

**Medium Term Expenditure Framework
(2002/3-2004/5)
Electricity Sector**

Nepal Development Forum-2002

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MEDIUM TERM EXPENDITURE FRAMEWORK (FY 2002/03 – FY 2004/05)

ELECTRICITY SECTOR

EXECUTIVE SUMMARY

1. Nepal has been endowed with enormous potential for hydropower development but only 383 MW has been harnessed to date and only 18% of the population has access to electricity of which only 5% is attributed to the rural areas. Contribution of the electricity to the national GDP is less than 2% at current price but it takes up 15% to 20% of the development budget of the government every year. There are many reasons for such low level of hydropower development in the country, the main ones being the lack of capital and the high cost of electricity.

2. His Majesty's Government of Nepal had initiated policy reform in the electricity sector in 1992 when the Hydropower Development Policy, 1992 was adopted and consequently, the Electricity Act, 1992 and subsequent Regulations were promulgated. Such Policies, Acts and Regulations have made provisions to actively involve the private sector in the development of electricity sector and removed tariff fixation from the purview of the government and established an Electricity Tariff Fixation Commission for that purpose. Gaining from the experience of the past nine years, the government has recently adopted the Hydropower Development Policy, 2001 to make the hydropower development simple, clear, investment friendly and transparent. Responsibilities of various organizations in the electricity sector are specified and specific policies and actions are now enunciated for the development of rural electrification. The Electricity Act, 1992 and subsequent Regulations are now need to be harmonized in line with the new Hydropower Development Policy, 2001.

3. The sectoral goal of the electricity sector is

'Significant improvement in the living condition of the people in a sustainable manner by expansion of clean energy through prudent utilization of available water resources.'

4. The sectoral targets for the electricity sector are fixed for both the long term (15 years) and the short term (5 years), i.e., the Tenth Plan period (2002-2007). These are achievable targets fixed in consideration of availability of finance from the government in this sector. These are as follows:

Subject	15-year Target	Tenth Plan Target
Installed Hydroelectricity Capacity	2,230 MW	820 MW
Population Coverage of Electricity Services	38%	25%

5. In order to achieve the sectoral targets, various programs/projects are taken up in many fronts, e.g., power generation, power system reinforcement and transmission, power distribution and rural electrification, survey and studies & miscellaneous. Almost all these

activities are run by the Nepal Electricity Authority (NEA), a government-owned public utility while the government takes up some of the studies, mostly related to the policy matters and for multipurpose and bi-national projects. In total there are 52 programs/projects. Development budgets for the three fiscal year period (2002/03 – 2004/05) of the Medium Term Expenditure Framework (MTEF) have been estimated and the results are tabulated below. In addition, the NEA also invests some money from its own resources to implement these programs/projects. These are also tabulated below.

Development Budgets

(Rupees in Thousands)

Resources	FY 2002/03	FY 2003/04	FY 2004/05
Government	1,251,366	2,012,775	2,026,630
Foreign Grant	4,662,289	4,694,960	2,767,877
Foreign Loan	1,771,629	2,631,543	3,431,953
Total Foreign Aid	6,433,918	7,326,503	6,199,830
Total	7,685,284	9,339,278	8,226,460

NEA	1,118,615	2,307,149	2,297,729
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6. Some regular budget also is required in the electricity sector to run the government organizations. They are the Department of Electricity Development, the Electricity Tariff Fixation Commission and the Water and Energy Commission Secretariat. The budget for the Water and Energy Commission Secretariat use to be covered by the development budget head till now, but it being a permanent organization of the government, it is recommended that the regular budget head should cover that cost and the table below takes that into account.

Regular Budgets

(Rupees in Thousands)

FY 2002/03	FY 2003/04	FY 2004/05
28,939	32,511	33,211

7. A comparison of the development budget ceiling in the electricity sector for the fiscal year 2002/03 shows that the total proposed budget is within the total ceiling but some adjustment needs to be made between the government source and the foreign source in order to carry out one particular priority project named 'Other Rural Electrification'. For this project about Rs. 515 million needs to be sourced from foreign fund available to the government (like debt relief fund, etc.). Comparison of the budget ceiling with the budget proposal for FY 2002/03 is tabulated below.

Comparison of Proposed Budget with the Budget Ceiling

(Rupees in Thousands)

Budget Source	Budget Ceiling	Proposed Budget
Government	736,625	1,251,366
Foreign Grant	4,491,566	4,662,289
Foreign Loan	2,457,000	1,771,629
Total Foreign Aid	6,948,566	6,433,918
Total Source	7,685,191	7,685,284

8. As the power generation situation is now satisfactory and the private sector also is now involved in this field and the transmission system is capable to cover 32% of the population, the power distribution and electrification has to go more towards the rural areas now. The Interim Poverty Reduction Strategy related to the electricity sector also highlights the expansion of rural electrification for poverty reduction. Accordingly, the budget allocation in the electricity sector for the coming years has been prioritized. The trend of the budgetary allocation shows such prioritization, which is tabulated below.

Trend of Budgetary Allocation

(In Percentage)

Items	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05
Power Generation excluding Small Hydropower Generation	65.56	54.56	43.71	30.80
Power System Reinforcement & Transmission	7.78	13.03	14.13	21.22
Power Distribution and Rural Electrification including Small Hydropower Generation	21.34	25.83	33.39	37.69
Studies and Miscellaneous	5.32	6.58	8.77	10.29
Total	100.00	100.00	100.00	100.00

9. At the end of the MTEF period, the installed generating capacity will reach 732 MW, the transmission lines length will reach 2,127 km and the substation capacity will reach 1,221 MVA. The private sector will own and operate 192 MW of hydropower out of the 732 MW installed capacity. The number of household consumers will reach 1,182,000, thereby providing electricity services to 23% of the population. These targets are on line to achieve the overall targets of the Tenth Plan as stated in paragraph 4.

