Nepal Electricity Authority

Profile of Progress
(1985 - 1990)

Durbar Marg, Kathmandu

Bhadra, 2047 (August, 1990)

CONTENTS

Highlights of 1989/90

Description	1989/90 Million NRs	1988/89 Million NRs	Increase Amount	Increase Percent
Net Sale of Electricity	**754.781**	707.399	47.382	6.7
Income from Other Services*	**28.822**	7.045	21.777	309.1
Operating Expenses**	**473.004**	410.578	62.426	15.2
Depreciation	**177.016**	140.785	36.231	25.73
Interest on Long-Term Loans	**132.919**	139.891	(6.972)	(4.98)
Net Income	**0.664**	23.191	22.527	97.1
Investment	**212.655**	177.779	34.876	19.62
Long-Term Loans	**1,471.8**	1,485.9	(14.1)	(0.9)
Net Fixed Assets	**4,721.318**	4,692.289	29.029	0.62
Number of Customers	**291,000**	264,784	26,216	9.9
Total Sales Of Electricity (Million Kwh)	**548.691**	496.137	52.554	10.59
Average Customers' Consumption (Kwh)	**1885.5**	1873.7	11.8	0.63
Average Price of Electricity (NRs /Kwh)	**1.38**	1.42	(0.04)	(2.82)
Peak Load Interconnected System (MW)	**176**	149	27	18.12
Total Electric Energy (Million Kwh)	**770.914**	672.288	98.626	14.67
Generation (Million Kwh)	**706.914** +	558.344	148.57	26.61
Imported Power (Million Kwh)	**64.0**	113.944	(49.944)	(43.83)

* Excluding Interest and other Income

** Excluding Depreciation

\+ Including energy received from Marsyangdi Hydroelectric Power Plant

The data for 1989/90 and1988/89 are unaudited.

Message From The Chairman

It gives me great pleasure to note that on Bhadra 1,2047, Nepal Electricity Authority will be completing its fifth year of commendable services.

The past year has been a memorable one in many respects. The Marsyangdi Hydroelectric Project was completed and put into operation; thereby adding 69MW to the integrated generation capacity. The aspiration to span the country from Mechi to Mahakali with a 132KV transmission line came closer to realisation with the Biratnagar-Anarmani sector completed; and construction work in satisfactory progress along the final Kohalpur-Mahendranagar sector.

With augmented power generation and transmission capabilities acquired, several new communities were connected to the distribution network of the central grid; thereby bringing electrical supply to many new consumers. Even in remote, inaccessible regions of the country, several small hydropower projects were pressed into operation, bringing the conveniences of electricity into the arduous lives of the people there.

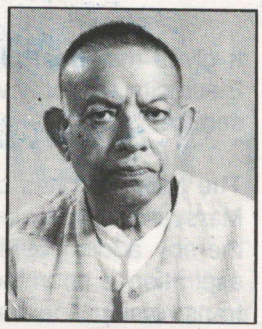
In short, the past year saw a healthy increase in the use of electricity, supported by a sincere dedication to improve the quality of operation and maintenance services. The figures of achievement are, however, dwarfed when we realise that about 91 percent of our people still do not have electricity in their homes.

The future, therefore, calls for concerted efforts from all personnel in NEA to forge ahead. Concerted efforts are also required to improve the productivity of activities within NEA; as well as to reduce system energy losses and leakages, identification and elimination of which has been one of NEA's major objectives. The active support from consumers is also vital and essential; and should be appreciated as such in adopting a commercial approach in NEA management.

In conclusion, NEA's services rendered to the nation has been a praiseworthy effort which will nurture optimistic expectations of the future. I wish to express my gratitude to all members of the Board and staff of NEA for making the year that has passed, a year of progress in the pages of NEA's history.

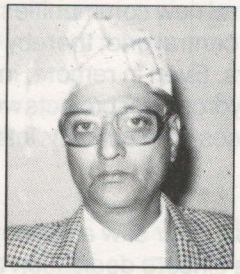
(M.N. NIDHI)
Minister for Water Resources
Chairman, Nepal Electricity Authority

BOARD OF DIRECTORS



Chairman
Mr. M.N. Nidhi
Hon'ble Minister,
Water Resources & Local Development

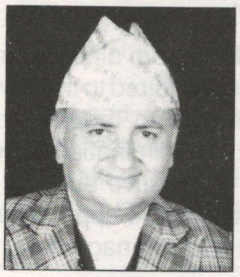
Mr. I.B. Shrestha
Secretary, Ministry of Law
& Justice



Mr. B. Khatri
Secretaty, Ministry of Industry

Mr. B.K. Pradhan
Acting Secretary,
Ministrty Of Water Resources

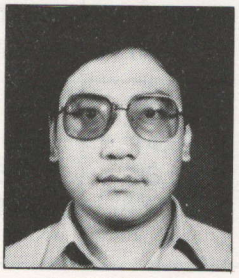
Dr. S.N. Shah
Acting Secretary
Ministry of Finance



Mr. S.P. Adhikari
Acting Joint Member-Secretary
National Planning Commission

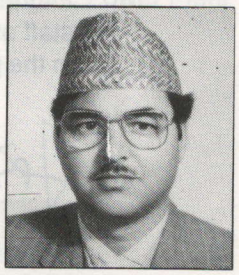
Mr. H.L. Bajracharya
Deputy Governor
Nepal Rastra Bank

