CHAPTER ONE

INTRODUCTION

1.1 General View of Nepal

Situated in the northern hemisphere, known as land of **Mt. Everest** and the birth place of **Lord Buddha, Nepal** is a tiny landlocked country. Though Nepal occupies only 0.03% and 0.3% of total land area of world and Asia respectively, the country has an extreme topography and climate. The altitude ranges from 70 meters to 8848 meters and the climate varies from tundra to polar. The country stretches from east to west with mean length of 885 Km. and widens from north to south with mean breadth of 193 Km.

Geographically, the country is divided into three east-west ecological zones: the Northern Range - Mountain, the Mid Range - Hill and the Southern Range - Terai(flat land). In the northern range, the Himalayas form an unbroken mountain range which contains eight peaks higher than 8,000 meters, including **Mt. Everest** on the border with China. The middle range is captured by gorgeous mountains, high peaks, hills, valleys and lakes- the Kathmandu valley lies in this region. The southern range with almost 16 Km. to 32 Km. north-south, is the continuation of the Gangaitic plain of India and consist of dense forest areas, national parks, wildlife reserves and conservation areas.
At present, the country is divided into five north-south administrative development zones: Eastern Development Region, Central Development Region, Western Development Region, Mid-Western Development Region and Far-Western Development Region. The country is further divided into 75 administrative districts. Moreover the districts are further divided into smaller units, called Village Development Committees (VDCs - total 3915) and Municipalities (58). The VDCs are rural areas, whereas municipalities are urban areas of the country. Nepal turned into a federal democratic republic Wednesday 28 May, 2008 ending about 240 years old monarchial culture declaring Nepal a federal democratic republic state to be run under a presidential system.

According to the Population Census 2001, the annual growth rate of population is 2.25 percent and the total population of the country in 2008 has reached about 26.97 millions of which the proportion of male and female are almost equal.

The preliminary estimate of per capita GDP at current prices stands at NRs. 27209 (US $ 383) for the year 2006/07. The annual growth rate of GDP at producers' prices is 2.50 percent in the year 2006/07. Nearly one third of the populations (30.8 %) live below poverty line as per the Nepal Living Standards Survey 2003/04 and the Ginni Coefficient, which indicates inequality between the poor and rich is 41.4. (Nepal in Figures, 2007:2)

Most of the rivers in Nepal originate in the Himalayas Glaciers are the sources of the big rivers of Nepal. The river system has a north south direction of the Himalayas. The three major rivers of the country are the Koshi, the Gandaki and the Karnali.

Vegetation types in Nepal range from the tropical luxuriance in the south to the alpine zone in the north. Nearly 29 percentage of land area of the country is covered by forests. About 850 species of birds, 175 species of mammals, 63 species of reptiles, 20 species of amphibians and 170 species of fishes have been found in Nepal.

Human settlement is sparse in the Himalayas region due to harsh environmental conditions. The Hills region is the traditional population zone of the country. The Terai region due to its comparative advantage in transportation and agriculture resources has led to population migration from other regions.

Agriculture is one of the main important sources of national income which contributes about 40% in GDP. About 43% of total population was economically active in 2001 population census and among them 80% were engaged in agricultural activities. So the growth of GDP depends highly upon the growth in agriculture.

1.2 A Brief Introduction to Nepalese Economy

Nepalese economy has undergone many changes since 1951 when Nepal received foreign aid and assistance for the first time from USA, India and UK in its development programme after the overthrown of Rana Rule and becoming democratic country. In 1950s India and USA were the amin nations to assist Nepal. The aid amounted three thousand US dollar. Since then many projects covering agriculture, transportation, communication, education, health, electricity etc. have been undertaken under foreign assistance.

The economic structure of the Nepalese economy is of a mixed type. Even in such a system the private sector has to play a predominant role in market oriented and competitive economic activities in order to increase production through efficiency enhancement in resource use. However, the government involvement in some the specific and basic services department, pre requisites services and industries assisting in the improvement of the economic condition of the rural, poor and the downtrodden and relating to important defenses matters is still inevitable.

Nepal is facing the problem of new scientific ideas and technologies. It is becoming poorer day by day because of the uneducated resources mobilizations and steeply growing corruption almost in all the sectors and due to the one decade old conflict. This is directly hampering the economic status of the country and as a result, the country is marching towards poverty. The GDP of the country is just incomparable to other developing countries. This condition can be driven away by the amount of the increment in the profits of the organization whether the organization is profit based or non-profit based.

The structural unit of the governance of the organizations is missing in case of Nepalese institutions. The adverse effect of these strategically handicapped planning has given to greater poverty inside the country. Within the country, adaptations to new technologies are also practiced in the recent days. The Royal Nepal Academy for Science and Technology (RONAST) is engaged in preparing technology profile of industries located in ten industrial districts which revealed that some industries are still using old technologies, choice of technology has been done in haphazard manner, most industries are using Indian machinery and lack of workshops for repairing equipment and machinery has constrained smooth funning of industries.

The economic performance has markedly deteriorated in recent months, halting the acceleration of output and export growth. Growth in non-manufacturing sector is projected to decelerate and manufacturing value added is expected to contract. Other constraining factors are the decline in export demand caused by global economic slowdown and internal factors such as frequent strikes, insurgency and terrorist attacks on economic targets and power shortages i.e. load shedding of electricity. The untimely hail and other natural catastrophes also adversely affect growth in the agricultural sectors.