MEDIUM TERM EXPENDITURE FRAMEWORK (FY 2002/03 - FY 2004/05)

ELECTRICITY SECTOR

1. BACKGROUND/INTRODUCTION

Background

1.1 The Himalayan Kingdom of Nepal has been endowed with enormous potential for hydropower development. The theoretical potential has been identified in the order of 83,000 MW whereas 43,000 MW has been considered as techno-economically viable. Unfortunately, only 0.46 percent of the total potential i.e., 383 MW has been harnessed to date. In the similar manner, contribution of electricity to the total national energy consumption is about 1.4% only. Even among commercial energy (coal, petroleum and electricity) it contributes only 10%. Approximately, only 18% of the population have access to electricity of which only 5% is attributed to the rural areas. Per capita consumption of electricity is as low as 55 kWh per annum. Contribution of electricity to the Gross Domestic Product (GDP) of the nation is less than 2% at current price. Even though these achievements are not noteworthy the electricity sector has been taking up 15 to 20% of the development budget of the government every year due to its capital-intensive nature, particularly in hydroelectricity generation.

Key Issues and Challenges

1.2 Development of hydropower is a very complex task as it faces many challenges and obstacles in every project cycle. Some of the attributes towards the low level of hydropower development are: lack of capital, high cost of technology, stringent covenants associated with foreign aid package, political instability, low load factor, low affordability of the general consumers, high cost of electricity and high technical & non-technical losses.

Policy Reforms

1.3 His Majesty's Government of Nepal had formulated the Hydropower Development Policy, 1992 (which is now replaced by the new Hydropower Development Policy, 2001), the Irrigation Policy, 1992, the Water Resources Act, 1992, the Electricity Act, 1992 and subsequent Regulations for the overall utilisation, conservation, management and development of water resources. Such Policies, Acts and Regulations have made provisions to actively involve the private sector including people's participation for proper utilisation, conservation, management and development of water resources in a holistic approach. The specific policy relating to the hydropower development is as follows.

Hydropower Development Policy, 2001

1.4 In 1992, the government had formulated Hydropower Development Policy, 1992 for the development and utilisation of its abundant water resources for hydropower generation with private sector participation also. Licensing procedure for the generation, transmission

and distribution of hydropower above 1 MW was established. Concept of royalty payment was established in hydropower generation. Electricity tariff fixation for the consumers was removed from the purview of the government and an Electricity Tariff Fixation Commission was established for that purpose. Out of 383 MW installed so far, 114 MW is now being produced by the private sector. Load shedding of the past few years has become a history. Gaining from the experience of hydropower development for the past nine years, it was felt necessary to replace this policy. Hence, the government has recently adopted the new Hydropower Development Policy, 2001 to make the hydropower development simple, clear, investment friendly and transparent. Responsibilities of various organisations in the electricity sector are clarified. Specific policies and actions are now enunciated for the development of rural electrification. The basic objectives of the Hydropower Development Policy, 2001 are as follows:

- To generate electricity at low cost by utilising the available water resources of the country.
- To extend reliable and qualitative electricity services all over the country at a reasonable price.
- To tie-up electrification with economic activities.
- To support development of rural economy by extending rural electrification.
- To develop hydropower as an exportable commodity.

2. MTEF APPROACH OF PRIORITISATION

2.1 This paper aims at formulating and prioritising plans and programs to meet the sectoral strategy, objectives, vision and goals guided by national objectives and goals, confined within the given budget ceiling. The strategies recommended regarding hydropower development by the Water Resources Strategy recently approved by the government in January, 2002 have greatly been taken into consideration. Aspirations of the Tenth Plan (2002-2007) have also been taken into account. Recent concept of the Medium Term Expenditure Framework (MTEF) has been adopted while conceiving plans/programs and in allocating budget. The MTEF period covers coming three fiscal years from 2002/03 to 2004/05. The MTEF aims to integrate policy making with economic planning and budgeting in the context of a multiyear cycle, and ensures that expenditure programs are driven by strategic priorities and disciplined by hard budget constraints. This framework helps the government to manage the tension between demands for expenditure from various sectors and the resources likely to be forthcoming realistically from both domestic and external sources. Linking policy making, planning and budgeting through the MTEF is believed to enhance the probability that the allocation of public funds will achieve strategic objectives and targets in an efficient and effective manner.

3. SECTOR STRATEGY

3.1 As sectoral goals, strategy and targets are the follow up of the national goals and strategy, a few words about these national goals, target and strategy are stated below.

National Goal

3.2 At present, the government is at the stage of finalising the Tenth Plan that will cover the period from July 2002 to June 2007. Recognising the fact that the reduction of poverty is the biggest challenge faced by the nation, the national goal adopted in the proposed Plan is as follows:

‘Poverty reduction by expanding the economic opportunities and employment generation through proper utilisation of available resources and means with improvement in the economic, human and social indicators’

National Target

3.3 In line with the national goal the target fixed in the proposed Plan is to reduce the poverty level to 30% by the end of the Plan period.

National Strategy

3.4 In order to meet this national target, the overall strategy of the proposed Plan will be focussed mainly on the followings:

- (a) High, Sustainable and All-Encompassing Economic Growth***
- (b) Social Sector and Infrastructure Development***
- (c) Directed and Empowerment Programs***
- (d) Good Governance***

Interim Poverty Reduction Strategy

3.5 Meanwhile, the approach to poverty reduction has been clearly set out in the document titled Interim Poverty Reduction Strategy recently prepared by the government. Relating to the electricity sector, it has focussed mainly on two aspects as follows:

- (a) Provision of electricity supply to rural areas to enhance their physical environment facilities for education and productivity.***
- (b) Encouragement to private sector for development of hydropower.***

3.6 Keeping in line with the national goal, target and strategy as enunciated in the proposed plan document and the Interim Poverty Reduction Strategy, the following sectoral goal, vision, targets, objectives and strategies have been fixed in the proposed plan for the electricity sector.