Mr. A.N.S. Thapa
General Manager
NIDC



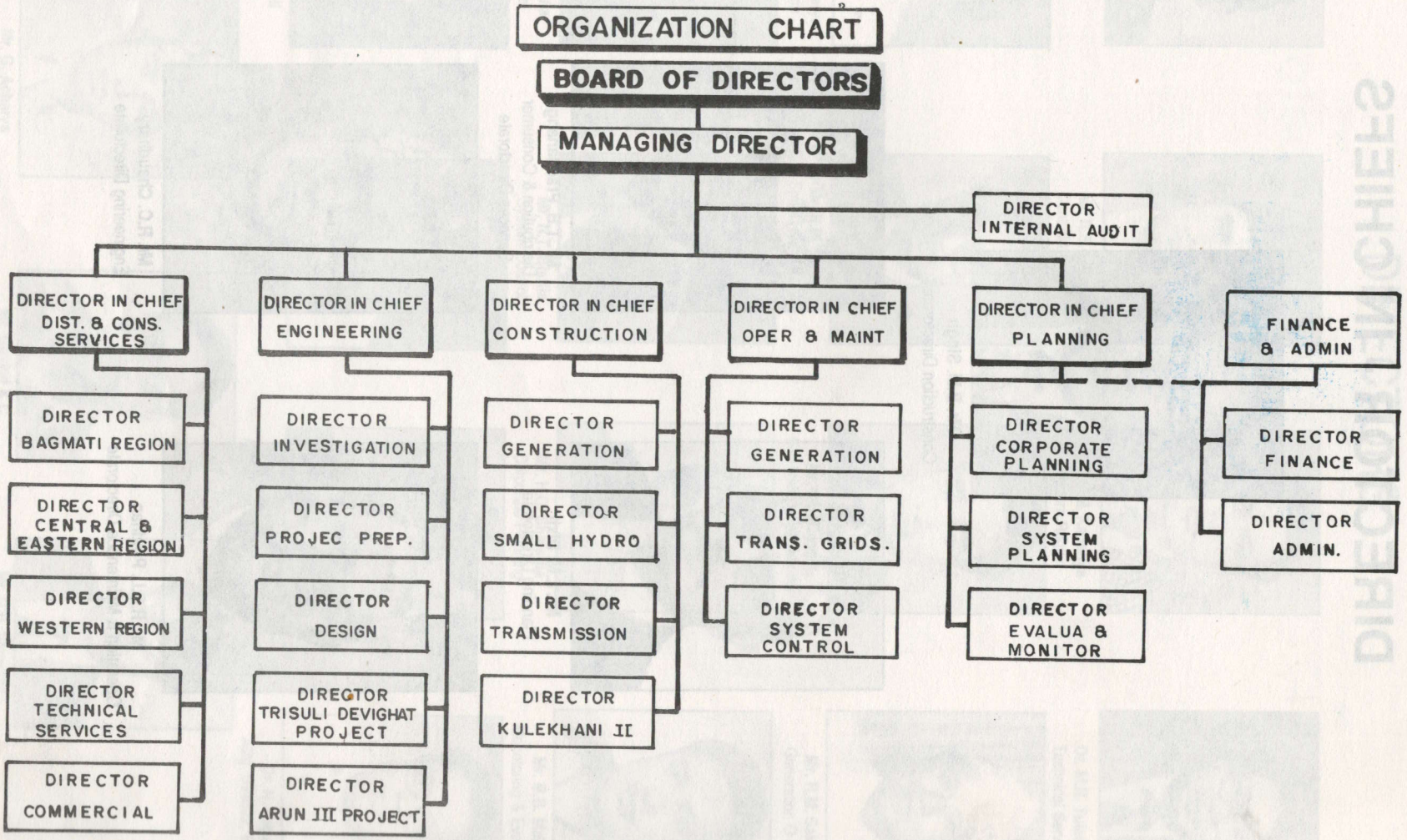
Mr. P.M. Shrestha
Pulchowk

Mr. B.K. Chaudhary
Sanepa

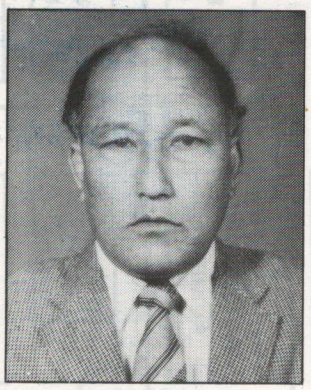


Member-Secretary
Mr. K.C. Thakur
Managing Director, NEA

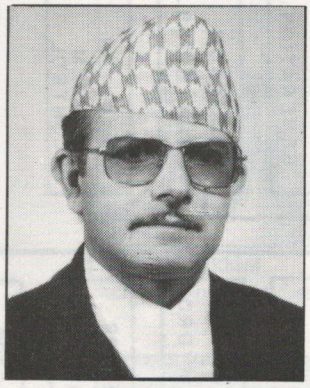
NEPAL ELECTRICITY AUTHORITY



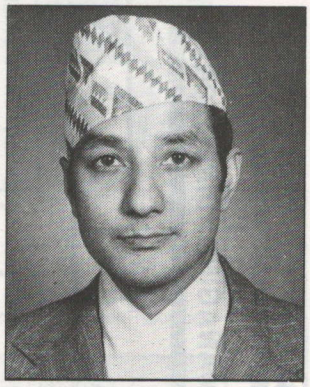
DIRECTOR - IN CHIEFS



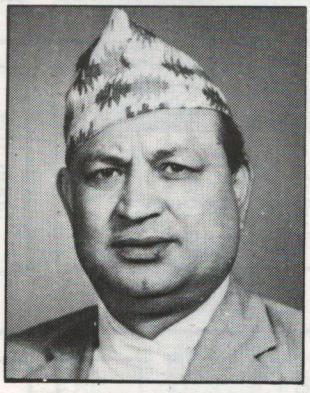
Mr. B.M. Singh
Construction Directorate



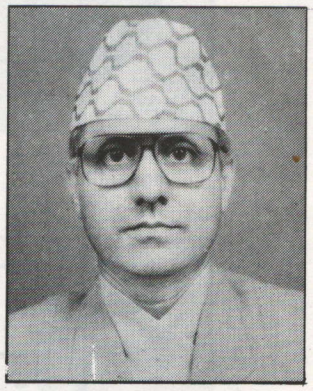
Mr. L.M. Dixit
Planning Directorate



Mr. T.B. Pradhanang
Distribution & Consumer
Services Directorate

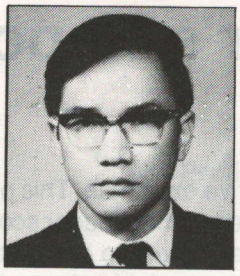


Mr. R.C.L. Pradhan
Operation & Maintenace Directorate

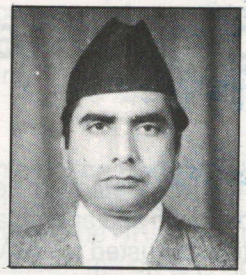


Mr. R.C. Chaudhary
Engineering Directorate

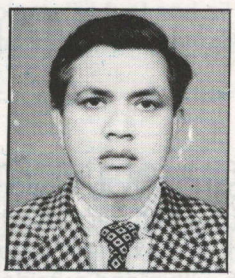
DIRECTORS



Mr. S.B. Pun
Bagmati

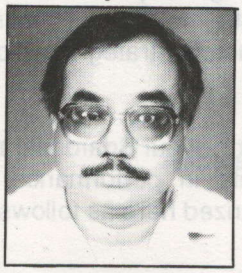


Mr. R.S. Pandey
Central& Eastern

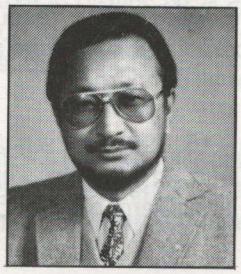


Mr. G.M. Kadariya
Western Region

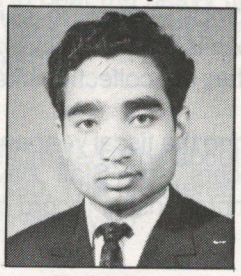
Dr. M.R. Tuladhar
Technical Services



Dr. J. L. Karmacharya
Project Preparation



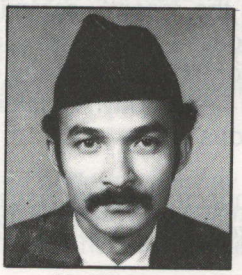
Mr. R.B. Shrestha
Small Hydro-Electric



Mr. S.S. Dangol
Generation Construction

Mr. R.M. Sakya
Generation O & M

Mr. B.B. Dhungana
Transmission Grid



Mr. N.T. Bhutia
System Control

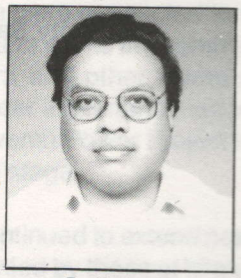
Mr. H.O. Shrestha
Corporate Planning

Mr. B.B. Malla
Monotoring & Evaluation

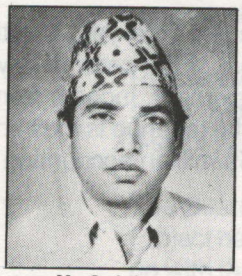
Mr. R.P. Parajuli
Administration

Mr. U.K. Sharma
Finance

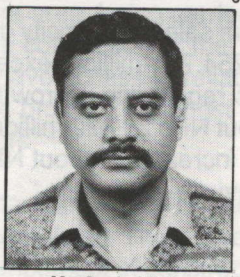
Mr. R.K. Bajracharya
Actg. Director,Commercial



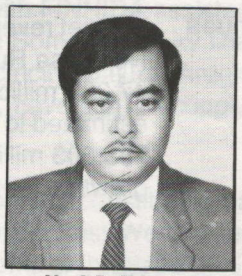
Dr. N. Kapali
Actg. Director, Design



Mr. G. Acharya
Actg. Director, Internal Audit



Mr. Govind K.C.
Actg. Director, Kulekhani II



Mr. G.B. Shrestha
Actg. Director,Trishuli-Devighat

Managing Director's Report

Nepal Electricity Authority has now completed five years of active existence. This period has been characterised by rapid growth and appreciable progress. The broader scope of work and extent of responsibilities entrusted to NEA necessitate effective coordination, both within and outside the institution, to attain speedy and successful implementation methodologies for increased operational efficiency in providing adequate and reliable electrical energy to consumers. Faced with resource constraints, benefits must be maximised by evolving viable operational, corporate and commercial strategies which will further the collective interests of all concerned.

During the fiscal year ending July 15, 1990, the sustained efforts of our Board Members, Officers and Staff have resulted in definite improvements in performance. The comprehensive record of these achievements can be summarized here as follows:

Generated and Purchased Energy

During the fiscal year under review, NEA generated about 706.914 million Kwh which includes energy received from the recently commissioned Marsyangdi Hydro-electric Power Station; and imported about 64 million kwh of electric energy. The energy supplies from the two sources account for 91.7 percent and 8.3 percent respectively of the total energy of approximately 770.914 million kwh indicating an increase of about 98.626 kwh or 14.67 percent over the previous year.

The system peak of the interconnected system was recorded to be about 176 Mw, which exceeded that of the previous year ending July 15, 1989 by 27 Mw which is an increase of 18.12 percent.

Electricity Sale

The total sales of electricity in the year under review rose to about 548.691 million kwh, an increase of about 52.554 million kwh or 10.59 percent over last year's figures. Of this total energy sale, about 237.536 million kwh (43.29 percent) was consumed by domestic customers, about 168.041 million kwh (30.63 percent) by industries, about 34.178 million kwh (6.23 percent) by commercial consumers, about 27.19 million Kwh (4.96 percent) by drinking water and irrigation utilities; and about 23.406 million kwh (4.26 percent) was exported. The remaining 58.339 mill. Kwh (10.63 p.c.) was consumed by temples, street lights, transportation means and temporarily connected consumers, etc

Revenues

The net revenue from sale of electricity during the last fiscal year is estimated to be about Nepalese Rupees 754.781 million, exceeding that of the preceding year by about NRs 47.382 million, thus registering a growth of 6.7 percent. Income from other sources is estimated to be about NRs 28.822 million. The total revenue is thus estimated to be NRs 783.603 million, an increase of about NRs 69.159 million accounting for a 9.68 percent growth over the previous year.

Expenses

NEA's operating expenses, including depreciation, in the year under review is estimated to be NRs 650.020 million, up by about NRs 98.657 (17.89 percent) over the previous year.

The total operating expenses comprised (i) operation and maintenance and general expenses of NRs 316.258 million (48.65 percent), (ii) energy purchase of NRs 152.825 million (23.51 percent) including energy received from Marsyangdi Hydroelectric Project after commercial operation of the plant, (iii) fuel and oil for generation costing NRs 3.921 million (0.6 percent) and (iv) depreciation estimated at NRs 177.016 million (27.24 percent).

Net Profit

The interest on long-term loans amounted to about NRs 132.919 million. Deducting this amount from NEA's gross profit of NRs 133.583 million, the net profit after taxes was observed to be NRs 0.664 million, which is lower than that of the preceding year by about NRs 22.527 million (97.1 percent). The relief provided in the form of a lifeline tariff for domestic customers as a result of an HMG decision has had a significant bearing on the decrease in profits. NEA also had to bear the heavy financial burden resulting from the decision to substantially increase the salaries and allowances of all staff, effective from the last quarter of fiscal year 1989/90.

Assets

The NEA's net fixed assets were estimated to be about NRs 4,721.318 million at the end of the fiscal year ending July 15, 1990. This registered an increase of about NRs 29.029 million or 0.62 percent over the previous year.

Investments

The NEA's total investment on capital expenditure through self-financing is estimated at NRs 212.655 million, exceeding that of the previous year by about NRs 34.866 million, thus indicating a growth of19.62 percent. Apart from this, NRs 624.080 million was invested by HMG for development works to be executed by NEA.

Activities

The year under review has been a successful year during which significant progress has been achieved in the implementation of projects and provision of services inspite of severe constraints encountered, like the Trade and Transit impasse with India.

Construction works under the Fifth and Sixth Power Projects progressed satisfactorily. Dhankuta, Bhadrapur, Malangwa, Janakpur, Gaur and Guleriya were connected to the central grid. Birgunj and Pokhara substation capacity enhancement works are complete. Rehabilitation and reinforcement works in Biratnagar, Pokhara and other towns are underway. Lahan–Jaljale 33 kv Transmission Line Project is under implementation with manufacturing of equipment progressing as scheduled. The Seventh Power Project has commenced with the selection of Project Consultants in its final stage.

To meet the growing demand of the rural population, NEA has continued to extend power supply to the rural areas using its own limited resources augemented by those of bilateral and / or multilateral donor agencies where applicable. The extensive rural electrification program in Pokhara area, being carried out with FINNIDA assistance, will cater to local demands. With the completion of the Trishuli-Somdang 33 kv line, the remote area of Rasuwa will now have access to reliable electricity. Bajura, Arughat and Okhaldhunga small hydroelectric projects, amongst others, have started supplying power to remote district headquarters.

The Biratnagar-Anarmani 132 Kv transmission line constituting part of the Fifth Power Project has been completed. The last section of the East-West national grid is being taken up with the commencement of construction works of the Nepalgunj-Mahendranagar 132 Kv transmission line.

A major highlight of the year under review is the commencement of operation of the Marsyangdi Hydroelectric Plant by NEA staff.

Detailed engineering design and survey is an ongoing activity for the important Arun-3 Hydroelectric Project. The construction of this project is scheduled to commence from the beginning of 1992; and to be completed by 2000 A.D.

Until the Arun-3 Project is completed, there will be a shortfall in generation by 1996/1997 which has to be met by an intermediate power project or other alternative sources of energy. NEA is studying various options to meet the demand during this period.The energy shortage to be encountered within a few years will be partly met by a 26 Mw multi-fuel fired thermal plant whose construction is in full swing in Biratnagar with grant assistance from the Government of Finland.

To meet the power demand of the future, NEA is conducting pre-feasibility studies of various attractive hydropower projects. In this regard, pre-feasibility study of Upper Karnali (240 Mw) and feasibility study of Western Seti (360 Mw) have been completed. The first stages of the feasibility studies of Upper Arun (350 Mw) and Naumure (208 Mw), and the review of Koshi Basin Master Plan are underway.

In order to improve the management and operational performance, twinning arrangements have been made with Edef France. The result of these arrangements will be observed in the near future.

To reduce losses of the NEA power system, a Loss Reduction Project is being carried out. The efficiency of NEA personnel will be increased with a training program being carried out under IDA assistance.

NEA has continued its successful operation and maintenance of both the aged and recently comissioned power plants, including remote small hydel plants. Supplying reliable power to the 291,000 consumers through vast distribution networks, transmission lines and associated sub-stations and power plants have been possible through the dedicated efforts of NEA staff.

Audit

NEA has been able to finalise audit of accounts for the years 1985/86 and 1986/87. The audit report for the fiscal year 1987/88 is now in the final stage awaiting approval. Steps have been taken for completion of audits of the remaining two fiscal years, 1988/89 and 1989/90, within six months so that a comprehensive picture of NEA's financial standing is available.

Conclusion

NEA has completed the first half decade since its creation. Within this relatively short time span, commendable progress has been achieved in satisfying the needs of its customers. The collective efforts of the Board, Officers and Staff of the orgnisation have helped to attain this laudable performance. However, sustained efforts must be continued to meet the challenges of the future. Corporate aims include meeting the increased and diversed energy needs of present and potential customers, providing electricity to 20 percent of the population by the year 2000, reducing operating cost and system losses, and making NEA a financially viable institution . NEA will thus strive to develop into a dynamic, efficient and accountable professional organisation dedicated to effectively fulfil the needs and aspirations of its customers.

INTRODUCTION

Nepal Electricity Authority (NEA) was created on August 16, 1985 (Bhadra 1,2042 B.S.) with the objective of undertaking the generation, transmission and distribution of power in economically suitable regions of Nepal for industrial and agricultural development; and to meet electrical energy demands of the people. Established under the Nepal Electricity Authority Act,1984, through the merger of the Department of Electricity of Water Resources Ministry, Nepal Electricity Corporation, and related Development Boards, this merger has not only ensured efficient and reliable services but also prevented the overlapping and duplication of works which was common prior to its coming into being five years ago. NEA is primarily responsible for the planning, construction, operation and maintenance of all generation, transmission and distribution facilities in Nepal's power system both interconnected and isolated. NEA's other major responsibilities are:

a. to recommend to His Majesty's Government, long and short-term plans and policies in the power sector;

b. to recommend, determine and realise tariff structure for electricity cosumption with prior approval of HMG;

c. to carry out necessary research on generation, transmission and distribution; and

d. to arrange for training and studies so as to produce skilled manpower in generation, transmission, distribution and other sectors.