Beginning from fiscal year 1950/51 till year 2002/03, Nepal has received foreign aid for 50 out of 53 years. No foreign assistance followed in during 1952/53-1954/55. Sum total of the foreign aid received by Nepal during five decades amounts to US$4 billion 693 million, with loans comprising 59.9% and grants 40.6% when Nepal first foreign loan in 1963/64, loans compared 9.7% of total foreign aid. Loan, share in total aid, increased by 7.2 folds to 69.5 in 1998/99 in absolute dollar then Nepal's foreign loan increased by 151 folds between 1964 and 1999. During the same period, grants increased by only 7.1 folds. Again comparison of this to improvement in infrastructure can be made. A dismal future is waiting the future generations in Nepal citizen.

1.3 Public Enterprises:

1.3.1 Meaning of Public Enterprise (PE)

Public enterprises are generally owned and controlled by government and are usually autonomously organized with the government providing the initial capital and being responsible for a continuous overview of their activities.

According to Hanson
"Public Enterprises means state ownership and operation of industrial organization, financial & commercial undertaking."

According to Laxmi Narain,
“Public enterprises are an autonomous body, which are owned and managed by government and which provide goods or services for a price. The ownership with the government should be 51% or more to take an entity PE”.

The term ‘public enterprise’ has been defined differently by different agencies and government to suit their own respective situation. UN has defined PE as “those organization, namely governmental enterprises and public corporations, which are entirely or mainly owned and or controlled by the public authorities consisting of establishment which by virtue of their kind of activities, technology and mode of operation are classified as industries”.

Public enterprise plays a very important role in most of the developing countries. The role of public enterprises differs from country to country basically due to political philosophy of existing governments. Public enterprises come into existence either by the way of deliberate policy of the government to bring certain activities under government control by creating new institution or by nationalizing them from private sector.

In fact, public enterprises is an institution operating a service of an economic or social character, on behalf of the government, but as an independent legal entity, largely autonomous in its management, through responsible to the public, through government and parliament and subject to some direction, by the government, equipped on the other hand with independent and separate funds of its own and the legal and commercial attributer of a commercial enterprises. Public enterprises are generally owned and controlled by government and are usually autonomously organized with the government providing the initial capital and being responsible for a continuous overview of their activities.

By the above definition we can conclude public enterprises as following features:

a) Government ownership must be 51% or more.
b) Financing by the government.
c) Control, direction and management by the government.
d) Autonomous in daily functioning.
e) Legally independent entity.
f) Public accountable and service oriented.

1.3.2 Evolution of Public Enterprises

The First World War made the state realize the value of the policy of protectionism. Therefore, they started intervention in the trade and commerce. Many revolutionary changes like October revolution in Russia emergence of international labor force and Second World War etc. created an atmospheric favor of protectionism. Post Second World War period and the great depression of the thirties posed a serious challenge to many developing countries for economic development and recovery. The remedy advocated was rapid industrialization, central planning and government intervention in key areas of the economy. Moreover, it was felt that private sector lacked necessary resources to bear the new responsibility of undertaking the development task. This set the forces leading to the expansion of public enterprises in many countries.

The evolution of PEs in the world has taken place in such a way that one can hardly find any government remaining aloof from the industrial enterprises, through the degree of involvement may vary. In deed the very characteristic of the present century has been the acceptance of the role of the state involvement in the economy, no matter how loud the whole world cry for the total role played by the private sector. Even PEs does exist in a country like USA, where the strongholds of private enterprises exist. The USA makes the least use of the PEs. The USA has disbanded most of the PEs that expanded considerably mainly to meet the financial and procurement purposes (Shrestha, 1990:37).

Different factors have been remained responsible in different countries for the establishment and increasing role of PEs, which can be classified mainly as:

- Historical
- Ideological
- Pragmatic(economic)
- Incidental

Private ownership of production should be unconditionally encouraged except in instances where it is necessary to control it to stimulate national development and project the interests of people. More over the idea of keeping key and strategic investment sectors like steel, telecommunication, aircraft, nucleus etc. under the controlling hand of the state for the socio-economic development of the country had also ked to the evolution of PEs in developing country like us.

It is believed that Japan was the first to use PE systematically for promotional purpose. Soviet Union also used it properly for building up its socialist economy in those days. Indian is no exception to it. Public sector did exist in pre independence era too. But its real development process could take shape only after 1947 with the industrial policy 1948 resolution, which called for "the state to play a progressively active role in the development industries." In fact; it was the socialist orientation of the government, which led to the development of PEs in Sri Lanka owes to the second world war during which period, it was hard hit by supply position of essential commodities that the government to forcefully set up the PEs. The history of PEs in Thailand is associated with the upsurge of Thai nationalism in the 1930s. Mechanized spinning and weaving mills established in 1934, which was the first enterprise in Thailand (Shrestha, 1990:14).