Sectoral Goal

3.7 The sectoral goal is as follows:

‘Significant improvement in the living condition of the people in a sustainable manner by expansion of clean energy supply through prudent utilisation of available water resources’

Long Term Sectoral Vision

3.8 To achieve the above goal, the long-term visions are as follows:

- Balanced development of storage and run-of-river hydroelectric projects will be made to make electricity supply reliable.
- Low-cost small and medium size hydroelectric projects will be implemented to provide electricity for meeting local demand at affordable cost.
- A policy will be adopted to implement small and micro-hydroelectric projects in priority basis at local levels through the participation of local public and non-government organisations.
- Rural electrification program will be made more effective.
- Extensive promotional activities will be made to attract private sector investment in electricity development. Necessary amendment and improvement will be made in the existing legal framework also to create conducive atmosphere for private sector investors.
- Policy-level and institutional-level arrangements will be made to provide facilities and incentives to private sector investors without any administrative complication and bottleneck.
- A policy will be adopted to associate local investors with foreign investors. For this purpose, favourable climate will be created for investment in electricity development from local capital market.
- Involvement of private sector in electricity development will be made competitive and transparent.
- Private sector investment will be promoted in hydropower generation and electricity distribution projects.
- Demand side management will be promoted through tariff restructuring in order to increase the load factor.
- Institutional and infrastructure improvement will be made for exporting electricity effectively.
- Energy intensive industries and transportation will be developed for sustainable development of hydropower.
- Monopoly nature of electricity market in the country will be converted to an open market.
- Nepal Electricity Authority will be corporatised.

Long Term Sectoral Targets

3.9 Long Term (15 years) sectoral targets are as follows:

- Hydroelectric projects with total capacity of 2,230 MW will be implemented including 400 MW for export.
- Electricity services will be provided to 38% of the population.
- Per capita electricity consumption will be increased.

Key Reforms to be Undertaken

3.10 In light of the Hydropower Development Policy, 1992 HMG/N had enacted the Electricity Act, 1992 which emphasises the development, management, and operation of hydropower projects in a sustainable manner. Private sector has been considered as an important development partner. This Act now needs to be harmonised in line with the newly adopted Hydropower Development Policy, 2001.

3.11 As a follow up of the Electricity Act, 1992 the government had promulgated the Electricity Regulations, 1993, which along with other provisions elaborates the procedures for obtaining licenses for survey, generation, transmission and distribution of electricity. These Regulations also now need to be harmonised in line with the new Electricity Act and Policy.

3.12 The government has enacted and executed the Water Resources Act, 1992 for the beneficial use of water resources, as it was felt necessary to make legal arrangement for the rational utilisation, conservation, management and development of water resources. This Act also needs to be amended as per the new Hydropower Development Policy, 2001.

Public Expenditure Review Commission Report, 2001

3.13 Public Expenditure Review Commission constituted by the government has published a report in 2001 that recommends a long list of implementary actions to be taken up by the government within certain time frame. The specific actions that are related to the electricity sector to be taken up within 3-years period is:

‘To clarify electricity royalty and specify the sector for its use.’

3.14 Actions taken as per the recommendation are as follows:

- The type and amount of electricity royalty is already clarified in the Electricity Act, 1992.
- In accordance with the Local Self-Governance Act, 1998 and the Local Self-Governance Regulations, 1999; the District Development Committees of the districts affected by the construction of dams, reservoirs and powerhouses required for power generation, are being provided ten percent (10%) of the royalty received by the government for spending in the development activities of those districts.
- In accordance with the Hydropower Development Policy, 2001, the Village Development Committees directly affected by the structures of a hydropower project, will be provided one percent (1%) of the royalty received by the government from such project for the sole purpose of rural electrification in those Village Development Committees. So as to implement this policy, suitable amendments to the Local Self-Governance Act and Regulations are needed.
- In accordance with the Hydropower Development Policy, 2001, a ‘Rural Electrification Fund’ will be established utilising some portion of the royalty received by the government for micro-hydropower development and rural electrification programs.

Tenth Plan (2002/03 – 2007/2008)

3.15 Based on the long-term vision and to achieve the long-term targets; the objectives, targets and strategies for the electricity sector in the Tenth Plan (2002/03 – 2007/2008) have been fixed. These are described as hereunder.

Plan Objectives

3.16 In the proposed Plan period electricity will be developed to achieve the following objectives:

- To generate electricity at low cost by utilising the available water resources of the country.
- To extend reliable and qualitative electricity services all over the country at a reasonable price.
- To tie-up electrification with economic activities.
- To support development of rural economy by extending rural electrification.
- To develop hydropower as an exportable commodity.

Plan Targets

3.17 In the proposed Plan period following targets are fixed:

- Installed capacity of hydroelectric projects in the National Electricity Grid will be increased to 820 MW from the present capacity of 383 MW including 70 MW for export.
- Electricity services will be provided to 25% of the population from the present coverage of 18%.
- Per capita electricity consumption will be increased to 88 kWh from the present value of 55 kWh.

Plan Strategies

3.18 In order to meet the proposed Plan objectives and to achieve the Plan targets, following strategies will be adopted:

- Recognising the fact that the development of electricity is an infrastructure that is directly related to the development of agriculture and industry; electricity services will be made available to rural economy from the viewpoint of social equity.
- Considering the possibility of export along with the domestic consumption of electricity, investment-friendly, clear, simple and transparent procedures will be adopted to increase the participation of private sector in electricity development.
- Small, medium, large and storage hydroelectric projects will be implemented by harnessing the water resources of the country towards fulfilling national interest, environment conservation and maximum benefit.
- For the promotion of electricity sector, hydroelectric projects will be implemented by attracting investment from private sector and joint venture of private and public sector and even by public sector as required.

- In order to achieve maximum benefit from the use of water resources of the county, river basin planning will be made the basis for the development and management of some special rivers.
- As hydroelectric development in Nepal will help not only the national economy but also the regional economy and considering the hydroelectric potential of the country and demand for electric energy in the neighbouring countries, a strategy will be adopted to develop hydroelectricity with bilateral/regional co-operation.
- In order to develop water resources in an integrated manner, hydroelectric development and management will be made comprehensive emphasising on development of national economy.
- Risks arising in hydroelectric projects will be minimised by joint effort of the government and the private sector. Those risks that cannot be eliminated will be borne by either the government or the private sector that can afford to bear it at lesser cost.
- Transmission Interconnections with the Indian Power Grid will be made.
- Nepal Electricity Authority will be commercialised.

Specific Policies and Actions for Rural Electrification

3.19 Recognising the importance of rural electrification in the Interim Poverty Reduction Strategy, the government has adopted some specific policies and actions for the development of rural electrification based on the sectoral vision, objectives, targets and strategies enunciated above. These specific policies and actions are presented below.