Organization

The organisation of NEA is based on a standard functional line with the Board of Directors, Managing Director and six Directorates in a hierarchial structure.

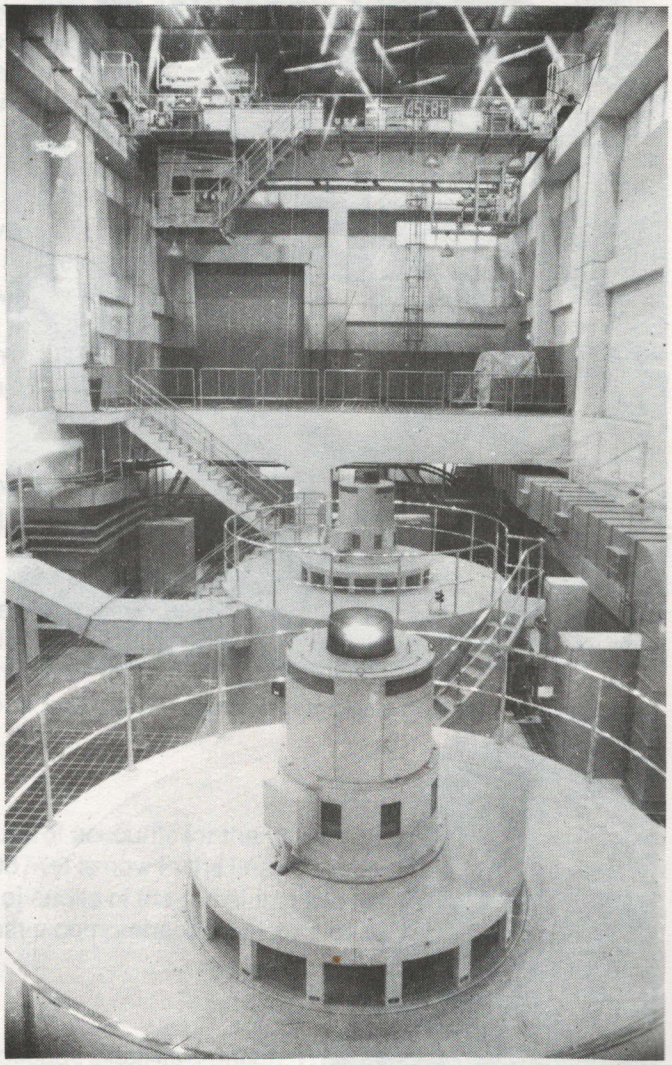
The Directorates comprise inherent functional work components of planning, finance and administration, operation and maintenance, distribution and consumer services, engineering and construction. All directorates, except the first two, are headed by a Director-in-Chief Presently, planning and finance and administration directorates are being looked after by a common Director-in-Chief. Each Directorate has a number of Directors with specific functions down the hierarchial lines.

PROJECT ACTIVITIES

a. Power Generation

Nepal's power system is mainly hydro-based with a total installed generating capacity of about 261 Mw of which 232 or 88.96 percent is generated by hydro-electric plants and 28.7 Mw or 10.99 percent is provided by diesel plants. The share of hydel power in the total power generation registered a significant increase in the eight years' period between 1981 and 1989; the power generation rising from 107 Mw to 261 Mw within the period.

The two major hydropower projects commissioned during this period were Kulekhani I (60 Mw) and Khulekhani II (32 Mw). NEA also commenced operating the recently completed Marsyangdi Hydro Electric Plant of 69 Mw installed capacity.



b. Transmission

The transmision system in Nepal has been developed through gradual interconnection of isolated networks which were built to serve regional centres. In the central region, a 66 Kv network has been developed to transmit power to the Kathmandu Valley from outlying hydro stations such as Kulekhani I, Sunkoshi, Devighat and Trishuli. The power from Marsyangdi station is brought to Kathmandu on a 132 Kv transmission line. The major portion of the 132 Kv East-West national grid is now operational from Kohalpur to Anarmani.

c. Distribution

The primary distribution voltage in the Kathmandu Valley currently stands at 11 Kv. About 36 percent of the population in the Bagmati Zone including the Kathmandu Valley have access to electricity. In the Western and Eastern regions, primary power distribution is provided through a combination of 33 Kv and 11 Kv networks.

PROJECT HIGHLIGHTS

Fifth Power Project (ADB Assistance)

The Fifth Power Project is being implemented by the Distribution and Customers' Service Directorate of NEA with loan assistance from the Asian Development Bank.

The project includes the construction of 221 km 33 Kv lines from Dhalkebar-Janakpur, Dhalkebar-Malangawa, Birgunj-Gaur, Dharan-Dhankuta, in addition to a total of 18 MVA capacity substation works. With the completion of Damak-Anarmani-Bhadrapur electrification and Biratnagar power system rehabititation about 40,500 customers from Janakpur, Malangwa, Gaur, Dhankuta, Bhadrapur, Biratnagar and Damak are expected to benefit from the project. The project is nearing completion with most of the transmission lines works having already been completed.

Sixth Power Project (ADB assistance)

The Project is being executed to enable transfer of the full output of energy from the Marsyangdi Hydroelectric generating station (69 Mw) to consumers connected to the main grid system. It is also aimed at reinforcing and expanding the sub-transmission and distribution networks to a number of secondary towns and rural communities adjacent to the grid system; and to meet the forecasted electricity demand until the mid-1990s. It will also serve to reduce system energy losses and improve reliability and quality of electric power supply.

Being implemented with the financial assistance of the Asian Development Bank and estimated to cost about 41.7 million US dollars including a foreign component of 28.6 million US dollars, the project basically consists of two parts, (a) 115 km of 132 Kv transmission line from Marsyangdi to Kathmandu and Bharatpur and, (b) Subtransmission and Distribution System extension and reinforcement.

The first part includes the construction of 85 km of 132 Kv single circuit transmission line from Marsyangdi to a substation in Kathmandu at Balaju and 30 km of 132 Kv single circuit line form Marsyangdi to a substation on the main grid at Bharatpur. The construction works have now been completed.

The second part includes rural electrification schemes at Rajbiraj, Janakpur, Jaleswor, Parasi, Nijgad, Kalaiya, Bhairahawa, Lumbini, Duhabi, Nepalgunj, Gulariya, Taulihawa, Bahadurgunj, Krishnanagar, Shivpur, Ghorahi, Simara, and Biratnagar including areas which are located within 15 km of the main grid in the Terai region, along with system reinforcement and distribution extension.

With the completion of the project, 51,300 new customers will be added.

Seventh Power Project (ADB Assistance)

The Project has the objectives of rehabilitating the distribution networks in five towns, helping NEA's loss reduction targets, improving the reliability of supply, and meeting the growing demand for electricity. With the connection of about 83,500 new customers in the rural areas during 1992-94, the Project is also expected to support the government's objectives of extending electricity supply to rural areas for the economic development of such areas; and to provide substitute for kerosene, diesel, and fuelwood.

Under the Project, beginning in 1990 and targetted to be completed by 1994, it is planned to construct substations of 54,000 KVA capacity, 254 km of 33 Kv substransmission line, 555 km of 11 Kv line, 1,168 km of single wire earth return (SWER) distribution systems, and supply power to 4,486 shallow tubewell pumping stations.

The 64.0 million US dollar undertaking has four parts. The first part is the rehabilitation and extension of subtransmission and distribution networks in the towns of Hetauda, Birgunj, Butwal, Bhairahawa and Dharan; and in load centres between Hetauda and Birgunj, and between Butwal and Bhairahawa.

The second part consists of construction of six rural electrification schemes at Ilam/Damak, Dharan, Siraha, Malangawa/Gaur, Bharatpur/Parasi, Tamghas/ Sandhikhark. The provision of facilities, equipment and plant and materials constitute the third part of the project. The fourth and last part includes the provision of consulting services for engineering and site supervision.

Pokhara Rural Electrification Project (FINNIDA Assistance)

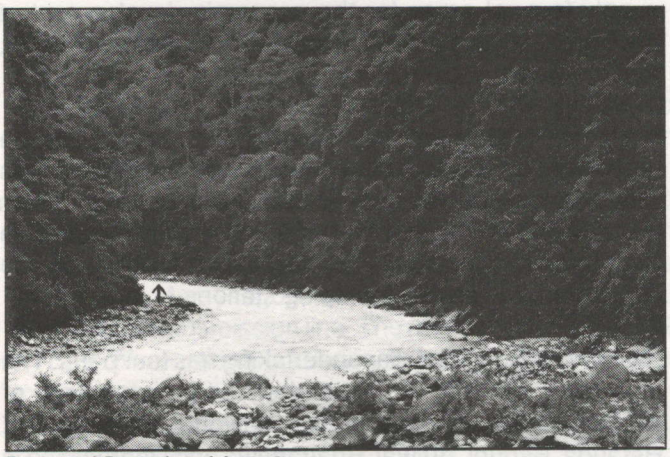
The project, being carried out with the assistance of Finland, is divided into two phases. Under the first phase, completed in May, 1988, 58 km of 22 Kv lines and 163km

of 400 volt lines were constructed with 46 distribution transformers with a total capacity of 3,650 KVA. The resulting number of customer connections is estimated at 3,646.

The second phase of the project started in November, 1989, involves construction of 152km of 11 Kv lines and 409km of 400 volt lines and installation of 136 distribution transformers. There will be 10,950 customers benefitting from this project.

Arun-3 Hydroelectric Project

Arun-3 is one of the most important projects that Nepal intends to embark on. The project has the flexibility of being developed in either a single stage of 402 Mw, or in two stages- the first stage being of 268 Mw, followed by a second stage of 134 Mw. In case of single stage development, the project will generate 2,891 Mwh of average energy out of which 1,513 Mwh will be firm energy.



Proposed Dam site of Arun-3

The cost estimate of the full-scale development is 721 million US dollars; and that of 268 Mw development, 590 million US dollars at1989 price level. This is inclusive of the cost of access road and transmission lines.

Because of favourable topography, which gives a 288m of net head, very competent geology and glacier and snow-fed river hydrology which sustains relatively high base flow thus enabling generation of very high firm power, the power generated by the Arun-3 will be relatively cheap.

The increasingly promising features of the project has built up remarkable confidence in the project. The donor community with ten members has been regularly meeting and monitoring the development of the project. The first donors' preparatory meeting, subsequent to the donors meeting on Arun-3 HEP in Paris, was held in Kathmandu in May 1989, where members reiterated their commiment to the project. The second preparatory meeting was also held in Kathmandu in 1990. At the meeting, the donors expressed their appreciation and satisfaction over the development of the project. Reconfirming their commitment to finance the project, they discussed the methods of selection of civil contractors and agreed on a project processing schedule.

The pre-feasibility study, completed in October 1985, by NEA, and the feasibility studies carried out two years later, have both proved the economic and technical feasibility of the project. A least cost generation expansion plan (LCGEP) study has also concluded that the Arun-3 project will be the least cost generation addition to the Integrated Nepal **Power System (INPS).**

The project has a concrete gravity dam with a gated spillway with three gates. It has four underground desanding basins which are connected with an underground power house through a 7.8m diameter headrace tunnel of 11.5 km length. The power house will have 6 Pelton turbines of 67 Mw capacity each.

Another advantage of the project is the construction of the 192km road in the eastern development region which will form a part of the proposed Koshi Highway. The project has the potential not only of providing cheap energy for domestic and industrial purposes, but also opens possibilities of power export to Ind[illegible]

Trishuli Devighat Complex

The Trishuli-Devighat hydro-power complex having installed capacities of 21 MW and 14.1 MW respectively are the major run-of-the-river plants which are presently playing a significant role in Nepal's power system.

The Trishuli hydroelectric project on Trishuli river is located about 75km north-west of Kathmandu. It was completed in 1970 when the last unit was installed. The Devighat project was commissioned as an adjunct to the Trishuli project in 1984.

NEA felt the need to forge ahead with plans for the rehabilitation of the complex in view of the projected power shortage and the long-term interest of NEA's operations.

