as the Chairman & Managing Director of the Corporation and by Shri V. Krishnaswamy, Shri R. Gopalaswamy, Shri S. Ramesh and Shri Y.K. Murthy as members of the Board of Directors of the Corporation.

11. PARTICULARS OF EMPLOYEES

Information as per Section 217 (2A) of the Companies Act, 1956, read with Companies (Particulars of Employees) Rules, 1975, is given in Annexure-IV forming part of this Report.

12. ACKNOWLEDGEMENT

The Board acknowledge with grateful thanks the guidance and help extended by the

various Departments of the Govt. of India particularly the Ministry of Energy/Ministry of External Affairs, I.C.M. Nepal, the Central Water Commission. and the Central Electricity Authority. Thanks are also due to the State Government of Manipur, State Govt. of Sikkim, State Govt. of Jammu & Kashmir and other State Govts., State Electricity Boards of Bihar and Uttar Pradesh who have been cooperating with us in our works in their States. But for the help and assistance extended by these and other agencies it would not have been possible for the Corporation to achieve the progress registered so far.

The Board also take this opportunity to

place on record their recognition and appreciation of the sincere and hard work done by the Officers and Employees of the Corporation and have no doubt that they will attain still better levels of performance in the years to come.

For and on behalf of the Board of Directors

Maj. Gen. T.V. JEGANATHAN
PVSM; AVSM (Retd.)
Chairman & Managing Director

Date: 26.9.1979



ANNEXURE I

Salient Features of the Projects

1. LOKTAK HYDROELECTRIC PROJECT

The Loktak Hydroelectric Project is a Multipurpose scheme. The Project envisages a Barrage 10 7 metre high and 58.8 metre long between abutments, a Power Channel 3.34 km. long, of which 2.267 km. would be open channel and 1.073 km. of cut and cover section. a Head Race Tunnel 13.81 metre diameter horse shoe type and 6.635 km. length, a Surge shaft 9.15 metre dia and 60 metre high, Penstocks 3 Nos., 2.286 metre dia and average length 1346 metre each, a Power house 60.0 m. × 25.5 m, with three generating units of 35 MW each and a transmission line 132 KV single circuit, 35 km long from the Leimatak Power House to Imphal.

2. BAIRA SIUL HYDROELECTRIC PROJECT

Baira Siul Hydroelectric Project located in the Chamba District of Himachal Pradesh envisages utilisation of the combined flows of three tributaries of the Ravi, namely, the Siul, the Baira and the Bhaledh rivers, for generation of power on a run-of-the river basis. The combined flows of these three rivers are conducted through a net work of tunnels and dropped through a gross head of 282 M at the Power station at Surangani for generating 180 MWof Hydroelectric Power with the help of three generating sets of 60 MW each. The Project envisages a rockfill dam across the Baira 51.5 M high above the deepest river bed level to provide a live storage of 1.27 M Cu m. for meeting diurnal variations in the Power drafts. a diversion structure each across the Siul and Bhaledh rivers, a 7634 M. long head race

tunnel of 5 metre diameter from Baira Dam to the Surge Shaft, two tunnels of 2.75 M diameter from the Bhaledh and Siul Diversion structures to the main tunnel, 7830 M and 44 M long respectively, three penstocks of 2.75 M diameter, 500 M long approximately, a surface power station with 3 units of 60 MW each designed for operating, at a gross head of 282 M and a 220 KV double circuit transmission line 96 KM long from the power station to Pong switch yard (near Talwara) to connect with the Northern Regional Grid and a 48 m long tail-race-channel.

3. SALAL HYDROELECTRIC PROJECT:

The Salal Hydroelectric Project provides for the utilisation of the drop in the lower reaches of the river Chenab for generation of power from an installation of 3 units of 115 MW each in the 1st Stage. The Project envisages construction of a 118 mts. high Rockfill dam (above the deepest foundation level) across the river Chenab to divert the flow through the Power House to be installed with 3 units of 115 MW each in the 1st Stage. A concrete dam 113 mts. high, founded on 35 mts. high ridge will accommodate 12 bay Spillway and the Power House Intake. The tail water discharged from the Power House will flow into 11 mts. dia concrete lined Tail Race tunnel of 2.4 km. in length which provides an additional 10.8 mts. head for power generation. During the period of construction of Rockfill Dam, the river flow will be diverted through a 9.14 mts. dia concrete lined tunnel. Power generated from the Project will be transmitted over 220 KV Transmission Lines to the main grid station at Dasuya (Punjab).

4. DEVIGHAT HYDROELECTRIC PROJECT:

This Project is located on the right bank of the river Trisuli in Nepal and utilises the tailrace water of the Trisuli Hydel Project situated upstream. The Project consists of:

- (a) A diversion weir across the tailrace of the existing Trisuli Power Station and a Head Regulator to lead water into the Devighat Project Water Conductor System.
- (b) A Water conductor system to carry the peak discharge of 45.3 m/sec. from the intake to the forebay and comprising:
 - (i) 357.3 metres of Cut and Cover conduit.

- (ii) 1052.1 metres of open channel No. 1.
- (iii) 889 metres of tunnel No. 1.
- (iv) 1351.9 metres of open channel No. 2.
- (v) 1252 metres of tunnel No. 2.
- (c) Forebay.
- (d) Three penstocks of 2300 mm internal diameter from forebay to power house.
- (e) Powar House, to house 3 units of 4.7 MW each.
- (f) Tailrace Channel from the power house to Trisuli river.
- (g) Permanent Bridge across River Trisuli near Power House.
 - (h) Transmission Lines and Sub-stations.