Specific Policies

- In remote areas, electrification programs will be encouraged by implementing small and micro-hydroelectric projects at local level.
- Rural electrification program will be expanded to provide electricity services to maximum number of people. A 'Rural Electrification Fund' will be established in addition to steering people's participation for this purpose.
- Use of electricity available during the lean demand period will be encouraged in rural water supply, irrigation, industry and tourism sector.

Specific Actions

- The government will gradually expand the rural electrification program. A suitable institutional arrangement will be made for this purpose.
- Reasonable provision will also be made to include rural electrification while granting electricity distribution licenses.
- Electrification will be encouraged in the rural areas directly affected by the electricity generation projects. Energy royalty will be exempted on electric energy consumed in such areas. Such exemption will be allowed for the first fifteen (15) years from the date of commercial operation of the projects.
- One (1) percent of the royalty received by the government from hydroelectric projects will be provided to those Village Development Committees that are directly affected by the structures of such projects. This amount shall only be utilised for rural electrification in the project area.

- A ‘Rural Electrification Fund’ will be established for micro-hydropower development and rural electrification program by apportioning some of the royalty amount.
- The government will provide subsidy through Alternate Energy Promotion Centre for electricity generation and distribution by the construction of micro-hydroelectric stations of up to 100 kW at rural level by domestic private sector. In addition, facilities will be provided to such stations under the priority loan sector.
- Electricity will be supplied to hilly rural areas away from the reach of the National Electricity Grid through small and micro-hydroelectric projects. Operation and maintenance of such projects will be given to local co-operatives and such co-operatives will be associated right from the project planning and implementation stage.

Rationale for Sectoral Targets

3.20 As have been stated above the 15-year sectoral target is 38% and 5-year sectoral target is 25% of the population to be covered by the electricity services. Considering that the present transmission system is capable of covering 32% of the population with electricity services if adequate distribution system is in place, one may be tempted to fix higher targets for population coverage, say 50% in 15-year period and 30% in 5-year period. Interim Poverty Reduction Strategy also calls for expanding rural electrification appreciably and the government has adopted specific policies and actions for rural electrification. But before attempting to fix such ambitious targets one should look at its financial implications also.

3.21 Almost all of the urban areas have been now covered by electricity services and any future expansion will be mostly in rural areas. Electrification in these rural areas is not financially viable with some exceptions. Therefore, the Nepal Electricity Authority (NEA) being a commercial organisation is very reluctant to move in that field unless full financial support from the government is available. Recognising this fact the government has been providing 100% finance to the NEA for rural electrification programs and small hydropower development through its own resources. And this sum is not small. For example, in the 3-year MTEF period the government will need to provide about Rs. 3,622 million for power distribution, rural electrification and small hydropower generation in order to meet the target of population coverage of 25% in 5-year period as set above. Apart from it foreign aid of about Rs. 4,582 million also will be required. The NEA also will be contributing its share of about Rs. 1,746 million mostly as a part of the matching fund for foreign aided projects. The NEA also operates and maintains these projects after completion from its own resources. It shows the enormity of the problem. If more ambitious targets are to be fixed for population coverage then adequate amount also needs to be arranged. Considering the government’s thrust towards those programs that directly help in poverty reduction and social sectors, it does not seem that the government will be able to provide more funds towards power distribution and rural electrification. Therefore, achievable targets have been fixed for population coverage in 15-year and 5-year periods considering the availability of finance aspect in the Water Resources Strategy recently adopted by the government.

4. KEY PROGRAMS AND ACTIVITIES WITH BUDGETS

4.1 Most of the programs and activities are run by the Nepal Electricity Authority (NEA) a wholly government owned utility. The government provides the budgetary support to the

NEA from its own resources and through foreign aid (grants and loans). Apart from it the NEA also invests its own resources to run these programs and activities. The government also runs some programs and activities but they are only study projects. In addition the government has recurrent expenditure for its organisational set-up in the electricity sector. The NEA run projects and the government run organisations and projects are presented below separately with their proposed budgets for the coming three fiscal years.

NEA Projects

4.2 So as to meet the sectoral targets, 41 projects are considered, which are categorised in 5 headings (power generation, power system reinforcement and transmission, power distribution and electrification, survey and studies & miscellaneous) as depicted in Annex-I. The projects are presented in serial as per the diminishing priority from top to bottom in each category. Total government budget proposed to implement the above mentioned projects for the fiscal year 2002/2003 is Rs. 7,275 million (Rs. 1,143 million from the government resources and Rs. 6,132 million from the foreign aid). Apart from this NEA will invest Rs. 1,119 million from its own resources for implementation of these projects.

4.3 Of the Rs. 7,275 million about 27% of the budget has been allocated for power distribution, rural electrification and small hydropower construction keeping in line with the focus given to rural electrification in the Interim Poverty Reduction Strategy. If the government resources only are considered this contribution goes as high as 72%. These schemes will be implemented in all 75 districts of the country. Power generation (excluding small hydropower construction) still eats up the largest amount (about 58%) of the budget due to the on-going construction of the Middle Marsyangdi Hydropower Project (it alone takes up 50%) though the Kali Gandaki Hydropower Project (144 MW) will start generating power in this fiscal year 2001/2002 but full completion of the project will be in the next fiscal year. Rest of the budget goes to the reinforcement and extension of the power transmission system and some studies and miscellaneous items.

4.4 For the subsequent two fiscal years 2003/04 and 2004/05 the estimated government budgets are Rs. 8,836 million (Rs. 1,891 million from the government resources and Rs. 6,945 million from the foreign aid) and Rs. 7,760 million (Rs. 1,918 million from the government resources and Rs. 5,842 million from the foreign aid) respectively. In these years the NEA will be investing Rs. 2,307 million and Rs. 2,298 million respectively. The share of power distribution, rural electrification and small hydropower construction gradually increases to about 35% and 40% respectively of the estimated budget for these years. Considering the government resources only these shares will be about 73% each in every year.

4.5 Out of the 41 projects 36 projects are continuation of the on-going projects and 5 projects are new ones. The major new project taken up is the rural electrification of some districts of the Mid-Western and Far-Western Development Regions. Including the Kali Gandaki Hydropower Project, 7 projects will be completed in the next fiscal year while 3 more projects will be completed in the fiscal year 2003/04 within the MTEF period. The Middle Marsyangdi Hydropower Project (70 MW) is expected to start generating power in the fiscal year 2004/05.