The objective of the rehabilitation works is to increase the energy output of the two projects to 276 GWh from 193 GWh presently being generated. The World Bank has agreed to finance the feasibility study and detailed design programme which is to cost about 605,000 US dollars. The

work is scheduled for completion by March 1991. According to the tentative construction schedule, the project will commence in July 1991 and will be completed in December 1993.

Nepalgunj - Mahendranagar132 KV Transimission Line (French Assistance)

Works on the project started two and a half years back and is expected to be completed within the next two years. The main objective of the project is to link the far western region with the national grid system to supply power to that area.

The project is estimated to cost 810 million rupees out of which 612 million rupees is to be borne through French assistance and the rest from internal sources.

Multi-Fuel Generation Project (FINNIDA Assistance)

To meet the projected shortage of electricity in the near future, in addition to the implementation of Trishuli-Devighat up grading, a 26 Mw multi-fuel generating unit is being installed at Biratnagar to generate power. This multi-fuel project is scheduled to be completed within 1990/91.

Wind Power Development Project

A Wind Power Project was introduced at Kagbeni, Mustang district on an experimental basis to explore the possibilities of utilising wind resources of the high altitude hinterland region. Installed and commissioned in December, at a cost of 6.8 million NRs, the wind plant of 20 Kw capacity supplied power to 60 houses through 1.5 km of distribution lines. Detailed Studies and investigations are being conducted to stabilise the plant.

Rural Electrification

A ten-year Rural Electrification Master Plan is being prepared to carry out rural electrification programme on a country-wide basis in a planned way so as to provide electricity to the rural people as a cheap, simple and reliable source of energy.

Under the Rural Electrification short-term programme, electrification works are underway at Rajbiraj (Rupani), Jaleshwor, Simra, Nijgadh, Bardghat (Parasi) while electricity has already been provided to such areas as rural Pokhara, Nuwakot and Dolkha. These works are aimed at electrification of communities adjacent to the central grid, sub-grid systems and generating centres, Areas adjacent to Damak-Ilam, Dharan, Siraha, Malangwa, Gaur, Gulria, Nepalgunj, Surkhet, Tamghas-Sandhikark will also receive electric services.

Loss Reduction Project

The inherited NEA power system had a high percentage of losses. To reduce both the technical and non-technical losses, efforts have been made by NEA through internal and external resources. Having already completed the first phase of the Loss Reduction Project, NEA is currently implementing the IDA-financed second phase project. The aim of this project is to reduce the overall loss by about 5 per cent bringing it to 20 per cent within five years. Under this two-year programme for the Kathmandu Valley, it is targetted to reseal all customer installations while rehabilitating 40 percent of the service connections.

Also planned is the phase balancing of 100 per cent of the LV lines, trial installation of 55km of aerial bundled conductors, equipping of a meter testing laboratory in Kathmandu, and upgrading of statistical metering at generation, import and export points.

The electricity losses has decreased from 29.4 per cent in 1985/86 to about 26.64 percent in 1989/90.

Small Hydel Projects

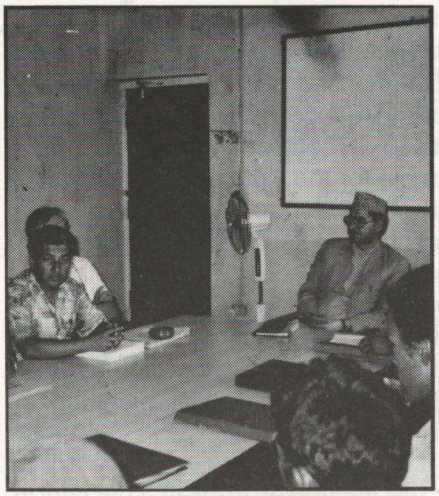
In Nepal, electrification of communities in the Terai area and adjoining mid-hills is feasible from the inter-connected system, whereas those in the inner hills and mountain areas to the North will benefit more from small hydropower generation. Therefore, NEA has plans to construct small hydro power stations in hilly and remote areas which are financially and technically not beneficial to be linked to the central grid and sub-grid system.

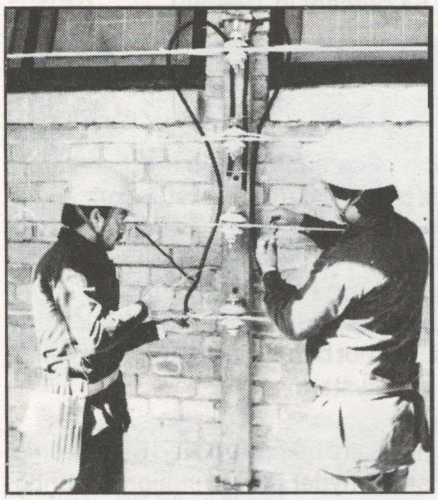
Presently, 41 communities are being supplied with electric power from existing small hydel power stations. During 1989/90, Bajura (100Kw), Arughat (150Kw), Okhaldhunga (125Kw) projects have been completed while Tatopani project (1,000 Kw), Achham (400 KW), Darchula-2 (200 KW) projects as well as those at Surnaiya Gad (200 Kw), Rupal Gad (100 Kw) and Namche (60 Kw) are under constructions.

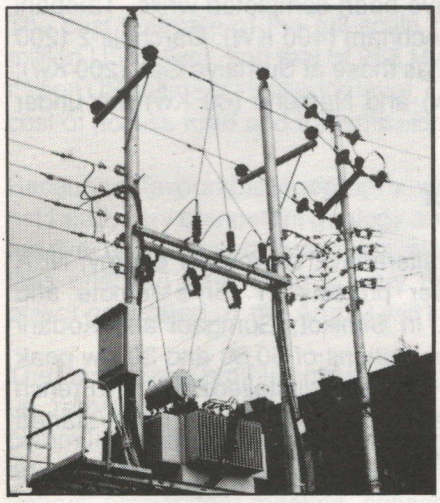
Solar Power Project

In order to develop alternative sources of energy, NEA operates solar power projects in some remote and inaccessable areas. In Simikot, Gumgadi and Kodari/ Tatopani solar power stations of 50,50 and 30 Kw peak capacity respectively have been installed through a French Government assisted project; and now have started generating electricity.

HUMAN RESOURCES







Manpower

NEA currently provides employment opportunities to 9161 persons of whom 4,473 are in regular service, 1,221 in temporary service and 3,467 hired on monthly wage basis.

A host of incentives is provided to the employees to bring out the best in them for overall improvement in the performance of NEA.

Training

With a view to bringing about career development for the employees and to increase their efficiency, NEA has started a project to set up a Training Centre with the cooperation of International Development Agency (IDA). With the objective of making its manpower skilled and efficient so as to give its customers better service, NEA is also planning to develop the Marsyangdi Hydroelectric Project site as its principal training centre using the existing facilities and buildings which will add to already existing training facilities at Panuati and Kathmandu. Training activities are also being developed in conjunction with the Institute of Engineering and the Mechanical Training Centre. In the fiscal year ending July 15, 1990, 68 persons were imparted basis training while 37 others received vocational training.

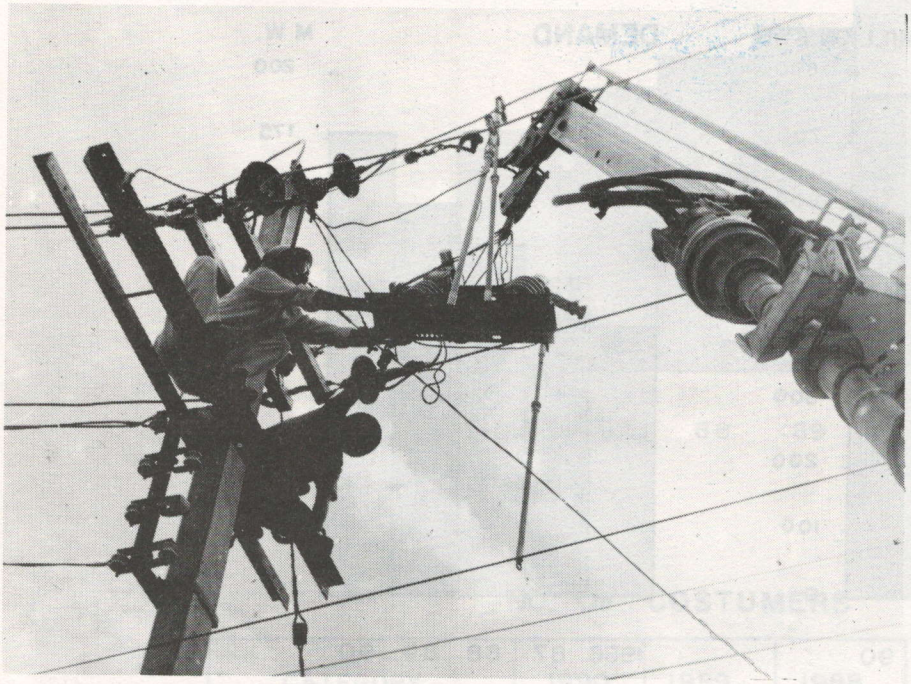
Whin the current fiscal year 1990/91, about 400 technicians are planned to be trained. The training programme for the next fiscal year is being prepared presently and will be finalised by August,1990. This will ensure that NEA is able to maximize its utilisation of human resources to quickly respond to the needs of improving its performance. Besides, training programmes for management, financial and administrative sectors are also being developed.

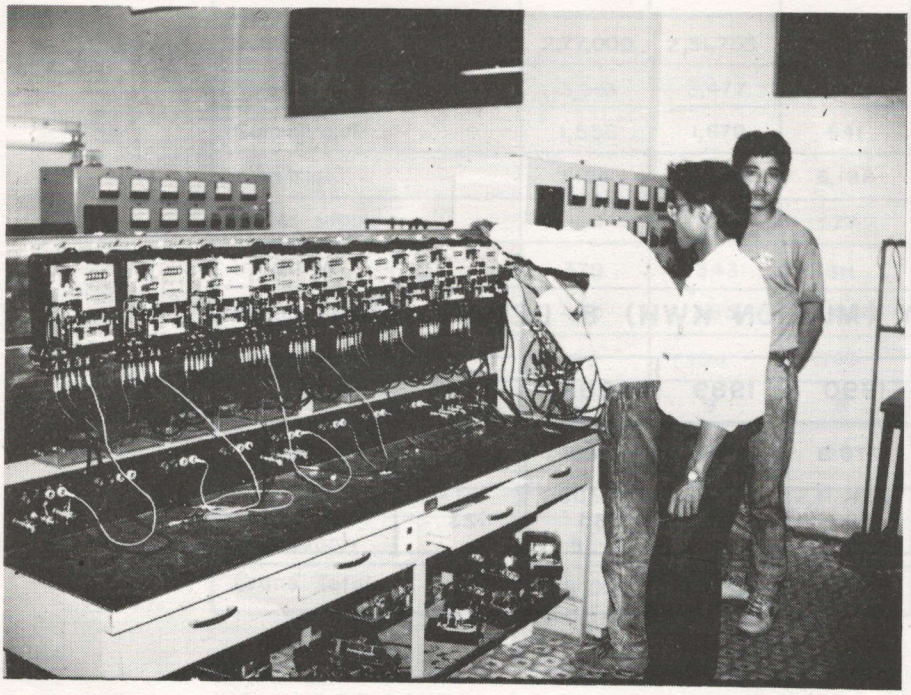
Twinning/Corporate Planning

In order to assist in the operations and functions of NEA, a twinning arrangement has been made with Electricity de France (EDF) of France. Under this programme, EdF personnel have been assigned to assist the management in the operational activities of NEA. Similarly, staff of NEA have also visited France to see and gain experience on the workings of a developed electric utility.

The twinning arrangement with a suitable but mature electric utility is aimed at streamlining managerial policies and procedures to make them suitable for growing utility, and preparing corporate plans for 10 years. The corporate plan is to be prepared with base-up approach with the full participation of managers at the local levels. It will assign performance targets for each directorate, department, regional and local office to monitor and evaluate their respective performance.