ANNEXURE II

DETAILS OF FOREIGN TOURS DURING 1978-79

Sl. Name and No. Designation		Name of country place visited	Purpose of visit	Duration of the visit	Ex_I	Total penditure
1	2	3	4	5		6
	hri Y.P. Singh, r. Engineer	Austria, West Germany, Hungary, U.K. & France	For training in operation maintenance and seeing the overall performance of 'Alpine Miner', studying shotcreting and rockbolting system and working of various kinds of shields	57 days	Rs.	29,103.40
	h. M.L. Sekhri, lupdt. Engineer	-do-	-do-	57 days	Rs.	20,168.00
	h. Surinder Singh, r. Engineer	Austria	For training in operation maintenance and seeing the overall performance of 'Alpine Miner'.	42 days	Rs.	15,231.00
	h. Amritpal Singh, r. Engineer	Austria	-do-	42 days	Rs.	17,723.00
	h. Swaran Singh, Shovel Operator	-do-	-do-	-do-	Rs.	14,781.00
	h. Ujjagar Singh, Foreman	-do-	-do-	-do-	Rs.	14,781.00

DETAILS OF FOREIGN TOUR DURING 1978-79

Sl. No.	Name and Designation	Name of country place visited	Purpose of visit	Duration of the visit	Tota Expe	al nditure
1	2	3	4	5		6
20 91 65	Shri A.S. Chatrath General Manager	, U.K., France, Switzerland, Sweden, Austria and West Germany	To attend international symposium on tunnelling; to visit tunnels for studying modern techniques in tunnelling		Rs.	41,88 8 .50
J	Maj. Gen. T.V. leganathan, Chairman & Managing Director	Austria, West Germany, Switzerland	Study of modern techniques in tunnelling.	7 days	Rs.	22,503.00
	Sh. Ajaib Singh, Asstt. Engineer	-do-	-do-	7 days	Rs.	15,538.00



ANNEXURE III

COMMENTS ON THE QUALIFICATIONS CONTAINED IN THE AUDITORS' REPORT FOR THE YEAR 1978-79.

Para No. of the Audit Report

Management's Comments

- With the change over to commercial system of accounting necessary subsidiary registers have been opened during the year to show rent received etc., and also of hire charges due and realised from the contractors. Stores and spares consumed have been accounted for in the register in the concerned Divisional Offices.
- 2(ii) Reconciliation/confirmation of certain balances as per the books of Projects with those of the AG's books has been taken up. Transactions booked by Divisional Offices under debt, deposit and remittance heads under the CPWD system of accounts are being analysed to arrive at the balances recoverable from the Central Government on the eve of transfer of respective projects to the Company.

Detailed accounts relating to suppliers and contractors securities and earnest money deposits received are maintained in the Projects. Information regarding the deposits made by the National Thermal Power Corporation has been made available to that Corporation and accounts rendered to their satisfaction.

2(v) No provision has been made for Central sales tax liability since no such liability has been anticipated.

Annexure to the Audit Report referred to in para 1 of the report.

Situational details will be recorded suitably in the accounts of the Project.

Asset registers for Baira Siul Project are being maintained in the Divisional Offices and a review is being made in a comprehensive manner. As regards Devighat Project, assets are in the process of being created and necessary assets register will be maintained as and when such assets are created. In respect of Salal Project which is being executed on agency basis, registers maintained are as per the CPWD system of accounting. As regards Transmission Construction Units, the assets are in the process of being created and necessary registers maintained.

The assets have been physically verified, wherever assets have been created.

COMMENTS ON THE QUALIFICATIONS CONTAINED IN THE AUDITORS' REPORT FOR THE YEAR 1978-79.

Para No. of the Audit Report

Management's Comments

- 3 & 8: Physical verification of stores and spares has been conducted. Discrepancies in shortages are in the process of investigation and necessary adjustments will be carried out.
- 6. In regard to Devighat Project, which has been recently taken up for execution on behalf of Govt. of India, adequate internal control procedures have been devised and implemented.
- 11. Internal Audit System has been introduced and an internal audit manual has also been brought into force. At least one cycle of audit of the Projects, TCUs and Corporate Office according to the periodicity and quantum determined by the Management has been completed. The present system is functioning satisfactorily and the management is satisfied that the system in force is quite commensurate with the size and scope of operations.
- 13. Note 7 of Notes on Accounts-Schedule 'H'-may be seen.



ANNEXURE-IV							
Information	n requi	red under	r Section 217(2 A) read	with Companies	(Particulars of Em	ployees)	Rules 1975
Name and Designation	Remuneration Nature of Employment (Contractual or otherwise)		Qualification Date of (Experience) commencement of employment in N.H.P.C.		Age Last employmen (Yrs.) held		
1		2	3	4	5	6	7
			YEES EMPLOYED TO THE			AL YI	EAR WHO WERE
Shri V. Subramanian, Director(Finance)	Rs.	61 ,2 39	On Deputation from the office of the C.A.G. of India	B.Sc. (Hons.) L.L.B. (26 Years)	27.1.1978	50	Accounts Member, Kerala State Electricity Board.
Shri R.C. Gupta, General Manager, (Personnel & Administration)	Rs.	48,764	Regular	Professional Manager (35 Years)	4.4.1977	54	Deputy General Manager (Personnel) BHEL.
Shri K.B. Mathur General Manager (Transmission)	Rs.	54,479	On Deputation from U.P.S.E.B.	B.Sc. (Engg.) (27 Years)	1.11.1976	47	Joint Secretary, U.P. S.E.B., Lucknow.
Shri M.P. Tyagi, General Manager (Civil Wing)	Rs.	45,261	On Deputation from U.P. Irrigation Department	B.E. (Hons.) (29 Years)	17.5.1977	52	Director, Central Designs Directorate, U.P. State Irrigation Department.
			ES EMPLOYED FOR N RS. 3,000/- P.M.).	PART OF TH	IE FINANCIAL	YEAR	WHO WERE IN
Shri R. Rajagopalan, General Manager, (Finance & Accounts)	Rs.	16,654	On Deputation from the office of the C.A.G. of India	B.Sc. B.L. (25 Years)	19.11.1 9 78		Accountant General, Jammu & Kashmir.