Government Projects

4.6 Besides this, the governmental organisations (the Department of Electricity Development, the Electricity Tariff Fixation Commission and the Water and Energy Commission Secretariat) and the government-run projects numbering 14 budgetary items require approximately Rs. 439 million for the fiscal year 2002/2003. These study projects to be conducted by the Ministry of Water Resources, Water and Energy Commission Secretariat and Department of Electricity Development along with the expenditures for these organisations depicted in separate headings are shown in Annex-II. Four new study projects are to be taken up from the next fiscal year, the important one being the study for the restructuring of institutional setup in the electricity sector considering the importance given by the government for such restructuring. The Department of Electricity Development and the Electricity Tariff Fixation Commission are provided budget from the regular head of the government expenditure while the Water and Energy Commission Secretariat, though being a permanent body of the government since many decades is still provided budget from the development head. This anomaly needs to be corrected from the next fiscal year. For the subsequent two fiscal years of 2003/04 and 2004/05, these organisations and projects require Rs. 536 million and Rs. 500 million respectively.

Summary of Budget Proposals

4.7 Summary of development budget proposals for both the NEA and the government run projects are presented below. Expenditures for government organisations are not included here. Investments from NEA from its own resources are also stated in order to show the complete picture of investments in these projects. All foreign aid for the government projects will be foreign grant while for the NEA projects; both foreign grant and foreign loan will be required.

Development Budget for Fiscal Year 2002/03

(Rupees in Thousands)

Resources	NEA Projects	Government Projects	All Projects
Government	1,142,838	108,528	1,251,366
Foreign Aid	6,132,418	301,500	6,433,918
Total	7,275,256	410,028	7,685,284

Apart from it the NEA will invest Rs. 1,118,615,000. For the NEA projects, Rs. 4,360,789,000 will be foreign grant and the remaining Rs. 1,771,629,000 will be foreign loan.

Development Budget for Fiscal Year 2003/04

(Rupees in Thousands)

Resources	NEA Projects	Government Projects	All Projects
Government	1,890,512	122,263	2,012,775
Foreign Aid	6,945,503	381,000	7,326,503
Total	8,836,015	503,263	9,339,278

Apart from it the NEA will invest Rs. 2,307,149,000. For the NEA projects, Rs. 4,313,960,000 will be foreign grant and the remaining Rs. 2,631,543,000 will be foreign loan.

Development Budget for Fiscal Year 2004/05

(Rupees in Thousands)

Resources	NEA Projects	Government Projects	All Projects
Government	1,918,250	108,380	2,026,630
Foreign Aid	5,841,830	358,000	6,199,830
Total	7,760,080	466,380	8,226,460

Apart from it the NEA will invest Rs. 2,297,729,000. For the NEA projects, Rs. 2,409,877,000 will be foreign grant and the remaining Rs. 3,431,953,000 will be foreign loan.

4.8 Comparing the budget proposals for the next 3 fiscal years increase in the fiscal year 2003/04 is due to the increase in the requirements for power transmission, distribution and rural electrification and to some extent, due to the reason stated in paragraph 4.12. Decrease in the fiscal year 2004/05 is due to the last stage of the construction of the Middle Marsyangdi Hydropower Project. Budgets for these fiscal years will be refined at the time of the presentation of the next MTEF proposal next year.

4.9 Summary of regular budget proposal for government organisations including the Water and Energy Commission Secretariat from government resources is as follows. Development budget proposals as shown in above tables do not include the budget for this organisation as was being done in the previous years. Regular budget should cover the budgetary requirements of this organisation.

Regular Budget for 3 Fiscal Years

(Rupees in Thousands)

FY 2002/03	FY2003/04	FY2004/05
28,939	32,511	33,211

Impact of Budget Ceiling

4.10 The development budget ceiling for the fiscal year 2002/03 to the electricity sector including the alternate energy has been fixed by reducing the present fiscal year's budget allocation by 15.23%. The Alternate Energy Promotion Centre's budget allocation for the present fiscal year is Rs. 25.972 million from the government source and Rs. 186.208 million from the foreign grant aid. Their proposed budget for the next fiscal year is Rs. 25.792 million from the government source and Rs. 175.234 million from the foreign grant aid. In order to calculate the budget ceiling alone for the electricity sector for the next fiscal year the proposed foreign grant aid portion of the alternate energy sector for the next fiscal year is left untouched but their government source portion is deducted by only 10% considering the importance of the promotion of alternate energy in the country. Also, the development budget proposed for the next fiscal year for the electricity sector is compared with the budget ceiling calculated for the electricity sector. The results are as follows.

Comparison of Proposed Budget with the Budget Ceiling for FY 2002/03

(Rupees in Thousands)

Budget Source	Budget Ceiling for			Proposed Budget for Elec.
	Electricity & Alt. Energy	Alternate Energy	Electricity	
Government	760,000	23,375	736,625	1,251,366
Foreign Grant	4,666,800	175,234	4,491,566	4,662,289
Foreign Loan	2,457,000	0	2,457,000	1,771,629
Foreign Aid	7,123,800	175,234	6,948,566	6,433,918
Total Source	7,883,800	198,609	7,685,191	7,685,284

4.11 The above table shows that the total of the proposed budget is almost the same as the total budget ceiling for electricity, but there is considerable difference within the various sources of the budget. About Rs. 515 million needs to be adjusted between the government source and the foreign source. As suggested in the notes of Annex-I, this much amount needs to be sourced from foreign fund available to the government (like debt relief fund etc.) for the project named 'Other Rural Electrification' of the NEA in order to carry out this priority project.

4.12 Another issue that needs to be highlighted is that the NEA's demand for the government resource for the fiscal year 2002/03 was higher than what is shown in the above table. In consideration of the financial constraint being faced by the government in the next fiscal year due to security needs and economic slowdown, an above the board cut has been made in all the projects except for those that will be completed in the next fiscal year and the rural electrification project. In order not to have an adverse impact on the completion schedule of these projects such deducted amounts have been added in the estimated budget for the fiscal year 2003/04 in the expectation that both the security and the economic situation will return to normalcy by that period and the government will be able to provide the required amount. If not, then the completion schedules of these projects will get affected.