Public enterprises represent the single largest economic sector in the world economy. They collectively, employ more people, command a greater asset base and swallow a grater proportion of global GDP than any single area of private sector activity. They still dominate many national economies and remain central in provision of essential services from telecom to drinking water in a majority of countries. They were at the forefront in the process of building an industrial and manufacturing base in the decade of 1950s all over of the world.

In conclusion, public enterprises play the major role in pursuing the industrialization activities in the country. But the important condition in today's age of science and technology for industrialization is the availability of infrastructure. Such infrastructures mainly consist of communication, transportation and power facilities. In a developing country like Nepal, government has to play a paramount role for building these infrastructures by the help of public enterprises.

1.3.3 Public Enterprises in Nepal

Public Enterprise is a comparative phenomenon in the history of world economy. Public enterprise plays a very important role in most of the developing countries like Nepal. Public enterprises come into existence either by the way of deliberate policy of the government of brings certain activities under strict government control by creating new institution or by nationalizing them from private sector. Public enterprises in Nepal constitute a vital instrument for the socio-economy development of the country. It enjoys a strategic and crucial position in our mixed economy. They have been established in many sectors for the overall development of the country with different goals objectives (Shrestha, 1990:26).

Establishment of new enterprises and their role in other developing countries encourage Nepal Government to adopt the path of development through the public enterprises. Especially after the drawn of democracy in 1951 the government of Nepal has put emphasis on the growth and development of national economy. For this Nepal adopted the “mixed economy model” where both the public and the private sectors were expected to work harmoniously.

Since 2013 B.S., Nepal has witnessed grow and development of PEs. Nepal Government has to play this purpose to make massive investment of create necessary infrastructure and run some of the large manufacturing industries to the people. This has necessitated creation of number of public enterprises of instruments of national development. Nepal Bank Limited, a commercial bank, was established in 1994 B.S., which is the first public enterprise to have a separate legal entity in Nepal.

Nepal started its planned economic development in 1956 (2013 B.S.) with the launching of the first five year plan. Since then the number of PE has increased substantially in the various fields of national economy.

The government adopted the principles of economic liberalization and open market policy since one and half decade ago. In line with these principles, the government took policy of divesting the function of goods and services being provided by the PEs to the private sector and started privatization process since FY 1992/93. Since then till mid-April 2008, 30 PEs have undergone different modalities of privatization, such as sale of business and assets, sale of shares, management contract, sales of assets and lease, and liquidation. (Economic Survey 2007)

The PEs in Nepal can be categorized as follows:

a) **Statutory Corporations:** These are public enterprises established under special status. NEA, NIDC, NAC are some example of the statutory corporations of Nepal.

b) **Companies:** Some PEs is established under the company act 2021 B.S. These companies are either fully owned or majority equity hold by Nepal Government and they are mostly operating in manufacturing and trading sector.

1.3.4 Types of Public Enterprises:

There are different types of public enterprises operating in their respective fields. According to functions and services given by the enterprises, they are classified into the following types (Economic Survey 2007).

1.3.4.1 Trading Public Enterprises

These are mainly concerned about the commercial aspect of goods and expansion of the goods. Agriculture Input Company Ltd., National Seed Company Ltd., National Trading Limited, Nepal Food Corporation, Nepal Oil Corporation and The Timber Corporation of Nepal Ltd. fall in this category.

1.3.4.2 Industry Public Enterprises

These enterprises mainly manufactured goods for public usage. Dairy Development Corporation (DDC), Herbs Production and Processing Company Ltd., Hetauda Cement Industries Ltd., Janakpur Cigarettee Factory Ltd., Nepal Drugs Ltd., Udayapur Cement Industries Ltd., Nepal Orind Magnesite Pvt. Ltd., are some of the enterprises of this type.

1.3.4.3 Financial Public Enterprises

These enterprises give financial aid to public. Agriculture Development Bank Ltd., Rastriya Beema Sasthan, Nepal Industrial Development Corporation Ltd., Rastriya Banijya Bank Ltd., Deposit & Credit Guarantee Corporation Ltd., Nepal Housing Development Finance Co. Ltd., Nepal Stock Exchange Ltd., and Citizen Investment Trust are some of the name of this type.

1.3.4.4 Public Utilities Public Enterprises

These types of enterprises are solely concerned of the services given to public. They have autonomous power to make their policy, yet public service remains their main objective. Nepal Drinking Water Corporation, Nepal Electricity Authority and Nepal Doorsanchar Company Ltd. fall in this category.

1.3.4.5 Development or Service Public Enterprises

For only development purpose some enterprises have been established. These work in the public sector to uplift the development condition. In this category Industrial District Management Ltd., National Construction Company of Nepal Ltd., Nepal Transit & Warehouse Company Ltd., Nepal Engineering Consultancy

Service Center Ltd., Civil Aviation Authority of Nepal, National Productivity and Economic Development Center Ltd., and Nepal Airlines Corporation come under this category.

1.3.4.6 Social Services Public Enterprises

Some of the enterprises are established to provide social service to the people. Cultural Corporation, Gorkhapatra Sansthan, Janak Education Material Center Ltd., Nepal Television and Rural Housing Company Ltd. are some example of this category.