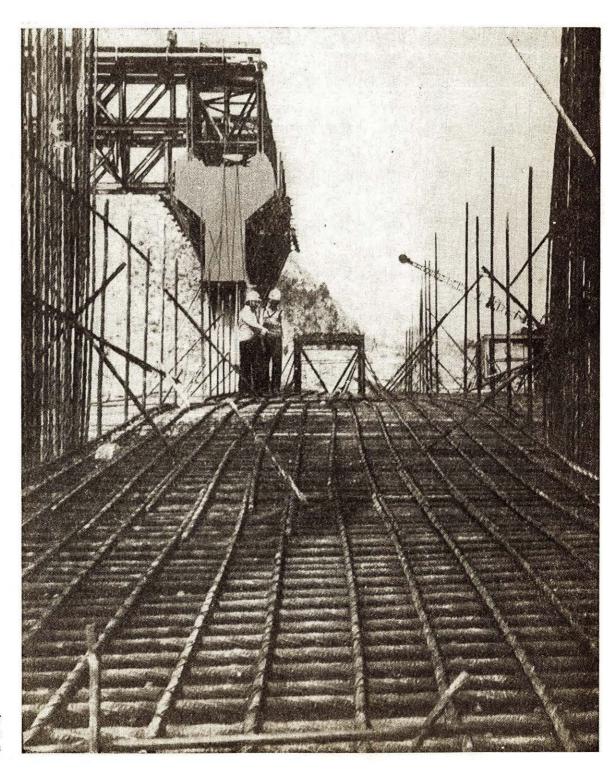
Notes:—(1) The above employees are not related to any Director of the Corporation within the meaning of Section 6 of the Companies Act, 1956.

⁽²⁾ The terms and conditions of appointment are as determined by Government/Rules and Regulations of the Corporation in force from time to time, as the case may be.

⁽³⁾ The designations indicated in the list above denote the nature of duties performed by the employees.



Loktak Tunnel-Face-5



A Close-up View of Reinforcement at Salal Dam

LIABILITIES	Schedule No.	As at 31.3.79	As at 31.3.78
		Rs.	Rs.
Share Capital	'A'	83,37,63,000	76,47,63,000
Contribution from Government of Manipur (Share of Lift Irrigation			
Component)		2,01,28,570	_
Unsecured Loans	'В'	66,87,61,460	43,64,43,600
Current Liabilities & Provisions	'C'	6,10,56,718	4,77,15,523
	Total	158,37,09,748	124,89,22,123



ASSETS	Schedule No.	As at 31.3.79	As at 31.3. 78
		Rs.	Rs.
Fixed Assets in use	,D,	7,80,08,348	7,99,34,202
Construction Work in Progress	'E'	133,32,07,356	104 ,8 5 ,9 8,983
Current Assets, Loans & Advances	'F'	16,94,89,690	11,73,84,584
Miscellaneous Expenditure (to the extent not Written off/Adjusted)	'G'	30,04,354	30,04,354
	'G'	30,04,354	30,04,

Notes forming part of accounts as per Schedule 'H'. Schedules 'A' to 'H' form an integral part of the Balance Sheet.

AUDITORS' REPORT

As per our separate report of even date annexed for S.K. JAIN ASSOCIATES Chartered Accountants S.K. JAIN

Partner

N.V. RAMAN Secretary New Delhi:

Dated: 21st September, 1979

Incidental Expenditure during Construction Accounts for the year ended 31.3.1979.

Particulars	As on 31.3.79	As on 31.3.78
	Rs.	Rs.
Salary, Wages & Allowances	1,09,30,503	45,09,300
Foreign Service Contributions	3,69,320	70,058
Staff Welfare Expenses	2,62,908	2,26,919
C.P.F. Contribution	9,36,333	4,12,582
Directors' fee & expenses	3,702	453
Directors' travelling expenditure	26,195	19,282
Travelling expenses—others	12,80,741	5,66,961
Audit fee (including 5000/- for 1977-78)	15,000	5,000
Rent	8,62,977	8,75,525
Rates & Taxes	5,531	44,428
Rent for Residential accommodation	2,32,671	1,20,954
Insurance	2,01,134	3,17,267
Interest, Bank & Finance charges	5,04,57,324	2,19,86,760
Repairs - Buildings	11,27,558	10,70,634
Repairs – Machinery	15,32,244	1,41,077
Repairs—others	23,82,363	31,53,704
Depreciation	1,03,61,433	1,00,190
Electricity & Water charges	3,46,317	9,92,170
Advertisements	2,87,895	1,26,041
Design & Consultation	3,25,044	2,73,611
Entertainment expenses	22,596	3,331
Expenditure on diesel power house	5,61,838	16,77,234
Auditor expenses	9,047	8,375
Printing & Stationery	3,50,367	_
Telephone Telex charges	8,85,292	
Transport expenses	23,97,802	
Contribution to Gratuity Fund	4,00,000	_
Operation & Maintenance of Staff Cars	8,40,243	
Fransport Yard	13,63,800	
Other expenses	33,81,383	23,21,077
	9,21,59,561	3,90,22,933