Recurrent Expenditures

4.13 There are no recurrent expenditures involved in the electricity sector except the regular budget requirement for government organisations. As the projects are completed their operation and maintenance is the responsibility of the NEA through its own resources.

Future Expenditures

4.14 At present, only tentative figures can be given for the future expenditures required in order to meet the Plan targets in the remaining two years of the Plan period. At this period two power generation projects – Chameliya (30 MW) and Kulekhani III (42 MW) – will be under construction at the same time in the public sector. It will definitely increase the financial needs in the electricity sector. Power system expansion, transmission, distribution and rural electrification will also have to continue, perhaps with more intensity. Therefore, roughly, Rs. 10 billion may be required in each year in the remaining two years of the Plan period.

Development Budget Allocation According to Prioritization

4.15 In the previous years, most of the budget allocation in the electricity sector used to go for power generation, with the result that not enough budgets used to be available for transmission lines, distribution lines and rural electrification. It was the consequence of the load shedding that the country used to suffer in the past. But the other resultant consequence was that transmission and distribution systems could not be expanded and strengthened properly. Now the situation in power generation front is satisfactory due to the implementation of some major generation projects both in the public and private sectors. The present transmission system is capable of providing electricity services to 32% of the population. But due to insufficiency of the distribution system the electricity services are presently available to only 18% of the population. Even out of that only 5% are covered from the rural areas. It clearly shows that towards which direction the future budget allocation in the electricity sector should be prioritized. The Interim Poverty Reduction Strategy related to the electricity sector also shows the direction towards which this sector should move forward as stated in paragraph 3.5.

4.16 It is satisfactory to note that the development budget of Rs. 7,685 million proposed for the fiscal year 2002/03 is almost the same as the budget ceiling. The proposed amount not only includes all the ongoing projects in the electricity sector but also includes some new projects, the major ones being the rural electrification in the Mid and Far Western Regions and a study for electricity sector reform. The thrust of the budget proposed and estimated for the next 3 years is more towards strengthening the power system and expanding the rural electrification while gradually reducing the allocation for power generation.

4.17 The Annex-III shows the budgetary amounts and percentage distributions of budget for each project for the present fiscal year as well as the coming 3 fiscal years. The summary of the percentage distributions is shown below.

Trend of Budgetary Allocation

(In Percentage)

Items	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05
Power Generation excluding Small Hydropower Generation	65.56	54.56	43.71	30.80
Power System Reinforcement & Transmission	7.78	13.03	14.13	21.22
Power Distribution & Rural Electrification including Small Hydropower Generation	21.34	25.83	33.39	37.69
Studies & Miscellaneous	5.32	6.58	8.77	10.29
Total	100.00	100.00	100.00	100.00

4.18 The trend of the budget allocation in the coming years is very clear from the above table. There will be more emphasis on power distribution and rural electrification followed by power system reinforcement and transmission. There will be more dependence on the private sector for power generation. Enough emphasis will be given for studies in order to have a good portfolio of generation projects as well as to adopt reform in the electricity sector suitable to the country's environment.

5. ESTIMATE OF COST

5.1 Regarding costing of the projects in hydroelectric generation, it is difficult to assign a unit cost in per MW basis because these projects are very site specific. An available head, discharge, geology and accessibility at a particular site that primarily affect the project cost cannot be duplicated at any other site. In addition, type of the project (simple run-of-river, pondage run-of-river and storage) and size of the project (small, medium and large) also influence the cost. Transmission and distribution projects' costs are also affected by particular site conditions but to a lesser degree. Amount of forest cover and major river crossings in transmission line routes affect the costing of the transmission lines appreciably. Similarly, the extent of protection devices and the instrumentation along with the number of distribution feeders to be served by it affects the substation cost appreciably. Hence, the cost of the project derived from the feasibility study or engineering design becomes the basis for proposal for funding for a particular project. Further, these costs cannot produce output on an annual basis so that annual cost allocation can be based on such output. Total output from the project comes at the end of the construction period. Cost allocation for individual years of the construction period is based on sequential series of activities of the project.

6. KEY OUTPUTS/TARGETS

6.1 By the end of the present fiscal year the hydropower generation capacity will reach 535 MW, length of transmission lines will reach 1,939 km and substation capacity will reach 901 MVA mainly due to the completion of the Kali Gandaki Hydroelectric Project. As shown in Annex-IV, 140 MW of hydropower capacity will be added to reach a total of 675 MW, 188 km of transmission lines will be completed and 320 MVA of substation capacity will be increased in the 3-year period of the MTEF. The number of household consumers will be increased by 342,000 and thereby 23% of the population will be having electricity services. These achievements are in line with the Plan targets of having 820 MW of hydropower capacity installed and electricity services to be provided to 25% of the population by 2007. It is to be noted here that the budgetary proposals for the next 3 fiscal years are not just to meet the achievements as mentioned above, but they also include the expenses required to meet the achievements in subsequent years in order to fulfil the Plan targets.

6.2 It is pertinent to stress here the involvement of the private sector in hydropower generation. Out of the 535 MW of installed hydropower capacity by the end of the present fiscal year 2001/02, the private sector owns and operates 122 MW of hydropower capacity. The private sector also operates 12 small hydropower plants totalling 2.4 MW leased from the NEA. Out of 140 MW of the capacity addition in the MTEF period, half will be added by the private sector. Within this period the Power Development Fund will be institutionalised with initial funding of US\$ 70 million from the World Bank to supplement private financing available for the development of the country's power sector to meet the domestic demand for electricity. The private sector will start the construction of about 80 MW total capacity of medium and small hydropower projects with this fund in co-financing with international and domestic lenders. In addition, it is expected that the private sector in joint venture with the NEA will start the construction of the Upper Karnali Hydroelectric Project (300 MW) to meet the domestic need for power. Similarly, the private sector is also expected to start the construction of the West Seti Hydroelectric Project (750 MW) for export purpose. These actions are in line with the focus given to private sector participation for development of hydropower in the Interim Poverty Reduction Strategy.