1.3.5 Role of PEs in Nepalese Economy:

Public enterprises play the major role in pursuing the industrialization activities in the country. Nepal is one of the least developed countries of the world, which is still in its crawling stage of industrial development. More than 80% of the total populations is still in the rural areas and most of them are not yet getting minimum physical facilities that are necessary for human being. So in Nepal PEs are not matter of choice, rather they are a matter of necessity in various sector of economy where private sector has not come forward or are only in limited extent. PEs helped to increase the standard of living, regional balance of developing and they have contributed through import substitutions, export promotion and strengthening the revenue generation of the government. So the public enterprises play great role in the developing country like Nepal. PEs should be established for to mobilize enough economic funds and available resources for the rapid development of different kinds of planning. Role of PEs in Nepalese Economy can describe as following points:

a) **Import substitution:** Although PE can’t contribute in the establishment of strong export; its contribution in import substitution can’t be disagreed. Government industry has helped to minimize the import of different goods like cement, cloth, matchstick, sugar, cigarette etc

b) **Development of infrastructure:** Transportation, electricity, communication and irrigation are the main infrastructure development. There is development

c) **Generate employment opportunities:** Now these days number of educated person is increasing day by day. The government’s office has become the only one place to employ the people due to the lack of investment in public sector. So establishment of PE solve the problems of unemployment in some respect.

d) **Accelerate the pace of economic development:** Public enterprises play vital role to keep the accelerate speed of economic development in the developing country like Nepal. Private sector doesn't have interest where they can't get more income immediately. Thus, PE is very necessary in Nepalese economy. The government can mobilize the development work by producing saving from some monopoly professions.

e) **For appropriate investment pattern:** Private sector doesn't have enough economic funds in Nepal. On the other hand, some economic investment also are using in the business sector, in which immediate economic gain can be taken. It is necessary to invest all the sectors for the development of the country. The using of enough economy in necessary sector through the medium of public enterprise, the process of investment can be improved.

f) **Balance development:** Private sector invest in more profitable sector only. So that all the sectors don't have balanced development. Public sector is service wised instead of being profitable. Through the public sector, basis need and capital industries are developed. Likewise, private industries are only stabilized for comfortable and profitable sector. Thus PE helps to do balanced development in all sectors.

In conclusion, in a developing country like Nepal PE play a great role in pursuing the industrialization activities in the country. However, their performance has been a challenge both to the planners and the PE managers. The important question addressed these days is how to manage them efficiently. It is sure that Nepal needs to make fairly extensive use of PEs as a catalytic agent in the process of moving towards development oriented economy at a certain stage in development process.

1.3.6 Profitability in Public Enterprises

Profit is the primary measure of business success in any economy. If a firm can not make profit, it can not obtain or hold capital for very long. If it can not obtain capital, it can not secure and retain other resources, such as, manpower, material and machines etc. In other words the more profitable enterprises are more attractive to the holders of the equity capital. Since, these enterprises can attract capital they have money needed to buy the other resources. The key here is that capital and other resources are scarce; they are allocated to the profit makers in roughly descending order of their profit potential. The economy performs this allocation function through a relatively free and open market system.

Profit is one simple and an all embracing index, accepted and understood both by the public and private, which has a tremendous impact on the morale of enterprise itself. Because of this, profit planning is also necessary in public enterprises. It has to play their dual role i.e. one for supporting government's policies and programs and another for their own survivability and growth. For this, profit is essential for public enterprise. Profit planning plays key role for accomplishing the objectives of PEs and it provides a surface for expansion and capital addition. It is well accepted principles that public enterprises should be run on business principles and generate commercial profits, which is an accepted accounting practice whereby performance results are gauged in terms of net disposal profit after tax and costs including the provision for depreciation (Mathur, 1993:402).

PEs must be managed commercially so that they could generate profit and can survive in competition with private sector. The profit is the key for measuring efficiency of PE's in the free market economy.

1.3.7 Financial Performance of Nepalese PEs

In fact, PEs was established for rapid socio-economic development of the country. The role of public enterprises is stimulating the pace of economic growth in developing countries can hardly be understood; initially much hope and reliance were placed upon public sector organizations to speed up the process of economic development. However, country to the third world, most public enterprises, especially in the least developed countries, have displayed a level of performance, which can hardly be classed as promising. The PEs of Nepal as contributors to national economic development has been questionable as an analysis of financial performance of existing PEs show that financial positions of most PEs are far from satisfactory.

Looking at the overall financial status of the 36 PEs, 22 earned profit and 14 recorded loss in FY 2006/07. The number of loss-making PEs has come down in FY 2006/07 compared to such number of 19 in FY 2005/06. Similarly, in FY 2006/07, the operating profit of PEs increased to Rs.7.96 billion from Rs. 2.54 billion in 2005/06. This overall increase in profit is mainly attributed to Nepal Telecom and Agriculture Development Bank Ltd. (ADBL) which earned profits of Rs. 5.98 billion and Rs. 1.05 billion profits respectively in FY 2006/07. Similarly, decrease in the loss incurred by the NOC to Rs. 1.92 billion in FY 2006/07 from Rs. 3.67 billion in FY 2005/06 also contributed to this position. However, the loss incurred by the NOC is estimated to rise again to Rs. 7.18 billion in FY 2007/08 due to price rise in the petroleum products in the international market. Similarly, in FY 2007/08, the overall profit of all the PEs is estimated to be limited to Rs. 3.51 billion. The total shareholders' funds stood at Rs. 39 billion in FY 2006/07, almost same as in the last year. Out of the government's share investment of Rs. 75.80 billion in these 36 PEs, 49 percent of the capital has been eroded by FY 2006/07.