Incidental Expenditure during Construction Accounts for the Year ended 31.3.1979

Particulars	As on 31.3.79	As on 31.3.78	
Logg Descipto	Rs.	Rs.	
Less Receipts	2.12.22	34 32 323	
Electricity charges	6,41,285	42,41,614	
Sale of tenders	57,847	19,661	
Hire charges of plant & machinery	1,88,949	8,95,260	
Water charges	16,212	2,731	
Interest Received on :			
(i) Term deposits & Saving Bank A/c	8,54,868	5,76,914	
(ii) Others	2,43,111	1,67,812	
Rent	61,681	42,499	
Miscellaneous Income	13,33,950	2,44,754	
	33,97,903	61,91,245	
Net Expenditure	8,87,61,658	3,28,31,688	

Managerial Remuneration

The above includes the following amounts paid to Director:

(i)	Salary & allowances	34,081
(ii)	Foreign Service Contribution	6,342
(iii)	Residential accommodation (Net house rent borne by the Corporation).	8,700
(iv)	Medical reimbursement	4,356
(v)	Leave Travel Concession	3,560

In addition to the above, the whole time Director was also allowed the use of Company's chauffer driven car for official journeys and for private journeys upto 500 Kms. on payment of Rs. 100/- per month.

Maj. Gen. T.V. JEGANATHAN Chairman & Managing Director

V. SUBRAMANIAN Director (Finance)

N.V. RAMAN Secretary

for S.K. JAIN ASSOCIATES
Chartered Accountants
S.K. JAIN
Partner

New Delhi:

Dated: 21st September, 1979

Incident al Expenditure during Construction Appropriation Account for the year ended 31.3. 1979

	Rs.	Rs.	Rs.
Amount brought forward from the			
Incidental Expenditure during			
Construction Account and appro-			0.07.61.65
priated to:			8,87,61,65
A. Transmission Construction Units Deposit-work			
(a) Gangtok Melli & Gangtok Dikchu	2,43,710		
(b) Liematak-Jiribam	69,040		
(c) Gandak-Ramnagar	1,35,585		
(d) Kanpur—Singrauli	12,71,972	17,20,307	
B. Project on Agency Basis			
(a) Salal	15,81,208		
(b) Devighat	72,172	16,53,380	
C. Corporate Projects			
(a) (i) Baira Siul direct expenditure	4,73,74,635		
(ii) Share of Corporate Office			
Expenditure	11,54,740	4,85,29,375	
(b) Loktak			
(i) Direct Expenditure	3,58,92,666		
(ii) Share of Corporate Office	, -, -, -, -, -, -, -, -, -, -, -, -, -,		
Expenditure	9,65,930	3,68,58,596	8,87,61,658
BALANCE			NIL



			As on 31.3.79	As on 31.3.78
Authorized Conital	111		Rs.	Rs.
Authorised Capital 20,00,000 Equity Shares of				
Rs. 1,000/- each			200,00,00,000	200,00,00,000
Issued, Subscribed and paid-up ca	pital			
2,04,233 Equity Shares of				
Rs. 1000/-each fully paid in				
cash		20,42,33,000		
6,29,529 Equity Shares of Rs. 1000/- each fully paid				
without payment being				
received in cash in part				
purchase consideration of :-				
Loktak Project 1 Baira Siul	6,85,29,000			
	6,10,00,000	62,95,29,000	83,37,62,000	73,54,64,000
Share Capital Deposit	0,10,00,000	02,70,27,000	05,57,02,000	75,54,04,000
Amount received in cash from				
Government of India Rs. 400/-				
and Rs. 600/- being the value				
of part purchase consideration				
for Loktak Project, awaiting allotment of share			1,000	2,92,99,000
			83,37,63,000	76,47,63,000
Schedule 'B' Unsecured Loa	ın			
1. Loans from Govt. of India			60,67,43,600	43,64,43,600
2. Interest accrued and due on L	oan			
from Govt. of India			6,20,17,860	
			66,87,61,460	43,64,43,600

Schedule 'C' of Current Liabilities and Provisions				
Particulars		As on 31.3.79	As on 31.3.1978	
A. Current Liabilities		Rs.	Rs.	
1. Sundry Creditors		66,53,029		
2. Other Liabilities				
(i) Unspent amount of deposits works				
(a) Gangtok T.C.U.	35,71,250			
(b) Liematak-Jiribam T.C.U.	89,79,191	1 00 20 062	07.53.611	
(c) Gandak-Ramnagar T.C.U.	30,84,851	1,99,30,962	97,53,611	
(d) Allahabad T.C.U.	42,95,670			
(ii) Unspent balance of funds received for projects being executed on agency basis				
(a) Salal Project	95,67,948	1 70 70 042		
(b) Devighat Project	75,11,095	1,70,79,043		
(iii) Other Liabilities				
(a) Deposit in cash	8,45,667	10.04.124	7.60.000	
(b) Deposit other than cash	1,58,457	10,04,124	7,68,291	
(iv) Other Liabilities		5,72,466	1,08,87,214	
3. Interest accrued but not due		1,42,24,394	2,58,98,107	
B. Provisions				
CPF/EPF		11,92,700	4,08,300	
Gratuity		4,00,000	_	
		6,10,56,718	4,77,15,523	