7. RELATION OF PROGRAMS/PROJECTS WITH OBJECTIVES

7.1 Out of 51 budgetary items proposed 3 items are related with the provision of annual expenses to permanent government agencies involved in the electricity and water resources sectors. Six projects are related with the objective of '*generating electricity by utilising the water resources of the country*' and 7 projects are related with the study of such generation projects. Out of these 7 studies projects 4 projects are of multi-purpose nature that is related with the irrigation sector also. And out of these 4 multi-purpose projects 2 projects (Saptakoshi and Pancheshwor) are also related with the objective of '*developing hydropower as an export commodity*'. There are 3 other projects also related with the same objective. Seven projects are related with the objective of '*extending reliable and qualitative electric services all over the country*'. Fifteen projects are related with the objective of '*supporting development of rural economy by extending rural electrification*'. Five projects are related with the private sector promotion in the electricity sector. Three projects are related with the strategy and planning in the water resources and energy sectors. And the last 2 projects are related with the commercialisation of the NEA. Annex-V lists these projects with their corresponding objectives.

8. BASIS FOR PRIORITIZATION OF PROGRAMS AND PROJECTS

8.1 The above-mentioned projects are the outcome of the rationalisation and prioritisation process guided by the Medium Term Expenditure Framework. The following are some of the rationales taken into account:

Stage of the Project Implementation

8.2 First priority has been given to the projects immediately being completed. Second priority has been given to the ongoing projects, which are to be completed within a few years, and least priority has been given to the projects, which are to be started shortly with some exceptions. For example, considering the priority given to the rural electrification and the reform in the electricity sector, one new project each in these areas are given high priority.

Level of Power System Coverage

8.3 Present level of transmission and distribution networks is believed to be capable of providing electricity services to more than 32 % of the people. Therefore, much emphasis has been given to utilise these networks and provide new connections to the consumers in a short span of time that will require relatively lesser amount of investment.

Meeting the Power Demand

8.4 Providing more new connections will induce more energy consumption, which ultimately requires more generation and transmission facilities. Therefore, to meet the additional demand, emphasis has also been given to the generation and transmission line projects. Moreover, it is envisaged that the private sector will greatly be involved in the generation aspect.

Export of Power

8.5 Power Exchange Agreement with India has increased the quantum of energy in the order of 150 MW. At present Nepal is importing more energy but it is envisaged that in future more energy will be available for export especially during wet season when all the spill energy can be exported. For this purpose more transmission links need to be constructed and at present three links are identified which are prioritised for implementation.

Co-ordination with Irrigation

8.6 Co-ordination has been made among electricity sector, irrigation sector and agriculture sector so as to increase agricultural productivity through shallow and deep tube well irrigation. If off-peak energy could be supplied at a cheaper price to the pumps then no doubt agricultural yield will be increased substantially. Efforts have been made so as to accomplish this objective.

Study for Portfolio of Projects

8.7 As per the prevailing legislative framework, study and construction licenses have to be provided to the developers/promoters on the first-come-first-serve basis. On the one hand this arrangement will save the public fund but on the other hand the project itself may not be the cheaper one that will definitely put pressure on the tariff set-up. Hence, if studies are carried out by the public sector and solicited for construction and operation/maintenance it may reduce the cost of electricity. Therefore, due consideration has been given for the study of projects.

Emphasis of Financing

8.8 It is well known that public sector has to tighten its belt with regards to financing projects. Therefore, emphasis from the public sector has been given to the rural electrification. Another reason for this arrangement is that as per the past experience private sector has shown interest in the electricity generation aspect. Therefore, programs have been formulated in such a way that public sector puts more emphasis on rural electrification whereas private sector will mostly be involved in generation aspect. Attempts also will be made to attract the private sector in urban electricity distribution.

Supporting Development of Rural Economy

8.9 Electricity is a basic need to human being. If it is coupled with economic activities it will definitely exert favourable effect on the socio-economic upliftment of the rural poor, which ultimately leads to the reduction of poverty. Therefore, attention has been given to supply electricity to the pumps that irrigate agricultural land, to cottage industries and small business enterprises.

Targets of the Tenth Plan

8.10 The forth coming Tenth Plan (2002-2007) is in the process of finalisation. The targets set forth by the tenth plan have greatly been incorporated while formulating this MTEF program.

Emphasis on Multi-purpose Projects

8.11 The past experience shows that one of the reasons for high cost of electricity generation is the development of hydropower projects in isolation. Therefore, emphasis has been given so as to couple irrigation with power development wherever possible. Hence, this framework has put emphasis on the study of multipurpose projects such as Bheri-Babai and Kankai Multi-purpose Projects.

9. ARRANGEMENT FOR EFFECTIVE IMLEMENTATION, MONITORING AND ACCOUNTABILITY

Loss Reduction

9.1 The generation cost of electricity is high in Nepal and on top of that the technical/non-technical loss is in the order of approximately 24%. To worsen the situation the rate of revenue collection is not as per the desired level. Accumulation of these factors has hiked the price of electricity. To tackle this situation the government has recently passed an Electricity Loss Control Act that makes an unauthorised tapping of electricity a public crime. This Act needs to be implemented effectively and impartially.

Tariff Reform

9.2 The hydrological situation of the country is such that during the high electricity demand period in dry season the river discharge is low. Therefore, so as to meet this high demand the installed capacity of the hydropower projects has to be quite high. This high installed capacity can produce more energy during the wet season. To utilise this surplus energy by inducing electricity demand the NEA is currently planning to introduce seasonal tariff with low tariff during wet season. This will also improve the system load factor.

Law and Order Situation

9.3 In the past few years the law and order situation has worsened due to the terrorist's activities. It has created a situation of fear that has decreased the pace of development. Such situation needs to be brought back to normalcy within a short period of time.

Political Instability

9.4 The democracy in Nepal is in its childhood therefore; it is not capable of utilising full level of democratic norms and values. One of the problems is frequent change of government. With every change of government thinking/perception/action also get changed and this becomes a great hurdle to the effective implementation of the programs.