SERVICES





Service To The Customers

NEA is providing electricity services in 62 out of 75 districts of the country. In these districts, 291,000 customers have been benefitting from NEA services in 1989/90. The percentage of the country's population using the electric service has increased from 6.24 per cent in 1985/86 to about 8.89 per cent in 1989/90. The per capita consumption of electricity per year has also increased from 18.9 units to 28.1 units within this period.

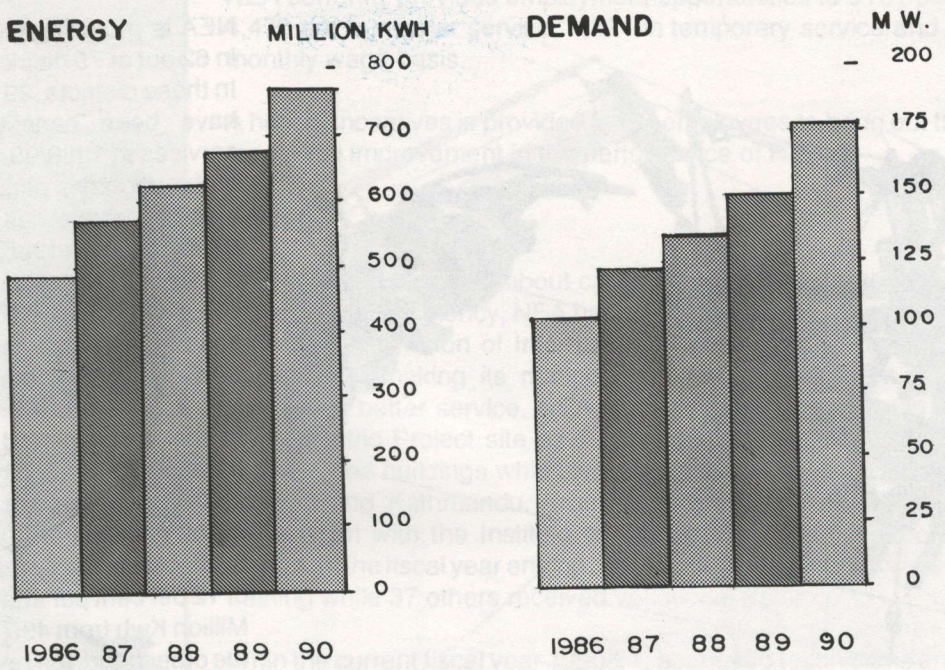
In the same period, the maximum demand for electricity has increased at an average rate of 14.3 per cent to reach 176 Mw from 103 Mw, while the available electricity rose by an average of 12 per cent per annum to reach 770 Million Kwh from 490 Million Kwh. On the other hand, the revenue collection more than doubled from 377 Million Rupees in 1985/86 to 754 Million Rupees in 1989/90.

NEA has divided its customers into 11 different categories on the basis of electricity tarift. It has plans to streamline and expand the distribution system to further improve the reliability and efficiency of its services to the customers.

Computerized Billing: (ADB Technical Assistance)

Under an on-going ADB/TA project, NEA will assess the need for computerization of its billing and consumer management systems to provide efficient services to its customers. A report, with detailed cost estimate and implementation schedule, is expected to be submitted by October, 1990.

TOTAL ENERGY AND DEMAND

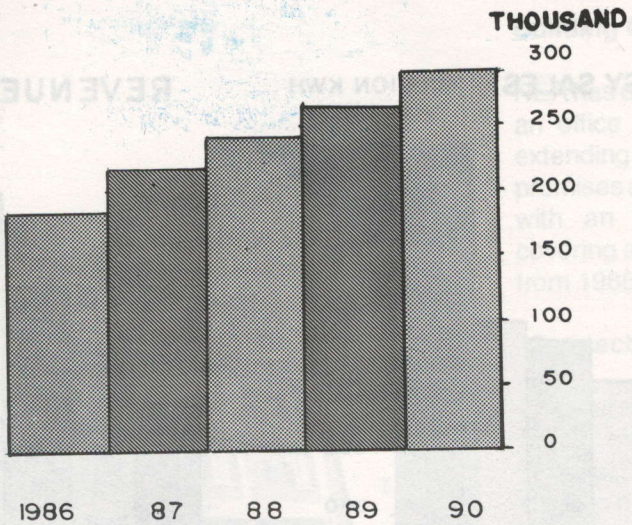


ENERGY (MILLION KWH) & DEMAND (MW)

	1990	1989	1988	1987	1986
ENERGY	770·9	672·3	628·5	571·0	488·5
DEMAND	176	149	135	123	10 3

Note: For the fiscal year ending JULY 15,

GROWTH OF CUSTOMERS

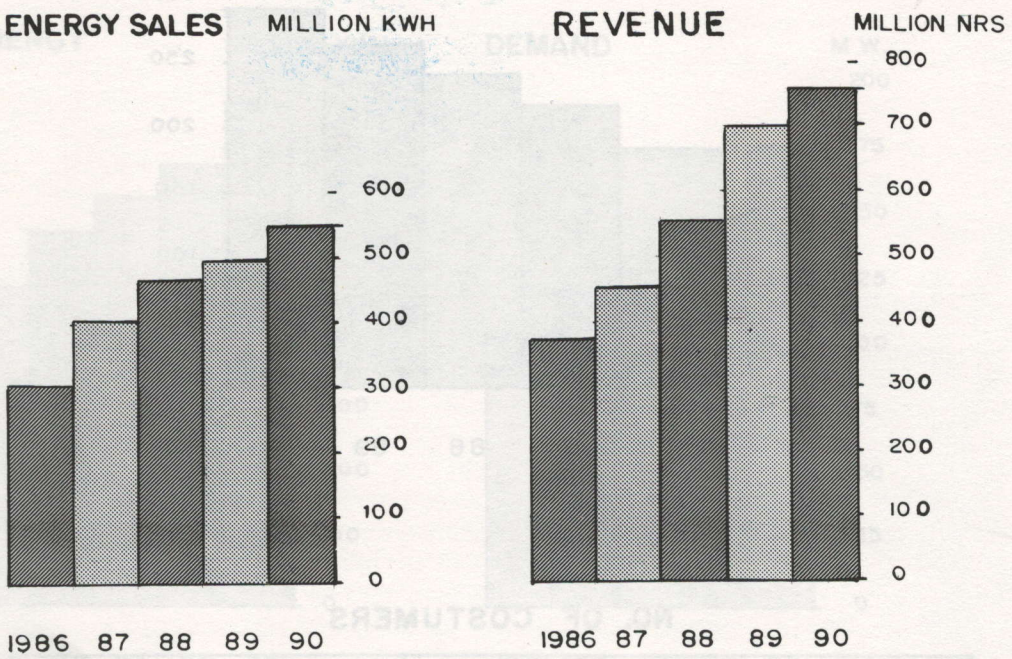


NO. OF COSTUMERS

CATEGORY	1990	1989	1988	1987	1986
Domestic	2,77,000	2,51,753	2,30,178	2,08,870	1,75,860
Non commercial	3,953	3,477	2,403	1,768	1,881
Commercial	1,556	1,678	641	315	527
Industrial	7,184	6,769	6,181	5,464	4,575
Water supply	111	105	77	351	278
Irrigation	379	343	311	–	–
Street lamp	490	385	1,474	675	318
Temporary supply	123	104	145	275	113
Transport	9	9	8	8	8
Temple	191	152	59	-	–
Total (Internal sales)	290,996	2,64,775	2,41,477	2,17,726	1,83,559
Bulk supply	4	9	2	4	3
Grand Total	2,91,000	2,64,784	2,41,479	2,17,730	1,83,562

Note: For the fiscal year ending JULY 15,

SALES AND REVENUE

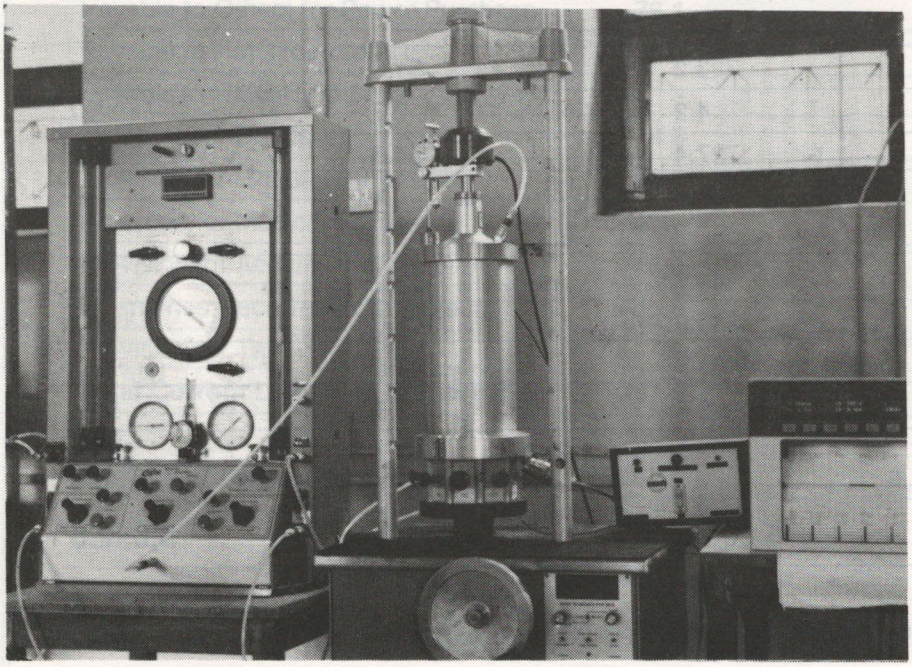


ENERGY SALES (MILLION KWH) & SALES OF ELECTRICITY (MILLION NRS)

	1990	1989	1988	1987	1986
ENERGY SALES (million KWH)	548·7	496·1	465·1	402·6	341·4
REVENUE FROM SALES (million NRS)	754·8	707·4	551·7	452·4	377·1

Note: For the fiscal year ending JULY 15,

INFRASTRUCTURES



Building Complex

NEA has developed a Master Plan for an office building complex, and is extending the development of its premises at Durbarmarg, Kathmandu with an implementation schedule covering a ten-year construction plan from 1988 to 1998.

Geo-technical Laboratory

In order to carry out research and tests on different aspects of construction of hydel power projects, so as to make them reliable, effective and cost-efficient, a geo-technical laboratory has been set up at NEA. The soil, rock and concrete laboratory is adequately equipped. The equipment fitted in the laboratory are among the best available in the country.

All the routine tests on soil, rock and concrete can be conducted in this laboratory. Besides ground exploration for all types of construction and major testing of construction materials, the laboratory provides services for boring in soil and rock including diamond drilling up to 300m depth. Facilities also exist for standard penetration test, collection of disturbed, representative and undsturbed samples from pits and boreholes, seismic refraction, pitting and trenching.