SI. No.	Particulars	Amount Deposited	Expenditure upto 31.3.1978	During the year	Over head Expenditure	Total Expenditure upto 31.3.1979	Balance
	Deposit Works (Transmission Lines)	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
	Gangtok to Melli	1,92,49,000	42,48,534	1,21,85,506	2,43,710	1,66,77,750	25,71,250
2.	Gangtok to Dikchu	10,00,000	_	-	_	_	10,00,000
3.	Liematak-Jiribam	1,44,94,000	19,93,767	34,52,002	69,040	55,14,809	89,79,191
١.	Ramnagar to Gandak	1,05,18,000	5,18,336	67,79,228	1,35,585	74,33,149	30,84,851
	Allahabad	8,11,52,000	1,19,85,752	6,35,98,606	12,71,97 2	7,68,56,330	42,95,670
		12,64,13,000	1,87,46,389	8,60,15,342	17,20,307	10,64,82,038	1,99,30,962
	Projects on Agency Basis			-		_	
	Salal Project (including						
	Salal Transmission Line)		_	21,22,38,844	15,81,208	21,38,20,052	95,67,948
	Devighat Project	1,75,00,000	_	99,16,733	72,172	99,88,905	75,11,095
	-	24,08,88,000		22,21,55,577	16,53,380	22,38,08,957	,70,79,043

		Gross Block			Depreciation			Net Block	
SI: Particulars No.	Cost as at 31.3.1978	*Additions during the year	Cost as at 31.3.1979	1977-78	1978-79	Total	As at 31.3.1979	As at 31.3.1978	
1. Land	Rs.	Rs. 15,84,154	Rs. 15,84,154	Rs.	Rs.	Rs.	Rs. 15,84,154	Rs.	
2. Buildings	_	89,64,428	89,64,428		7,83,241	7,83,241	81,81,187	_	
3. Plant & Machinery	-	4,11,93,553	4,11,93,553	-	22,69,760	22,69,760	3,89,23,793		
4. Furniture Fixture and Office Equipment	11,09,419	9,51,740	20,61,159	86,596	1,92,808	2,79,404	17,81,755	10,22,823	
5. Vehicles	68,156	37,19,165	37,87,321	6,959	8,80,456	8,87,415	28,99,906	61,197	
6. Miscellaneous equipme (pre-Corporation)	ents —	3,07,96,941	3,07,96,941	-	61,59,388	61,59,388	2,46,37,553	_	
7. Technical Books	43,581	38,834	82,415	6,635	75,780	82,415		36,946	
	12,21,156	8,72,48,815	8,84,69,971	1,00,190	1,03,61,433	1,04,61,623	7,80,08,348	11,20,966	

^{*}Includes book adjustments



Particulars	As at 31.3.1979	As at 31.3.1978
	Rs.	Rs.
Hydraulic Power Plant		
Preliminary Expenses	12,25,801	-
Expenses on Survey	4,06,808	_
Land & Land rights (including Development Expenses)		
Land owned under full Title	6,44,956	21,16,767
Land held under lease	17,162	17,162
Building & Civil Engineering Works	12,13,61,996	9,10,28,979
Communications	69,54,028	_
Hydraulic Works Dams and barrages spillways weirs	3,86,28,083	
Hydraulic Controls—Tunnels	61,69,02,956 }	
Hydraulic Controls—Canals, Water Channels & Open & Covered Power Channels	5,52,65,645	56,34,24,66
Penstocks	84,97,365	opposition of the con-
Hydraulic Works—Adits Diversion Works, Coffer Dams, embankment etc.	4,02,359	88,11,65 67,89,95
Plant & Machinery in Generating Station	26,18,61,212	
Switchgear including cable connection	6,88,018	18,45,32,62
Lightning Arresters	ĺ	7,39,37,67
Miscellaneous Power Plant Equipment	5,63,775	
Ancillary works	5,29,02,737	4,66,66,58
Expenditure incidental to construction	12,50,18,850	3,96,30,87
Consultancy charges	2,59,976	-

Particulars	As at 31.3 79	As at 31.3.78
	Rs.	Rs.
Transmission Plant		
Building & Civil Engineering Works	5,64,098	
Communications	58,672	
Substation equipment	9,46,559	
Switchgear including cable connection	180	
Lightning arresters	793	4,26,90,84
Underground Cables	1,37,867 }	6,77,64,444
Tower, Poles & Fixtures	8,455	
Trunk Transmission lines (overhead conductor & devices)	3,88,64,318	
Metering Equipment	20,207	
Other Works (to be specified)	10,04,480	
	133,32,07,356	112,74,12,21

^{*}Transferred to fixed assets.