Lack of Resources

9.5 There are unlimited demand and very limited resources, especially financial resources. Therefore, it is really difficult to meet all the desires and aspirations of the people. The MTEF has tried to prioritise the objectives, plans and programs. Nevertheless, these programs may get stuck and may not be completed in stipulated time due to lack of financial resources and further budget cuts.

Motivation towards Implementing the MTEF Program

9.6 Formulation of good plans and programs do not ensure the success of them until and unless they are fully supported by implementation team. It is a must to have strong motivation on the part of implementers for which they should be fully convinced with the concept of the MTEF, and then only they will heartily support and implement the program.

Acts/Regulations According to the Policy

9.7 Based upon the experiences gained in the development of hydropower sector the Hydropower Development Policy, 1992 has been replaced by the new policy in 2001. Therefore, the present Electricity Act, 1992 and the Electricity Regulations, 1993 have to be amended as soon as possible as per the new Policy in order to avoid conflicting situations between the Policy and the Act and Regulations.

Ineffectiveness of One-Window Policy

9.8 The One-Window Policy is not functioning properly as other governmental organisations do not fully recognise and accept or are even aware of the fact that the Department of Electricity Development works as a “One-Window” for the development of hydropower through the private sector. Effective measures including legal ones need to be taken in this direction and all concerned government agencies need to be made aware of this fact in order not to waste time and resources of both the governmental agencies’ and Independent Power Producers’.

Electricity Sector Reform

9.9 At present electricity is being distributed in the country by the NEA, the fully government-owned utility in almost a monopolistic situation. But the government has set a vision of converting the monopoly nature of the electricity market to an open market with many buyers and sellers of electricity who will compete with each other for their share of the market. Therefore, the present organisation of the NEA will be transformed gradually towards that direction.

10. IMPLICATION FOR DONOR ASSISTANCE AND DONOR BEHAVIOUR

10.1 It has been a long practice that whatever projects the donor’s support; they will be immediately taken up despite the fact that they may not fall into the national priority. This sort of practice might have wasted or under-utilised some of the scarce resources on the one hand and on the other hand high priority sector projects are left unattended. Therefore, so as to obtain the desired outcome, utilising the limited resources, the MTEF process has prioritised the donor-assisted programs also.

10.2 As per the prioritisation process the emphasis of the government sector has been for rural electrification as well as for expanding transmission and distribution lines whereas the private sector will be interested on power generation aspect. Therefore, it is envisaged that the donors will support by financing the rural electrification and system expansion projects through the public sector. In the similar manner, setting up of the World Bank funded Power Development Fund with the initial amount of US\$ 70 million would help support the private sector in the generation aspect. All other financiers and donors who are interested in generation aspect through the private sector can join hands in this endeavour.

10.3 The proposed budget for the fiscal year 2002/03 shows a very high percentage of foreign aid requirements (about 84%). That means the success of the proposed programs is very much dependent on the donor assistance and actions. The projects that need the foreign aid are in various stages of donor commitments. Some are already in construction/completion stage, some are just started, some are in the process of effectiveness of the aid agreements, some still wait the signing of the agreements, and for some the donors have shown the interest. There may be procedural and other difficulties on both the government and donors' side in resolving these difficulties and bringing the donors' commitment to fruition. Still, the government commits itself to resolve these difficulties in a timely manner and expects the donors to do the same so that there is no impediment in smooth implementation of the proposed programs.

11. ADDITIONAL PROGRAMS

11.1 Considering the fact the governments and the donors' stress will be more on direct poverty reduction programs and social sectors and also considering that this sector already takes up a major chunk of the development budget hence, increasing its share by affecting the other sectors may not be desirable, no additional programs have been presented in the electricity sector. Enough emphasis has been given to the rural electrification programs that impact on the poverty reduction, in the proposed budget and highlighted in many places. Major new project proposed in the budget is also for the rural electrification.

12. CONCLUSION AND RECOMMENDATION

Implication of Budget Reduction

12.1 Development of a nation that is trapped into spiral of impoverishment is a Herculean task. To worsen the situation, the government has to open its exchequer to place the law and order situation intact. In this critical situation the nation has to cut budgets provided to various development and social activities. It is obvious that there will be a great implication of budget reduction. Nevertheless, the MTEF has tried to prioritise plans and programs that could be capable of meeting the sectoral/national goals and objectives in a cost-effective manner. The MTEF has emphasised the public sector involvement in rural electrification; transmission and distribution system expansion while the private sector will mostly be involved in generation aspect. Hence, even with the reduction of budget the electricity sector will try to achieve its sectoral goals.

Key Elements of Prioritisation and Prioritised Activities

12.2 As per the guidance of MTEF the prioritisation was done. The key elements being: first priority was given to completing the on-going projects, second priority was given to rural electrification and system expansion projects, third priority was given to the study of multipurpose projects as well as to the probable study projects which can be solicited for private sector participation. Least priority was given to new projects with some exceptions. All the activities and projects are depicted in Annex-I and Annex-II.

Policy Implications dealing with Low Priority Projects

12.3 The given budget ceiling for fiscal year 2002/03 covers all the projects that are listed in Annex-I and Annex-II that includes all the ongoing projects as well as some new projects, the major one being the rural electrification in Mid and Far Western Development Regions. Because of the budget ceiling amount provided for the electricity sector the problem of curtailing any on-going, low priority project did not arise.

Suggestions and Recommendations to Effectively Implement and Institutionalise MTEF

12.4 For the successful implementation of the MTEF programs the following suggestions are made:

- Motivation towards Implementing the MTEF Program is the first and foremost requirement for the successful implementation of the programs. This can be done by convincing the planners as well as the implementers by making them aware of the MTEF concepts and the process of prioritisation.
- Reduction of technical and non-technical losses and enhancement of the capital base of NEA by maximising revenue collection.
- Introduction of seasonal tariff and capitalisation of spill energy.
- Maintaining the law and order situation intact on the part of the government.
- Maintaining political stability by avoiding frequent changes of governments.
- The scarce financial resource should be saved and utilised in a disciplined and rational manner for priority programs.
- Electricity Act, 1992 and other related legislation should be harmonised as per the new Hydropower Development Policy.
- Effectiveness of the One-Window Policy has to be enhanced.
- Institutional set up should be reformed and enhanced as per the plan along with the introduction of activities to boost up the morale of the employees.