The GON collected from 7 PEs dividends amounting to Rs.1.49 billion in FY 2006/07, which is 1.96 percent of the total share investment. By the end of FY 2006/07, the net assets (including under construction) of these 36 PEs reached Rs. 110.61 billion from Rs. 99.47 billion in FY 2005/06. This increase of fixed assets of PEs was due to the fixed asset of Rs 6.50 billion and Rs. 5.50 billion increased by Nepal Electricity Authority (NEA) and Nepal Telecom respectively.

The GON's share investment in the aforementioned 36 PEs is Rs. 75.80 billion. Government received Rs. 1.49 billion as dividend from these PEs. Likewise, by the end of FY 2006/07, outstanding loan of these reached Rs. 65.14 billion. Of which, Rs. 6.31 billion is internal loan and Rs. 58.83 billion is external one (Economic Survey, 2007).

Almost PEs is not able to generate the revenue for their daily expenses and they are operated by the government subsidy. So that almost of the PEs are the burden of national resources and they dump the national budget. The return is very poor. Rather than mobilizing internal surpluses for development and expansion purposes, they have become highly dependent on budgetary allocation by government as equity loan or subsidy. They have also appeared as leaders in affecting price increase, since cost consciousness has been awfully lacking in them. Absences of professional management, interference by government and lack of control and accountability have been largely responsible for their poor performance.

1.4 Historical Background of Electricity Development in Nepal

Endowed richly by nature with immense hydropower potential Nepal has had been using thousands of Water Mills (Ghatta) for agro-processing purpose since early days. There are about 6000 big and small rivers in Nepal hurling from mighty Himalayas and High Mountain towards the plain of Terai. The enormous hydropower potential of those rapid rivers is estimated to be about 83000 Megawatt. It has been assessed that of to 42000 Megawatt can be exploited economically in the present context.

The first pioneering projects Pharping (500 KW) which was built in 1911 A.D. followed by Sundarijal (640 KW) in 1935 were is dated projects established upon the particular governmental agreements and were operated to supply domestic load to very limited areas without any significant planning giving the first taste of electricity to Nepal.

On the Terrain, some industries procured their own energy supply source and companies were formed to supply electricity to the developing industries. In 1940, with small utilities Morang Hydropower Co. was established with the capacities of around 100 kw which began the isolated operations. It was then followed by the Birgunj Electric Supply Co. and the Dharan Electric Power Co. Until the 1960's, the few established industries had to depend on their own sources of energy. The power demand increased with the slow growing of industries, the impact of population growth, the internal migration and surge of tourism.

In the first step of the institutional development within the ministry of water resources, the development of electricity was organized with the specific role to develop electricity. In the second three year plan (1962-1965) Nepal Electricity Corporation (NEC) was established on August 16, 1962 under Nepal Electricity Corporation Act, 1962 as a public enterprise to undertake marketing and development of electricity as well. NEC securely generated and distributed electricity in an efficient, economic and orderly manner in Bagmati Zone and Bhimphedi town in Makawanpur. In 1973, the small hydro development board was established to cover the specific sub sector of hydropower in the remote and rural areas. The aim was to develop hydropower within the range of 100-500 kw in isolated rural area promoting their electrification while over coming difficulties linked to electricity transmission to remote and difficult localities.

In 1976, the Water and Energy Commission (WEC) was constituted with direct dependence from the minister of water resources. This body had an advisory function toward the government in policy matters fro the coordinated development of water and energy resources. Power development boards were established to develop specific parts and project in the growing electrical system. The electricity supply system of the complete central and western development region were transferred to NEC on 12th February of 1978. Before that Bijuli Adda which was under the minister of water and power used to distribute the electricity in Kathmandu Valley. Bijuli Adda held monopoly in the matter of electricity management till 1962.

Another corporation of similar purpose emerged in the history of Nepal's PEs i.e. Eastern Electricity Corporation to bring uniformity, efficiency and regularity in the service of electricity distribution in the eastern development region.

Altogether there were agencies engaged in supplying the electricity to the consumers in the whole country as Nepal Electricity Corporation, Eastern Electricity Corporation and others like Nepal Government Electricity Department. Nepal Electricity Authority was created by Nepal Government through the NEA Act, 2041 and began its operation, supply of electricity securely, efficiently, economically and in an underlay manner at reasonable price for the overall development of country. At present, NEA has total installed capacity of 613.557 MW.