Balance Sheet as of July 15,

Million NRs

Assets	1988	1987	1986
Fixed Assets			
Land	46.1	42.5	31.9
Buildings	169.7	136.9	95.9
Hydraulic Plant & Machinery	2,587.1	2,571.6	1,871.4
Internal Combustion P & M	52.0	51.3	46.5
Transmission Line	993.2	623.5	353.4
Distribution Line	409.3	384.2	202.5
Meter & Metering Equipment	22.2	17.6	12.8
Consumer Service	42.1	32.1	28.9
Public Lighting	14.8	1.7	1.8
Tools and Instruments	3.3	3.0	2.4
Vehicles	22.3	24.0	11.6
Furniture & Office Equipment	9.5	8.0	4.7
Miscellaneous Property	0.2	0.1	0.2
Total Fixed Assets	**4,371.8**	**3,896.5**	**2,664.0**
Other Assets			
Capital Works in Progress	723.2	51.8	85.5
Investment in Securities	4.2	2.7	2.7
Total Other Assets	**727.4**	**54.5**	**88.2**
Current Assets			
Inventories	141.1	113.2	83.2
Accounts Receivable	239.9	165.0	120.5
Advances Recoverable	63.7	67.9	77.0
Cash & Bank	56.6	79.6	59.1
Total Current Assets	**501.3**	**425.7**	**339.8**
Total Assets	**5,600.5**	**4,376.7**	**3,092.0**

Note: Audited figures for fiscal years 1989 and 1990 will be available within six months

Balance Sheet as of July 15,

Million NRs

Liabilities and Equity	1988	1987	1986
Equity			
Share Allotment Suspense	1,000.0	1,000.0	1,000.0
Share Allotment Suspense	2,615.3	1,657.0	424.2
Capital Reserve	35.2	15.1	7.7
Reserves & Surplus	36.1	41.7	37.8
Total Equity	**3,686.6**	**2,713.8**	**1,469.7**
Long–Term Liabilities			
Long–Term Loan	1,541.7	1.378.8	1,263.3
Total Long–Term Liabilities	1,541.7	1,378.8	1,263.3
Current Liabilities & Provisions			
Deposit from customers	13.6	8.1	11.0
Other Deposit	7.8	7.1	8.3
Creditors for Goods	30.9	35.3	39.6
Other Creditors	1.6	1.8	4.4
Payable to Others for Power Purchase	78.1	29.6	28.1
Payable to HMG for Interest	78.8	69.4	140.3
Payable to HMG for Others	-	3.1	22.2
Provision for Bonus	4.8	4.3	2.8
Provision for Gratuity & Pension	86.5	65.8	65.8
Provision for Medical Facilities	20.7	20.7	20.7
Provision for Accumulated Leave	13.4	13.4	13.4
Inventories Received from Project	35.8	22.1	2.4
Provision for Tax	-	3.4	-
Total Current Liabilities & Provisions	**372.2**	**284.1**	**359.0**
Total Liabilities and Equity	**5,600.5**	**4,376.7**	**3,092.0**

Profit and Loss For the Year Ended July 15,

Million NRs

Details	1990	1989	1988	1987	1986
A. Revenue					
Net Sale of Electricity	754.8	707.4	551.5	452.4	377.0
Income from Other Services	28.8	7.0	11.8	9.8	7.4
Interest & Other Income	-	-	4.2	1.4	1.1
Total– A	**783.6**	**714.4**	**567.5**	**463.6**	**385.5**
B. Operation & Maintenance Expenditure					
General Expenses	320.2	284.6	206.4	180.0	134.9
Power Purchase	152.8	125.9	63.8	7.1	11.5
Provision for Expenses	-	-	26.8	6.3	15.7
Depreciation	177.0	140.8	134.7	114.8	80.0
Total– B	**650.0**	**551.3**	**431.7**	**308.2**	**242.1**
C. Net Operating Revenue (A–B)	**133.6**	**163.1**	**135.8**	**155.4**	**143.5**
D. Interest on Long-Term Loans	**132.9**	**139.9**	**125.8**	**120.8**	**103.2**
E. Profit Before Expenses	**0.7**	**23.2**	**10.0**	**34.6**	**40.2**
F. Expenses Relating to Previous Year-	**-**	**1.8**	**11.0**	**-**	
G. Net Profit Before Tax	**0.7**	**23.2**	**8.2**	**23.6**	**40.2**
H. Corporate Tax	**0.3**	**9.3**	**13.8**	**11.4**	**2.4**
I. Net Profit / (Loss) after Tax	**0.4**	**13.9**	**(5.6)**	**12.2**	**37.8**

Note: The figures for 1989 and 1990 are unaudited.

Explanatory Notes Forming part of the Balance Sheet as at 31.3.2043

1. The Nepal Electricity Authority has commenced its business with effect from 1. Bhadra 2042 (i.e. 16 August 1985) by taking over the business of the Nepal Electricity Corporation and the Department of HMG.

2. The value of business taken over is subject to the approval of HMG and is based upon following.

a. The business of NEC is valued as per the Balance Sheet as at 31. 3. 2042 of the NEC after adjustment in value of the Hetauda Diesel Project and the Kathmandu Valley System Reinforcement Project Phase I and II , and creation of certain provisions thus causing a net decrease in the net assets by Rs. 103,499,225.

b. The results of operation of the business of NEC for the month of Srawan 2042 has been accounted as that of NEA.

c. The assets and liabilities of the Department of Electricity are valued as per the approved value of some capital projects and as per the accounting records of various offices as well as engineer's estimation in some cases and estimation of liabilities for employees transferred to NEA.

d. Wherever the capital projects taken over are financed under foreign loan, such amount of financing has been accounted as Loans Payable and wherever they are financed under foreign grant assistance or under HMG's contribution, such amount of financing has been accounted as Equity owned by HMG.

e. Shares will be issued to HMG for the equity contribution upon approval of the value of business taken over. However Rs. 100 crores worth of shares have been issued provisionally.

3. Capital Projects taken over during the year are as follows and the valuation thereof is subject to the approval of HMG.

Dumkibas Butwal 132 KV T/L	Rs. 9,48,04,267
Seti Hydro Project	Rs. 1,50,00,000
Central Procurement Project	Rs. 1,19,46,244
Far Western Region Electrification	Rs. 17,52,981

4. Subsidiary loan agreements with HMG have not been concluded in respect of loan component of Kulekhani Hydro Electric Project, Dumkibas Butwal TL Project and Bharatpur Pokhara TL Project. Interest has been provided at 8.5% per on the former and 10.25% p.a. on the later two cases. This is subject to the approval of HMG.

5. Depreciation is charged on the fixed assets at straight line method at the following rate per annum.

Buildings	2%
Hydro Civil works	2%
Hydraulic Plant & Machinery	3%
Internal combustion P & M	2.5%
Transmission Line	3%
Distribution Line	4%
Meter & Metering equipment	10%
Service Mains	7%
Public lighting	3%
Tools & Instruments	20%
Vehicles	20%
Furniture & Fixtures	20%
Office Equipments	15%
Miscellaneous Property	50%

In the case of the projects whose valuation has not been approved by HMG, depreciation has been charged provisionally at the rate applicable on the main item of assets at the value booked.

6. The total value of works in progress on capital projects financed directly by HMG but administered under the control and supervision of NEA have not been taken into account. Expenses incurred by NEA on such projects are given under the head Capital Works in Progress.

7. Overhead expenses relating to various offices at rates given below are capitalised and booked as capital works-in-progress. These are to be allocated to capital projects financed directly by HMG.

Offices of Managing Director and Finance & Administration Directorate	10%
Planning Directorate	50%
Construction Directorate	90%
Engineering Directorate	90%
Distribution & Consumer Service Directorate	5%

8. Inventory is valued as landed cost.

9. Receipts from customers as contribution for capital expenses to be incurred in consumers service line have been booked as capital reserve under the head Consumers Contribution.

10. Figures are given in nearest Rupees.

Explanatory Notes Forming part of the Balance Sheet as at 32.3.2044.

1. The Nepal Electricity Authority has commenced its business with effect from 1. Bhadra 2042 (i.e. 16 August 1985) by taking over the business of the Nepal Electricity Corporation and the Department of Electricity of HMG.

2. The value of business taken over and the manner in which the consideration for the same is to be adjusted is subject to the approval of HMG and is based upon following.

a. The business of NEA is valued as per the Balance Sheet as at 31.3.2042 of the NEA after adjustment in value of some assets and creation of provisions for some liabilities. This resulted in a net decrease in the net worth by Rs. 10,34,99,225 as per Balance Sheet as on 31.3.2043. The valuation of some projects are again revised this year increasing the net worth by Rs. 12,41,21,944. HMG's claim against NEA for liabilities transferred from NEA amounting to Rs.16,20,79,401 has also been to converted to Equity as per the decision of HMG.

b. The results of operation of the business of NEA for the month of Srawan 2042 has been accounted as that of NEA.

c. The assets and liabilities of the Department of Electricity are valued as per the approved value of some capital projects and as per the accounting records of various offices as well as engineer's estimation in some cases and estimation of liabilities for employees transferred to NEA. The valuation as per the Balance Sheet as on 31.3.2043 is revised this year increasing the net worth by Rs. 33,28,942.

d. The value of projects taken over last year are revised this year increasing the value by Rs. 1,63,66,063.

e. Increase in depreciation due the increase in valuation of projects is charged to this year's Profit and Loss Account.

f. Wherever the capital projects taken over are financed under foreign loan, such amount of financing has been accounted as Loans Payable and wherever they are financed under foreign grant assistance or under HMG's contribution, such amount of financing has been accounted as Equity owned by HMG.

g. Shares will be issued to HMG for the equity contribution upon approval of the value of business taken over. However Rs. 100 crores worth of shares have been issued provisionally.

3. Capital Projects taken over during the year are valued at Rs. 92,68,67,074 the valuation and the manner in which the consideration for the adjusted are subject to the approval of HMG.

4. Subsidiary loan agreements with HMG have not been concluded in respect of following:

	Loan Amount (Rs)	% of Interest	Years of Repay-
Kulekhani Hydel Project	1,14,31,63,000	8.5%	25
Bharatpur-Pokhara 132 kv	3,06,78,764	10.25%	20
Dumkibas-Butwal 132 kV	5,65,97,213	10.25%	20
Hetauda-Biratnagar 132 kV	19,72,13,595	10.25%	20

5. Depreciation is charged on the fixed assets at straight line method at the following rate per annum.

Buildings	2%
Hydro Civil works	2%
Hydraulic Plant & Machinery	3%
Internal combustion P & M	2.5%
Transmission Line	3%
Distribution Line	4%
Meter & Metering equipment	10%
Service Mains	7%
Public lighting	3%
Tools & Instruments	20%
Vehicles	20%
Furniture & Fixtures	20%
Office Equipments	15%
Miscellaneous Property	50%

In the case of the projects whose valuation has not been approved by HMG, depreciation has been charged provisionally at the rate applicable on the main item of assets at the value booked.

6. The total value of works in progress on capital projects financed directly by HMG but administered under the control and supervision of NEA have not been taken into account. Expenses incurred by NEA on such projects are given under the head Capital works in progress.

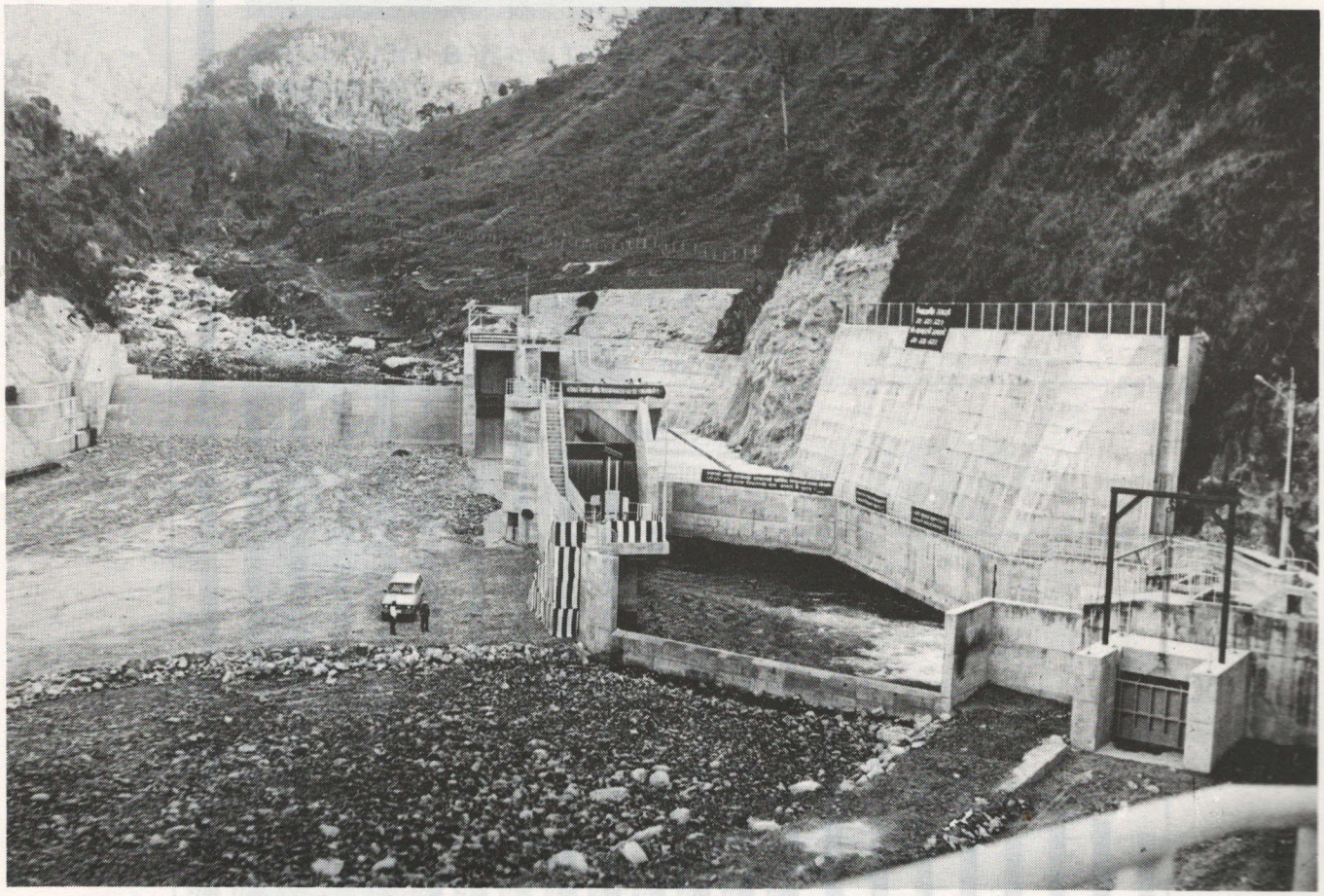
7. Overhead expenses relating to various offices at rates given below are capitalised and booked as capital works-in-progress. These are to be allocated to capital projects financed directly by HMG.