Sl. No.	Particulars	As at 31.3.1979	As at 31.3.1978			
1. Inte	rest accrued & due on Bank deposit	Rs. 3,99,185	Rs. 11,507			
	es & spare parts ued & certified by the Management)	4,65,40,107	5,64,49,248			
S. C. S. C. S. C.	Cash & Bank Balances Cash, imprest, postal orders & postage					
stan		5,05,850	1,25,877			
Casi	n in transit (Devighat)	5,00,000				
Bala	nce at Scheduled Bank	4,40,52,064	1,55,47,974			
Sho	rt term deposits	_	50,00,000			
4. Sun	dry Debtors	_	11,22,873			
5. Oth	Other Current Assets					
Wor	kshop and General Suspense	37,48,554	31,53,299			
6. Loa	ns & Advances	7,37,43,930	3,59,73,806			
		16,94,89,690	11,73,84,584			

Schedule	'G'-Miscellaneous	Expenditure
Deneuale	G Miscellancous	LAPenartare

Miscellaneous Expenditure (To the extent not written off or adjusted)

Schedule 'H' Notes on Accounts

1. No Profit and Loss Account has been prepared as the Company has only capital works under construction and has not started revenue operation. However, Incidental Expenditure during Construction Account and

Incidental Expenditure Appropriation Account have been prepared.

2. The information as required by Schedule VI Part II of the Companies Act, 1956 is appended below:

Employees in receipt of remuneration aggregating Rs. 36,000/-per annum or Rs. 3,000/-or more per month

		No. of employees	Salary & wages Rs.	Value of perquisites Rs.	Total Rs.
i.	Employed through out the year.	4	1,32,481	38,246	1,70,727
ii.	Employed for a part of the year	1	11,150	3,150	14,300

- 3. No provision for income-tax has been made in the Accounts as the Company expects no such liability.
- 4. Audit fee for the year 1977-78 has been paid as approved. The same amount of Rs. 10,000/- approved for the year 1977-78, has been provided for the year 1978-79. However, the Auditors have informed that they have represented to the Company Law Board for increase in audit fee. Any increase in fee would be accounted for as and when approved.
- 5. No provision has been made for the reimbursement of out of pocket expenses to auditors.
- 6. Detailed verification of assets and liabilities as on date of transfer was undertaken in respect of Loktak and Baira Siul Projects. Reconciliation/confirmation of certain balances as per the books of the projects with those of A.G.'s Books has been taken up. Transactions booked by Divisional

Officers under Debt Deposits and Remittance under the CPWD System of Accounts are being analysed to arrive at the balances recoverable from the Central Government as on the eve of transfer of respective projects to the Company.

7. The Employees Provident Fund was established last year. The scheme was open to eligible members on an optional basis for the period 1.1.78 (20.1.78 for the Baira Siul Project) to 31.12.78 and compulsory from 1.1.79. The Commissioner of Income Tax has been approached to treat the fund as approved fund.

The Pre-transfer of P.F. balances held by the Government of India are yet to be transferred by them to the Company. This is under correspondence with Government. In the absence of such transfer, provision for matching contribution and interest both on members, subscription and employers contribution have



Schedule 'H' (Continued)

been regulated with reference to the subscription realised from the members.

Provident Fund Trust has been constituted and remittance to the Fund for the current transactions has been started.

8. Transfer value of the Loktak Project determined at Rs. 32,32,62,200/- includes Rs. 61,10,000/- received by the Government of India from the Manipur Government on account of the share of the Project relating to irrigation component recoverable from them. While transferring the assets to the Company, the funds received from the Manipur Government were not passed on to the Company even though the full transfer value comprising the equity share and loans was taken as Rs. 32,32,62,200/-. The matter regarding passing on the amount received by the Govt. of India on this account to the Company has been taken up with the Govt. of India.

A further sum of Rs. 201 lakhs due from the Govt. of Manipur as their contribution for the share of work done to end of 31.3.79 which is debited to the Project as Capital Works in progress is shown as 'Contribution from Manipur Government' on the liability side of the Balance sheet and the amount due from them is shown as current assets on the assets side.

9. The net expenditure of Corporate Office during the year has been appropriated to Transmission Construction Units at the prescribed rate of 2 per cent and the balance proportionately to Hydroelectric Projects.

The construction of transmission lines has been undertaken as deposit works on behalf of respective State Governments and NTPC and the estimated value of deposit works remaining to be done is of the order of Rs. 2,370.18 lakhs. The construction of Salal and Devighat Projects has also been undertaken on an

agency basis on behalf of the Government of India and the estimated value of the work remaining to be done is Rs. 15,350 lakhs.

- 10. The payments made in foreign currency are as under :--
 - (i) For import of equipment

equipment = Rs. 17,33,077/

(ii) Incurred on

foreign tours = Rs. 9,287/-

(iii) Purchase of

Tender Forms = Rs. 754/-

11. The depreciation charged is on straight line method calculated on provisional rates pending collection of details of the assets and their classification. The miscellaneous equipment in respect of Loktak Project as mentioned in Note 18 have also been depreciated at an adhoc rate of 10%. In respect of special Tool & Plants of Baira Siul Project depreciation has been charged on usage rates as per the existing practice adopted before transfer. It is proposed to review the whole policy regarding providing of depreciation on uniform rates and adjust the difference, if any, in next year's accounts.

In respect of assets in use transferred from construction works in progress, depreciation of Rs. 43,26,479 relates to earlier years.

Contingent liability

- 12. A contingent liability of Rs. 7.00 lakhs is on account of a court case and Rs. 13.42 lakhs towards claim of a contractor in Baira Siul Project.
- 13. Loss on account of damages occurred due to heavy rains and avalanche in Baira Siual Project during the year is yet to be assessed.
- 14. Repayment of principal carries moratorium for the first five years and, therefore, principal is not due for repayment. Regarding payment of interest the matter has

been taken up with Government of India to sanction moratorium till construction of the projects is completed.