1.5 An Overview of Nepal Electricity Authority:

1.5.1 Historical Background of Nepal Electricity Authority (NEA)

NEA is the largest government enterprise in Nepal with country highest capital investment, assets and human resources. It has undertaken the overall responsibility for planning, construction, operation and generation of electricity in the nation. The history of Nepal Electricity Authority (NEA) started as follows:

Nepal Electricity Corporation (NEC) was established on Bhadra, 2019 B.S, under Electricity Corporation Act 2019 B.S. to generate and distribute electricity in secured, efficiently, economic and orderly manner in Bagmati Zone and Bhimphedi town in Makawanpur. Before 2019 B.S., Bijuli Adda, which was under the ministry of water and power used to distribute the electricity in Kathmandu vally. Bijuli Adda held monopoly power in the management of electricity till 2019 B.S. In fact, Nepal Electricity Corporation was the modified form of Bijuli Adda regarding operational areas. The responsibilities of the Nepal Electricity Corporation got increase in 1973 B.S. to supply power in Narayani zone. In 2031 B.S. Eastern Zonal Electricity Corporation was established in Biratnagar to facilitate electricity supply to the eastern part of Nepal. In 2039 B.S. however both Nepal Electricity Corporation and Eastern Zonal Corporation (EZEC) were merged into a single organization, mainly three agencies namely NEC, EZEC and other electricity department, division, committees etc.

Nepal Electricity Authority was incorporated on 7 Kartik 2041 B.S., under the Nepal Electricity Authority Act, 2041. All format divisions and committees concerning electricity production supply and distribution were (except Marshyandi Electricity Development Committee) amalgamated into Nepal Electricity Authority. Later Marshyandi Electricity Development Committee was also handed over to NEA after the completion of its construction work. NEA was established as a unified organization in Bhadra 1st 2042 B.S. The specific objectives of NEA were to make effective and economical production, transmission and distribution of electricity and to manage properly the electricity supply. NEA passed the responsibilities of planning, operating and maintaining of all facilities associated with the power sector.

In this way NEA was established as a unified organization in 2042 B.S. NEA was founded as an independent corporation owned entirely by the government and according to commercial principle.

1.5.2 Objectives for establishing NEA

Objectives for establishing Nepal Electricity Authority can be traced as follows:

a) To establish single organization that would work in all sector of electricity planning, survey, production, operation, maintenance and distribution of electricity.

b) To manage the generation, transmission and distribution in order to capability, reliability and accessibility to all people for supply.

c) To utilize and develop the huge amount of water resources of Nepal in a more coordinated way.

d) To provide equal and extensive skill development opportunities for all employees working in the field of electricity.

e) To over come the duplication of work being practiced formerly by extensive of several electricity agencies.

1.5.3 Functions and Duties of NEA

As per the Nepal Electricity Authority Act, 2041 B.S., the functions and duties of NEA are as follows:-

a) To recommend Nepal Government to determine the long term and short term policy relating to supply of electricity by generating, transmitting and distributing electricity pursuant to the prevailing low.

b) To prepare plan for the production, transmission and distribution system of electricity and other related works and to construct, conduct, preserve and promote the production lines and other related facilities, which are necessary for the implementation of the plan.

c) To average the production, transmission and distribution of electricity of adequate standard in the regions which are economically appropriate for the industrial and agricultural development and facility of the people.

d) To fix electricity fee and other service charges relating to the electricity.

e) To do necessary research works relating to production, transmission and distribution of electricity.

f) To make and cause to make arrangement for higher training and study with a view to prepare expert manpower relating to production, transmission and distribution of electricity.

g) To provide technical advice and consultancy relating to production, transmission or distribution of electricity.

h) To do and cause to do other works that are necessary for the achievement of the objective of the authority.

1.5.4 Rights of NEA

The rights of the authority shall be as follows:-

a) To raise loan from foreign government or foreign institution and international institution.
b) To raise loan from national institutions, banks and individuals.
c) To collect charge of electricity and service charges from the customers.
d) To sell and bur electricity to and from foreign countries.
e) To invest the amount, lying in the fund of the authority.
f) To check the authority consumption of electricity applied by the authority.
g) To do all work which seems to be inevitable and necessary for the fulfillment of the works and duties of its own.

1.5.5 Nepal Electricity Authority as a Public Utility

Nepal Electricity Authority as a public utility concern has a primary objectives of providing services that are basically important to the people in general. Since a public utility concern has a public interest, status, its profit planning system deserves the top most attention.

Nepal Electricity Authority has an endeavored to structure itself into an institution oriented towards self sustainable commercial operation and also meeting social obligations in the nation's interest. Nepal Electricity Authority is the largest government enterprises in Nepal. Being a public enterprise, it has been financed by the government and several bilateral and multilateral donor agencies. In this current pace of privatization also, government has rational to keep it under public sector. Thus, electricity, especially NEA becomes on of the main sectors of PEs, which the government will not privatize. At this juncture, it is apparent with the new environment of privatization.

1.6 Focus of the Study

Most of the public enterprises are suffering from losses and have become the fiscal burden of government. So, the study of public enterprises is massive interesting matter. However, this study is confined and focused in evaluating the use of Revenue planning and Credit Collection Policy system in Nepal Electricity Authority. This study has centered to describe the purpose and importance of application of Revenue planning and Credit Collection Policy, a leading public enterprise, in Nepal Electricity Authority.

Normally, each and every organization applies two kinds of plan; they are short term (tactical) plan and long term (strategic) plan. This analytical paper studied the strategic and tactical plan.

Tactical plans have shorter time frames and narrower scopes than strategic plans. Tactical planning provides the specific ideas for implementing the strategic plan. It is the process of making detailed decisions about what to do, who will do it, and how to do it.