Offices of Managing Director and Finance & Administration Directorate	10%
Planning Directorate	50%
Construction Directorate	90%
Engineering Directorate	90%

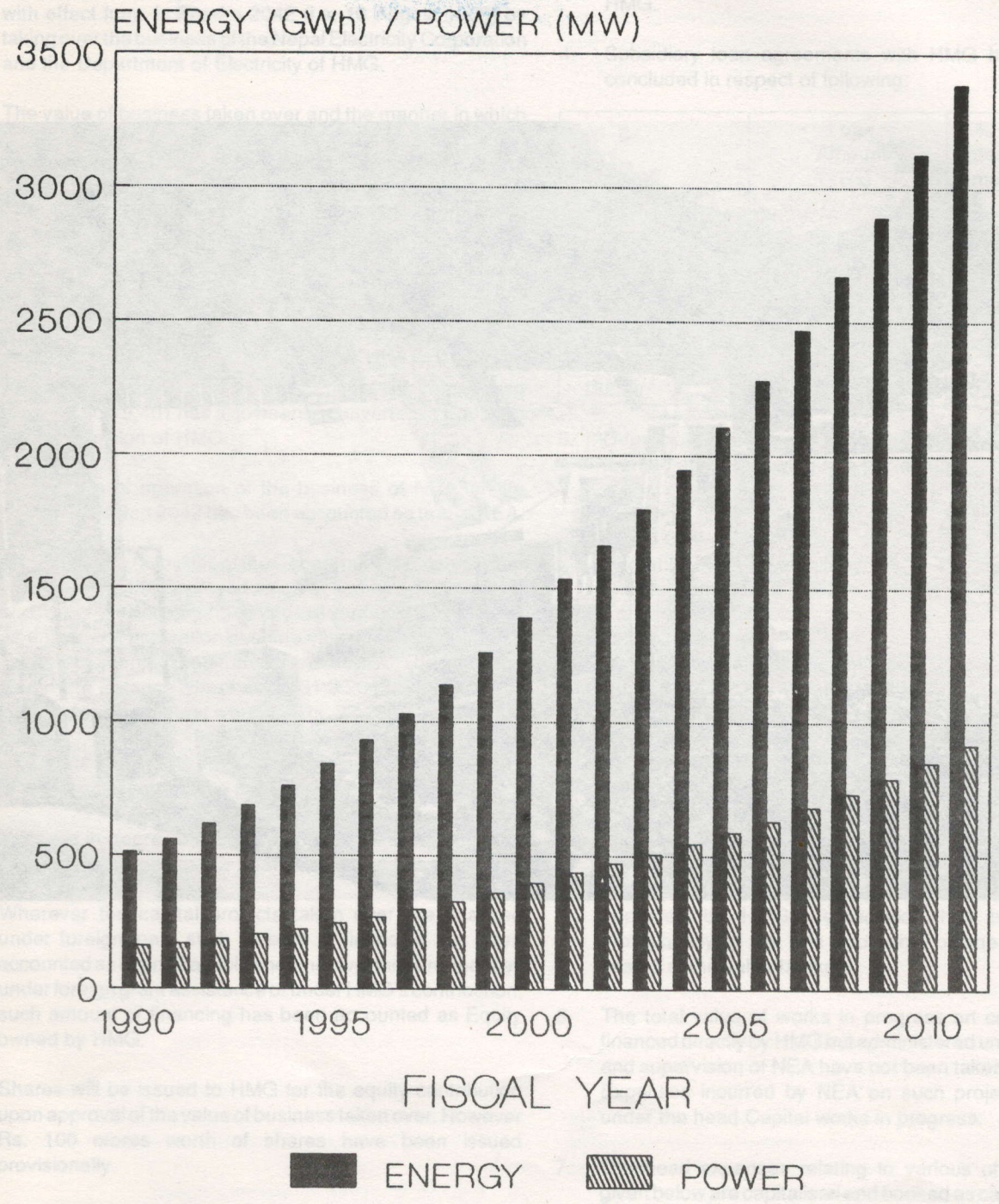
8. Inventory is valued as landed cost.

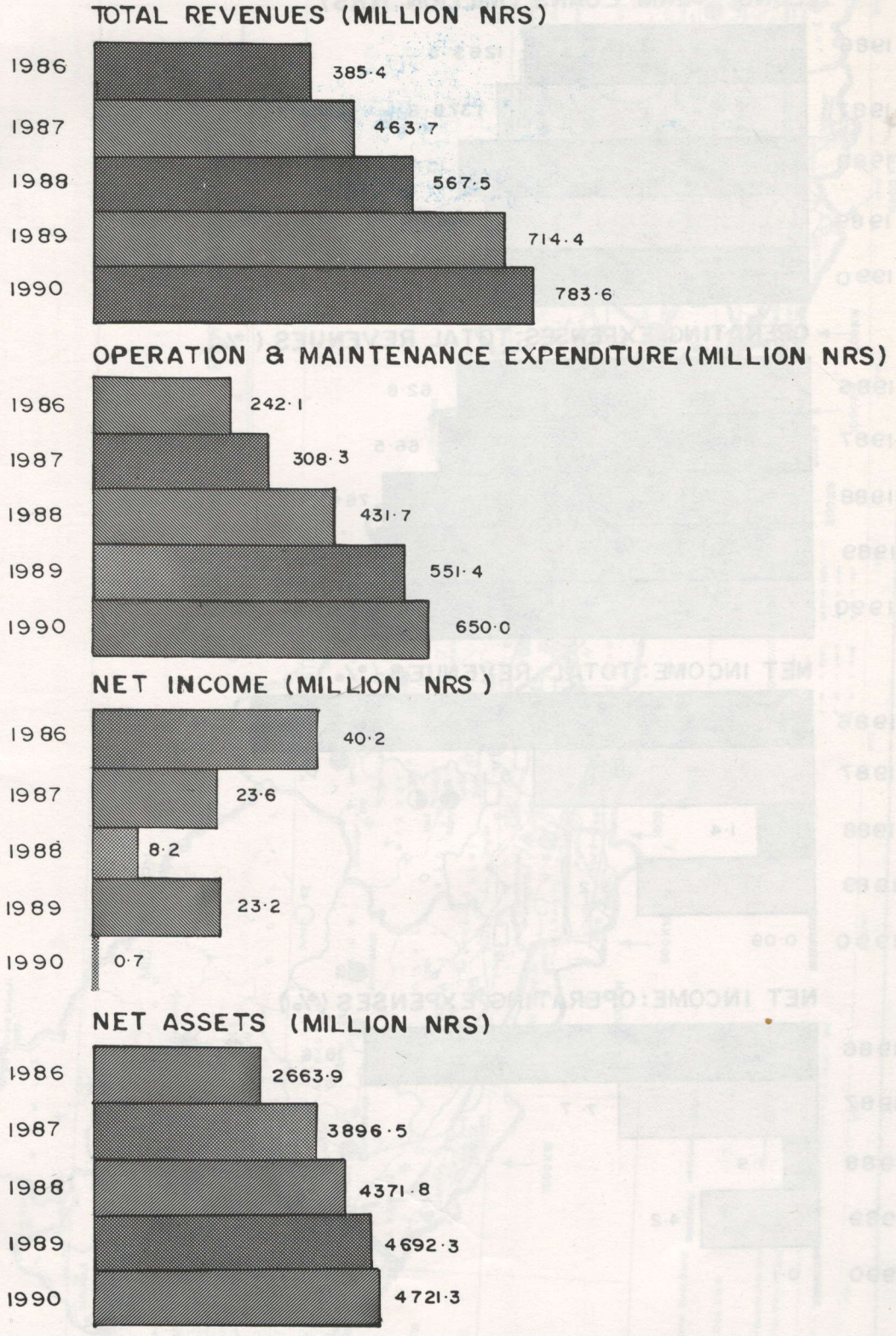
9. Receipts from customers as contribution for capital expenses to be incurred in consumers service line have been booked as capital reserve under the head Consumers Contribution.