- 15. The Company has not started revenue operations. Under Section 16(i) of payment of Bonus Act, Bonus is not payable and hence no provision has been made for bonus.
- 16. Gratuity Rules have been framed by the Company. Liability on account of gratuity has been provisionally worked out at Rs. 4 lakhs on the advice of an actuary and provision made.
- 17. The interest liability relating to the period 1977-78 was worked out @ $10\frac{1}{2}\%$ instead of $10\frac{1}{2}\%$ on the assumption that payment would be made on due date and $\frac{1}{4}\%$ rebate would be admissible. However, payment has been deferred and provision for the difference has been made in the current year.
- 18. Assets in use at the projects were earlier treated as construction works in progress in previous years. They are now being segregated this year and shown as such separately under the head 'Fixed Assets'.

The item of miscellaneous equipment for Rs. 3,07,96,941/- shown against Sl. No. 6 in Schedule 'D' relates to pre-Corporation period for which details are being collected.

- 19. In previous years account, cost of technical books was treated as capital assets. These have been now treated as expenditure and charged off as such.
- 20. Expenditure on OYT installed during the year has been treated as expenditure for the year and included in the incidental expenditure during construction.
- 21. Previous year's figures have been suitably re-arranged, wherever necessary.
- 22. Balance value of the works to be executed on concluded contracts as on 31.3.79—amount not ascertained.
- 23. In last year's accounts the number and value of equity shares fully paid without payment being received in cash in part purchase consideration of Loktak and Baira Siul Hydroelectric Project was shown as under:

	Rs.	Rs.
1,06,934 Equity Shares of Rs. 1000 each fully paid in cash		10,69,34,000
6,28,530 Equity Shares of Rs. 1000 each fully paid without		
payment being received in cash in part purchase consideration of—		
Loktak Project	16,85,30,000	
Baira Siul Project	46,00,00,000	62,85,30,000
The actual position should have been as follows:—		
1,05,935 Euity Shares of Rs. 1000 each fully paid in cash		10,59,35,000
62,95,29 Equity shares of Rs. 1000 each fully paid without		
payment being received in cash in part purchase consi-		
deration of:		
Loktak Project	16,85,29,000	
Baira Siul Project	46,10,00,000	62,95,29,000

The discrepancy in last year's accounts was brought to the notice of the Registrar of Companies and corrections duly carried out this year.



Schedule 'H' (Continued)

24. Under Sl. No. 5 in Sehedule 'F' against Loktak Project a sum of Rs. 31,53.299/- is towards payment made during 1.7.76 to 15.7.76 by A.G., Manipur. The details of the same with reference to the records of the Divisional Offices of the Project are under reconciliation.

25. Interest accrued and due on unsecured loans from Government of India for the year

1977-78 has been inadvertantly shown under Current Liabilities in previous year. This year the same is correctly depicted.

26. Incidental Expenditure during Construction amounting to Rs. 12,50,18,850 (Previous year Rs. 3,96 30,879) includes interest amounting to Rs. 7,62,42,254 (Previous year Rs. 2,58,98,107) on loan taken from the Government of India.

Maj. Gen. T.V. JEGANATHAN Chairman & Managing Director

V. SUBRAMANIAN Director (Finance)

N.V. RAMAN Secretary

For S.K. JAIN ASSOCIATES
Chartered Accountants

Place: New Delhi Dated 21st September, 1979: S.K. JAIN Partner

AUDITORS' REPORT

To the Members of National Hydroelectric Power Corporation Ltd.

We have audited the annexed Balance Sheet of Messrs National Hydroelectric Power Corporation Limited as at 31st March, 1979 and also the annexed statement of Incidental Expenditure of the Corporation for the year ended on that date and report as under:

- 1. As required by the Manufacturing and other Companies (Auditors' Report) Order, 1975 issued by the Company Law Board in terms of section 227(4A) of Companies Act, 1956, we enclose in the annexure a statement on the matters specified in paragraphs 4 and 5 of the said order.
- 2. Further to our comments referred to 1 above we report that:
- (i) In the absence of adequate information the following could not be verified:
 - (a) Machine and Tools hire charges.
- (b) Consumption of stores, spares and recoveries from contractors and others.
 - (c) Rent received.
- (ii) Suppliers and contractors account, securities and earnest money deposits received, cash settlement suspense with Accountant General, Manipur, Deposit from National Thermal Power Corporation could not be verified in the absence of confirmations/ statement of accounts.
- (iii) The sum of Rs. 201 lakes due from Government of Manipur as their contribution for the share of lift irrigation component has been accounted for as referred to in Note No. 8 in the Schedule 'H' to the accounts.
- (iv) No provision has been made on account of out of pocket expenses payable to

auditors as referred to in Note No. 5 in Schedule 'H' to the accounts.

- (v) No provision is made for Central Sales Tax Liability.
- (vi) No provision has been made on account of losses due to heavy rains and avalanche in Baira Siul Project as referred to in Note No. 13 in the Schedule 'H' to the accounts.
- (vii) The assets in use transferred from construction work in progress have been depreciated for earlier years too, in respect of Baira Siul and Loktak Project, and assets for which details could not be collected has been depreciated on adhoc basis at 10% for the year 1977-78 and 1978-79 in respect of Loktak Project as referred to in Note No. 11 in the Schedule 'H' to the accounts.
- (viii) An additional interest liability of 1/4% on the loans from the Government of India has been created for the year 1977-78 as referred to in Note No. 17 in the Schedule 'H' to the accounts.