The strategic plans are also known as "grand plans". They have a strong external orientation and cover the total organization. A strategic plan is the actions taken to achieve strategic goals. Such plans are developed at the corporate level. Senior executives are responsible for the development of these plans. These plans involve making decisions about the organization's long-term goals and strategies. The top managers scan the external environment for opportunities and threats to the organization.

The success of failure of a business depends primarily on the demand for its products as a rule, the higher its sales, the larger its profits and the higher the value of its stock. Sales, in turn, depend on a number of factors, some exogenous but other under the control of the firm. Credit policy, a set of decisions that includes a firm's credit standards, credit terms, and methods used to collect credit accounts, and credit monitoring procedures.

1.7 Statement of the Problem

NEA is the biggest public enterprises in Nepal with the biggest investment of authorized capital. There is a no market competition and NEA enjoy absolute monopoly as other private enterprises and has higher future scope of production. Thus it should earn good net profit, which may contribute to the development budget of country. Although, it aims to produce and distribute electricity power by service motive, it must generate profit at least to cover its cost of capital. The success of failure of any enterprises is measured on the bases of profitability or surplus. But NEA has not been able to earn profit as desired. The profit depends on the systematic budgeting and financial performance. This research intends to explore the following problems:-

a) What is the trend of Revenue Planning and Credit Collection Policy in Nepal Electricity Authority?
b) Whether the sales target stated in annual budget and actual sales are consistent or not.
c) Whether NEA's revenue planning is effective or not.
d) What are the major problems faced by the Nepal Electricity Authority in developing and implementation of the profit plan?
e) What types of steps should be under taken to improve Revenue Planning and Credit Collection Policy in Nepal Electricity Authority?

1.8 Need of the Study

Revenue planning and Credit Collection Policy is a crucial part overall profit planning of business enterprises. Poor system of planning adversely affects profit planning. Thus, periodical analysis and review of revenue planning is necessary in order to ensure smooth functioning of an enterprise.

Other side, Credit Collection Policy is important assets for the operation of the business organization and public organization. The firm should set credit management and policy and the basis for making decisions on extending credit. Such decisions involve credit standards, credit terms, and the determination of who shall receive credit.

The present study is intended to analyzed and evaluate the revenue planning and Credit Collection Policy system and its application in Nepal Electricity Authority. This study will be useful to provide information and to draw attention of NEA management regarding what can be done for future planning of revenue and Credit Collection Policy.

1.9 Objectives of the Study

The main objective of the research is to analyze revenue planning and Credit Collection Policy in NEA in order to identify problems and recommend possible remedial measures.

Specific objectives are:-

a) To examine revenue planning applied by Nepal Electricity Authority.
b) To evaluate the variance between planned and actual performance of revenue planning of Nepal Electricity Authority
c) To review Collection status of NEA
d) To evaluate financial performance of NEA
e) To provide the valuable suggestion and recommendations on the basis of study.

1.10 Significance of the Study

Analysis of revenue planning and Credit Collection Policy is a crucial part of overall profit planning of business enterprises. The main importance of the study lies on the role of Revenue Planning and Credit Collection Policy that considerably contributes to improve profitability and financial performance of NEA. The main purpose of the study is to forecast the future events and to overcome or reduce the risk.

This study will be useful to provide information and to draw attention of NEA management regarding what can be done for future planning and management of revenue.

1.11 Limitation of the Study

The study is confined only about revenue planning and Credit Collection Policy of Nepal Electricity Authority. The following points are the main limitations of the study.

a) The study is based on secondary data from NEA's record.
b) The study covers only the revenue planning and Credit Collection Policy.
c) The accuracy of this study based on true response and the data available from management of NEA.
d) The study covers the analysis of only 5 years.
e) This study is only a case study. Thus, the result may not be applicable to other enterprises thoroughly.
f) Time and finance constraints are the major limitations of the study.
g) The study is only related in managerial, financial and accounting aspect and it has not related with other area of Nepal Electricity Authority.

1.12 Research Methodology

Research methodology refers to the various sequential steps to be adopted by a researcher in studying a problem with certain objectives in view.

Data and information are the lifeblood or major job of any research work. Together the required and essential information and data collection and processing the data is the major task. For fulfillment of the objectives and requirements of this study, secondary sources of data are used abundantly. Primary data is hard to obtain and time consuming to produce for the research. The authenticity of the primary data is also under the question mark, so there arises the needed of the secondary data published by the related institutions. In this study work, the methodology mainly complies along with the secondary sources of data. The secondary data have been taken mainly from financial statement of NEA, auditor's reports, balance sheet, profit and loss a/c, cost detail sheet, some published and unpublished official records, previous thesis and magazine and newspaper.

To analyze the secondary data collected from various sources financial, accounting, statistical and mathematical tools such as ratio analysis, cost volume profit, mean, standard deviation, coefficient of correlation, regression analysis, coefficient of determination, coefficient of variation etc. are used. Tables, charts and graphs as per need are demonstrated.

Raw data will be managed in a proper form. Interpretation and explanations will be made wherever required in the course of the study. The research design of the present will be analytical and descriptive.

1.13 Organization of the Study

The whole study will be divided into five chapters.

Chapter - 1 Introduction

First chapter will be contains general background, statement of the problem, objectives, significance of study and limitation of study and plan of the work.