10. Figures are given in nearest Rupee.

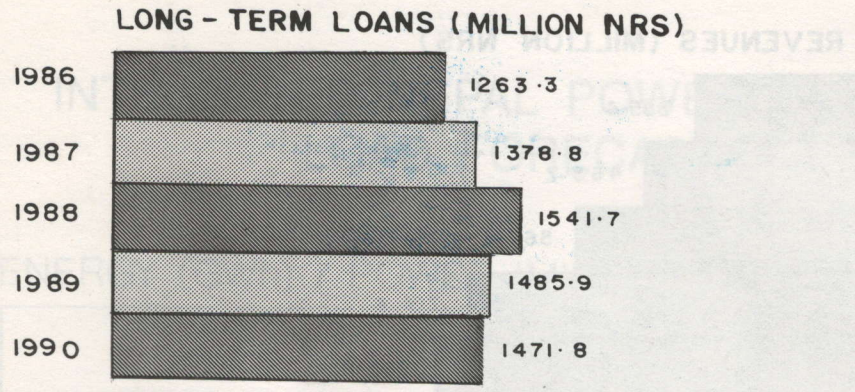


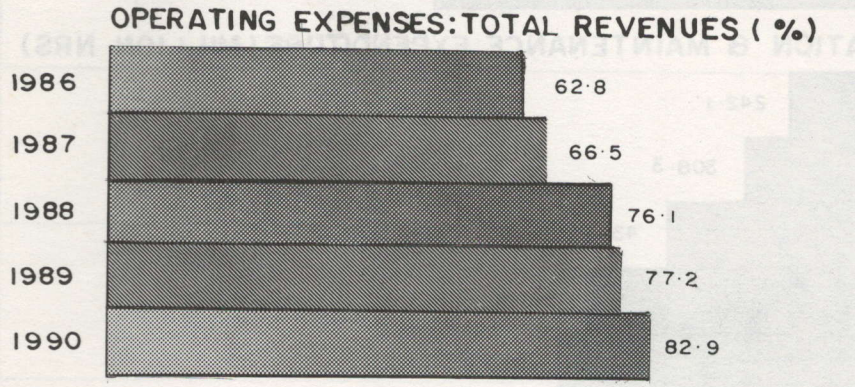
INTEGRATED NEPAL POWER SYSTEM
LOAD FORECAST

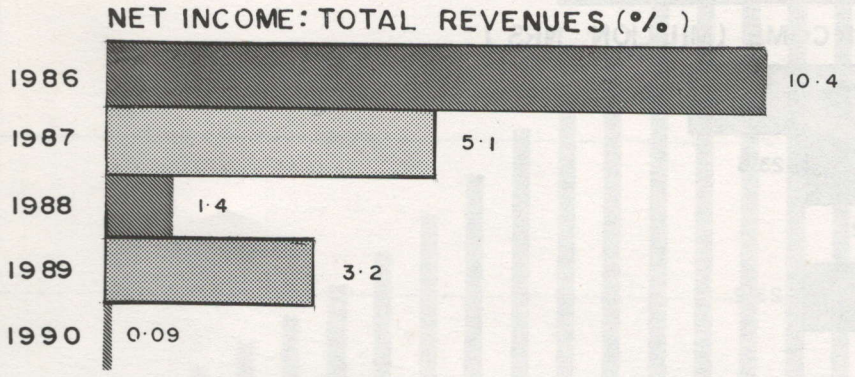


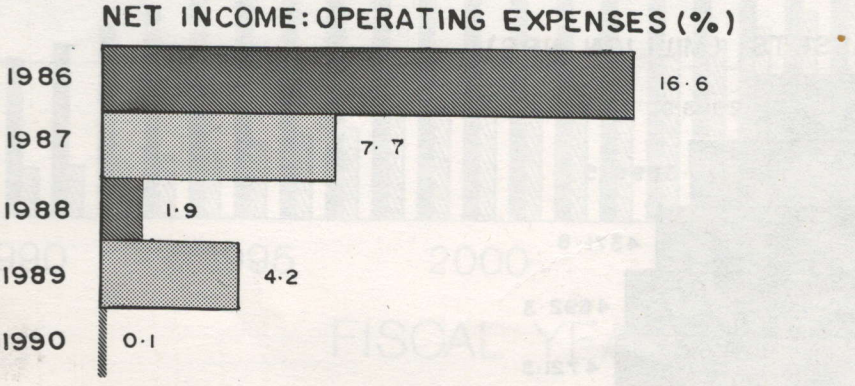


Note: For the fiscal year ending JULY 15,









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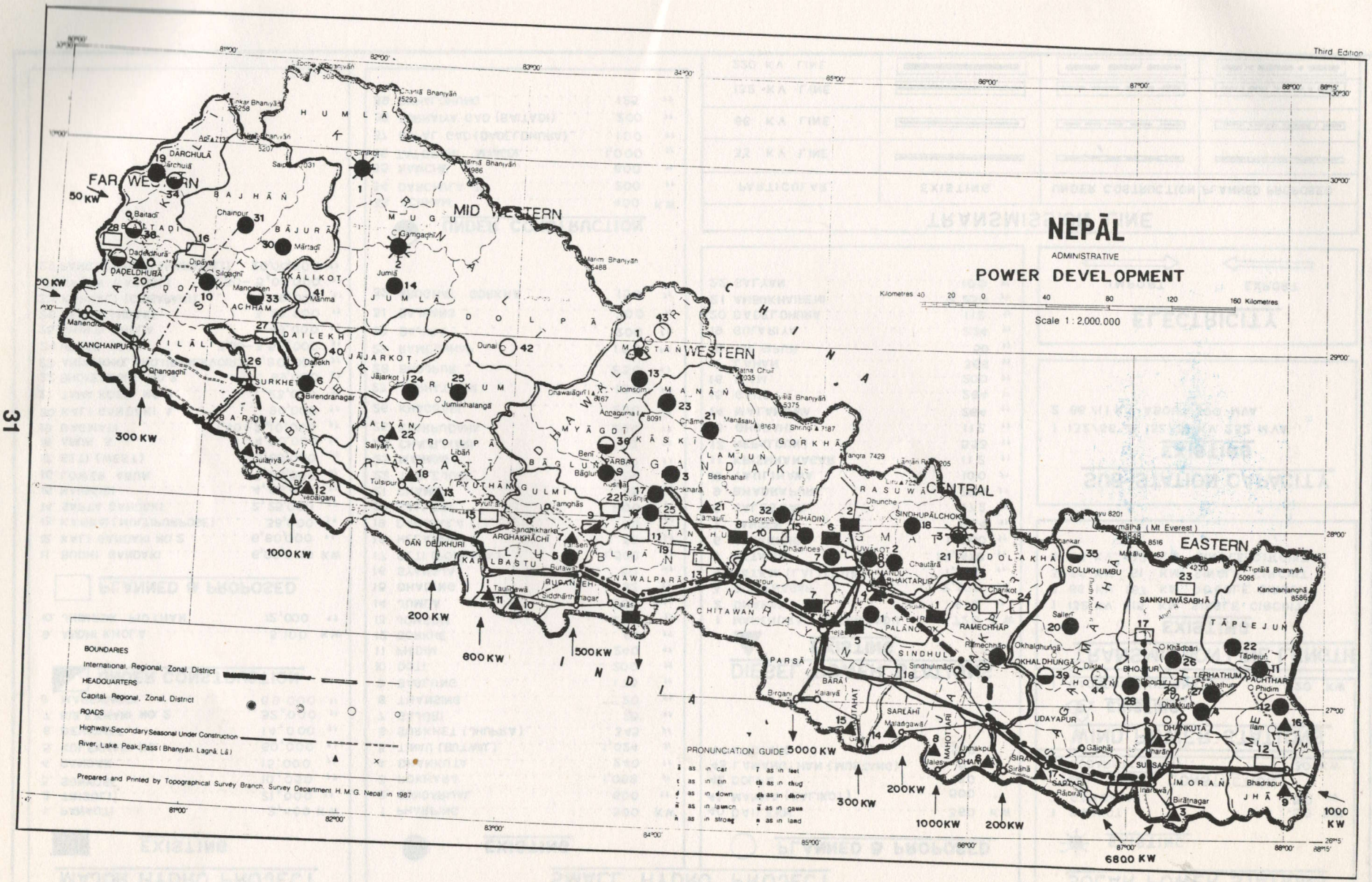
NEPĀL
ADMINISTRATIVE
POWER DEVELOPMENT
Scale 1 : 2,000,000
Third Edition
FAR WESTERN
MID WESTERN
WESTERN
CENTRAL
EASTERN
CHINA
INDIA
50 KW
300 KW
1000KW
200 KW
800 KW
500KW
5000 KW
300 KW
1000KW
200KW
6800 KW
1000 KW
BOUNDARIES
International, Regional, Zonal, District
HEADQUARTERS
Capital, Regional, Zonal, District
ROADS
Highway, Secondary, Seasonal, Under Construction
River, Lake, Peak, Pass (Bhanyān, Lagnā, Lā)
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PRONUNCIATION GUIDE

MAJOR HYDRO PROJECT

EXISTING

1.	PANAUTI	2,400 KW
2.	TRISULI	21,000 ,,
3.	SUNKOSI	10,050 ,,
4.	GANDAK	15,000 ,,
5.	KULEKHANI NO. I	60,000 ,,
6.	DEVIGHAT	14,000 ,,
7.	KULEKHANI NO. 2	32,000 ,,
8	MARSYANGDI	69 000 ,,

UNDER CONSTRUCTION

9.	ANDHI KHOLA	5,100 KW
10.	JHIMRUK PIUTHAN	12,000 ,,

PLANNED & PROPOSED

11.	BUDHI GANDAKI	6,00,000 KW
12.	KALI GANDAKI NO. 2	6,60,000 ,,
13.	KANKAI (MULTIPURPOSE)	38,000 ,,
14.	SAPTA GANDAKI	2,25,000 ,,
15.	NAUMURI	4,66,000 ,,
16.	LOWER ARUN	3,00,000 ,,
17.	SETI (WEST)	3,60,000 ,,
18	ARUN 3	4,00,000 ,,
19	BAGMATI	1,40-2,10,000 ,,
20	KALI GANDAKI A	90,000 ,,
21	TAMA KOSHI NO.3	1,23,000 ,,
22	BHOTE KOSHI NO.2	69,000 ,,
23	ANDHI KHOLA NO.I (RESERVOIR)	1,80,000 ,,
24	UPPER ARUN	3,00-3,50,000 ,,
25	KHIMTI KHOLA	49,000 ,,
26	SETI GANDAKI	3,20,000 ,,
27	KARNALI (CHISAPANI)	36,00,000 ,,
28	UPPER KARNALI	2,30- 5,00,000 ,,
29	PANCHESHWAR (MAHAKALI)	20,00,000 ,,

SMALL HYDRO PROJECT

EXISTING

1	PHARPING	500 KW
2	SUNDARIJAL	600 ,,
3	POKHARA	1,088 ,,
4	DHANKUTA	240 ,,
5	TINAU (BUTWAL)	1,024 ,,
6	SURKHET (JHUPRA)	345 ,,
7	GAJURI	25 ,,
8	THANSING	20 ,,
9	BAGLUNG	175 ,,
10	DOTI	200 ,,
11	PHIDIM	240 ,,
12	GORKHE	64 ,,
13	JOMSOM	240 ,,
14	JUMLA	200 ,,
15	DHADING	32 ,,
16	SYANGJA	80 ,,
17	SETI (POKHARA)	1,500 ,,
18	HELAMBU	50 ,,
19	DARCHULA (I)	50 ,,
20	SALLERI	200 ,,
21	CHAME	45 ,,
22	TAPLEJUNG	125 ,,
23	MANANG	80 ,,
24	CHAURJHARI	150 ,,
25	SYARPUDAHA	200 ,,
26	KHADBARI	250 ,,
27	TERHATHUM	100 ,,
28	BHOJPUR	250 ,,
29	RAMECHHAP	150 ,,
30	BAJURA	200 ,,
31	BAJHANG	200 ,,
32	ARUGHAT GORKHA	150 ,,

UNDER CONSTRUCTION

33	ACHHAM	400 K.W.
34	DARCHULA II	200 ,,
35	NAMCHE	600 ,,
36	TATOPANI MYAGDI	1,000 ,,
37	RUPAL GAD (DADELDHURA)	100 ,,
38	SURNAIYA GAD (BAITADI)	200 ,,
39	OKHALDHUNG	125 ,,

PLANNED & PROPOSED

40	DAILEKH	360 KW
41	MANMA (KALIKOT)	500 ,,
42	DOLPA	160 ,,
43	LAMANGTHAN (MUSTANG)	65 ,,
44	KHOTANG	500

DIESEL POWER STATIONS

EXISTING

1	MAHENDRA KATHMANDU	1,728 KW
2	DHARAN	618 ,,
3	BIRATNAGAR	2,528 ,,
4	PATAN (LALITPUR)	1,490 ,,
5	HETAUDA	14,470 ,,
6	JANAKPUR	1,360 ,,
7	TANSEN	224 ,,
8	JALESWAR	172 ,,
9	BHADRAPUR	1,384 ,,
10	TAULIHAWA	100 ,,
11	KRISHNANAGAR	112 ,,
12	NEPALGUNJ	553 ,,
13	GHORAHI	112 ,,
14	MALANGWA	264 ,,
15	GAUR	264 ,,
16	ILAM	200 ,,
17	LAHAN	368 ,,
18	TULSIPUR	50 ,,
19	GULARIYA	224 ,,
20	DADELDHURA	112 ,,
21	AMBUKHAIRENI	2 250 ,,
22	SALYAN	100 ,,

SOLAR POWER STATIONS

EXISTING

1	SIMIKOT	50 KW
2	GAMGADHI	50 ,,

UNDER CONSTRCTION

3	KODARI TATOPANT	30 KW.

WIND POWER STATIONS

EXISTING

1	KAGBENI (MUSTANG)	20 KW

TRANSMISSION LINE LENGTH

EXISTING

1. 132 KV. 815 KM. SINGLE CIRCUIT
2. 66 KV. 167 KM DOUBLE CIRCUIT
3. 66 KV. 61 KM SINGLE CIRCUIT
4. 33 KV. 612 KM SINGLE CIRCUIT

SUB-STATION CAPACITY

EXISTING

1. 132/66 & 132/33 KV. 232 MVA
2. 66/11 KV ABOUT 300 MVA.

ELECTRICITY

IMPORT ⟶ EXPORT ⟵

TRANSMISSION LINE

PARTICULAR.	EXISTING	UNDER COSTRUCTION	PLANNED PROPOSED
33 .KV LINE			
66 KV LINE			
132 KV LINE			
220 KV LINE			

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