Subject to what we have stated in the foregoing, we hereby report that:

- 1. We have obtained all the information and explanation which to the best of our knowledge and belief were necessary for the purpose of our audit.
- 2. In our opinion proper books of accounts as required by law have been kept by the company so far as appears from our examination of these books.
- 3. The annexed Balance Sheet, Incidental Expenditure Account and Incidental Expenditure Appropriation Account are in agreement with the books of accounts as submitted to us.



- 4. In our opinion and to the best of our information and according to the explanation given to us the accounts give the information required by the Companies Act, 1956 in the manner so required and give a true and fair view:
 - (i) In the case of Balance Sheet of the

state of affairs of the Corporation as at 31st March, 1979 and

(ii) In the case of the statement of Incidental Expenditure of the Expenditure and Incidental Expenditure Appropriation Account of the Corporation for the year ended on that date.

for S.K. JAIN ASSOCIATES

Chartered Accountants

S.K. JAIN Partner

New Delhi:

Dated: 21st September, 1979

Annexure to the Audit Report referred to in Paragraph-I of our Report of even date.

- 1. The Corporation has maintained proper records except situational details, of assets in so far as the Loktak Project and Bettiah Transmission Unit is concerned. Assets registers for Baira Siul Project, Devighat Project, Salal Project and Other Transmission Construction Units have not been maintained. The assets have not been physically verified by the Management.
- 2. None of the fixed assets has been revalued during the year.
- 3. As per Managements statement the stocks and the spare parts have been physically verified but the results were not produced to us for examination as they were yet to reconcile the results of physical verification. The valuation of such stocks has been taken at cost as certified by the Management and verified by us.
- 4. The Corporation has not taken loans from Companies, firms or other parties listed in the register maintained under section

- 301 of the Companies Act, 1956 nor loans from companies, firm or other parties under section 370 of the Companies Act, 1956.
- 5. The Corporation has not given loans and advances by way of loans.
- 6. In our opinion and according to explanations and information given to us during the course of our audit there are adequate internal control procedures at all other projects/transmission lines except at Devighat Project, commensurate with the size and nature of the business for the purchase of stores, spare parts, plant and machinery, equipment and other assets.
- 7. The Corporation has not purchased any stores and spare parts in excess of Rs. 10,000/- in value for each type from firms companies or other parties in which directors' are interested.
- 8. As stated in paragraph 3 above, the stores have been verified by the Management. As to the results thereof, we had been in-

formed that the same were under finalisation, But since the results of physical verification have not been finalised, determination of unserviceable or damaged stores and spare parts could not be ascertained and no provision as such has been made in the accounts.

- 9. The Corporation has not accepted any deposits from the public.
- 10. No by-product or scrap, we are informed, is generated and, therefore, the maintenance of reasonable records in this regard is not required.
- 11. The Company had internal audit system during the year which, according to

our assessment, was not commensurate with its size and nature of its business.

- 12. Maintenance of cost records has not been prescribed by the Central Government under section 209(1)(d) of the Companies Act, 1956.
- 13. Provident Fund dues have not been deposited upto 31st December, 1978 with the appropriate authorities, since the Corporation had not implemented the Provident Fund Rules, till that date. Thereafter the scheme was made compulsory and the Provident Fund dues were deposited with the Trust in time.

for S.K. JAIN ASSOCIATES
Chartered Accountants

S.K. JAIN Partner

Place: New Delhi

Dated: 21st September, 1979

Comments of the Comptroller and Auditor General of India under section 619(4) of the Companies Act, 1956.

I am to state that there are no Comments upon the Auditors' Report under Section 619(4) of the Companies Act, 1956 on the accounts of the National Hydroelectric Power Corporation Limited, New Delhi, for the year ended 31st March, 1979.

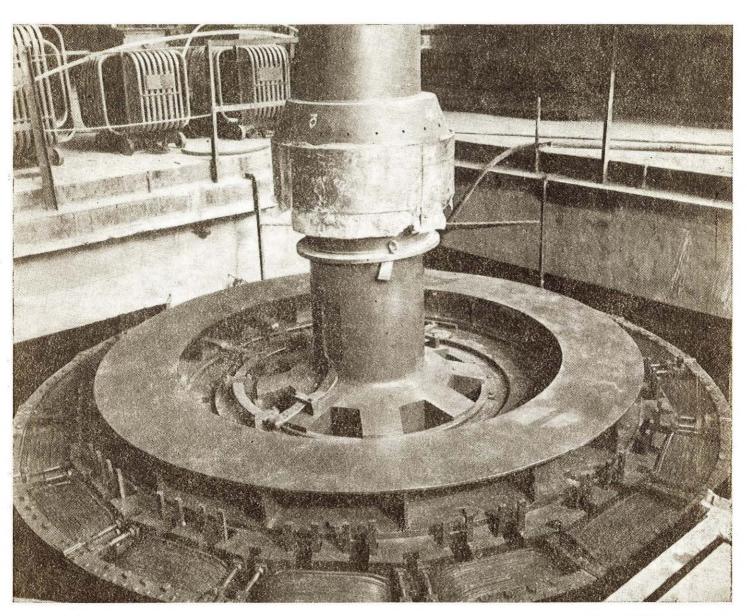
S.S. ROYCHOUDHURY

Member, Audit Board and Ex-Officio

Director of Commercial Audit

Place: Bhopal

Dated: 23rd September, 1979.



A View of the Turbine Under Erection—Baira Siul Project



Bailey Bridge—Devighat Project