Chapter- 2 Review of Literature

Review of Literature will contain the review of previous research, books, journals and unpublished thesis.

Chapter -3 Research Methodology

The third chapters, Research Methodology will discuses the research methods, research design, data collection procedure and data analysis tools of the study.

Chapter -4 Data Presentation and Analysis

The fourth chapter, Data presentation and Analysis chapter will deals with the findings and analysis followed by discussion

Chapter -5 Summary, Conclusion and Recommendation

The last chapter of the study will be the Summary, Conclusion and Recommendations, which will summarizes the whole thesis report presents the concluding remarks with a suggestive package as recommendations.

Bibliography and appendices will also be appended in the study at end of the study

CHAPTER - II

REVIEW OF LITERATURE

The word research is derived from French word i.e. re-searcher which means to seek again about what has in existence or both repetitions of research work in the sense to review as per its relevancy to the subject matter. The main objective of this chapter is to analyze the research work and clarify the study on a rational basis. This chapter has been divided into three main sections. First section encompasses the conceptual framework. The second section presents the review of previous research works (thesis) on the topic. The final section explains the research gap.

2.1 Conceptual Framework

2.1.1 Planning

"Planning is management responsibility, not an accounting function. To plan is to decide advance and only the manager has the authority to choose the direction the company is to take. Accounting personnel are nevertheless deeply involved in the planning process".

"Planning is the process of developing enterprise objective and selecting a future course of action to accomplish them. It includes (a) establishing enterprise objectives, (b) developing premises about the environment in which they are to be accomplished, (c) selecting a course of action for accomplishing the objectives, (d) initiating activities necessary to translate plans into action and (e) current re-planning to correct deficiencies". (Welsch, Hilton and Gordon, 2000:3)

The planning means thinking and deciding in advance what is to be done in future. It is a method of thinking out acts and purposes before and planning starts with forecast and complete with determination of future events. It is the first essence of management and all other function performed within framework of planning.

It is sometimes said that planning is the primary managerial function which logically precedes all other functions, since without planning manager would not have activities to organize, would not require a staff, would have no one to direct and would have no need to control. However, the managerial job is actually one in which all the managerial functions take place simultaneously rather than serially.

Planning is a hard task for it involves the ability to think to periodic, to analyze and to come to decide, to control the actions of its personnel and to cope with a complex dynamic fluid environment. They bridge the gap between, which they are and where they want to go. This statement obviously shows planning is a complex and hard job. Planning is a tool of developing and getting organizational objectives.

Planning consists of the following steps:

a) Recognizing and making a tentative statement of the problem.
b) Collecting and classifying relevant facts.
c) Setting forth alternative course of action.
d) Evaluating the pros and cons associated with these course and
e) Selecting the course of action (the plan).

Planning means setting goals for the firm, considering various ways of meeting those goals, and picking out what appears to be the best way to meet the goals. In planning the management is concerned with laying down objectivities and determining the courses of actions to be followed out of the several alternatives available to meet those objectives.

Planning is fundamentally choosing and a planning problem arises when an alternative course of action is discovered. If there were no alternatives in objectives policy, program or procedure, planning would be so inflexible as hardly to exist. However, in practice, there are probably few, if any, business problems for which some kind of alternative dos not exist.

The planning process of an enterprise would generally involve four fundamental steps:

a) Establishing the objectives
b) Determining the short range objectives or goals
c) Developing strategies and
d) Formulating profit plan or budgets

Planning is the basis of controlling and it itself is framed on forecasting in the sense of taking a careful look what is likely to happen. It is of course impossible to forecast the future with complete accuracy. But the business planner identifies range of possibilities as to the future course of events and prepares to meet them. Planning is not however; merely an inevitable fate planning is also aimed at growing shape to the future.

Planning is essential to accomplish goals. It reduces uncertainty and provides directions to the employees by determining the course of action in advance. Formal planning indicates the responsibility of management and provides an alternative of grouping without direction. Planning on the other hand, involves the determination of what should be done, how the goal may be reached and what individuals or units are to assume responsibility and be held accountable.

Thus, planning stands for future activity and formulates to meet the objectives of the management and we can point out the nature of planning as:

a) Planning is an intellectual process.
b) Planning is a goal-oriented task.
c) Planning is a primary function of management.
d) Planning pervades all managerial activities.
e) Planning is directed towards efficiency.

Generally planning can be divided into two parts, which are as follows:

2.1.1(i) Long - Term Planning or Strategic Planning

Long range planning usually covers a period of more than one years depending upon the size of enterprise and nature of its activities. Long range planning is one of the most difficult times span involved in planning as many problems in short-range planning can be traced to the absence of a clear sense of direction and the practices which a comprehensive long range plan provides.

The strategic plans are also known as "grand plans". They have a strong external orientation and cover the total organization. A strategic plan is the actions taken to achieve strategic goals. Such plans are developed at the corporate level. Senior executives are responsible for the development of these plans. These plans involve making decisions about the organization's long-term goals and strategies. The top managers scan the external environment for opportunities and threats to the organization.

Long term planning is used to determine the overall direction of organization. Successful enterprises have always done some long range planning. It is more important for broad and long living enterprises.

2.1.1(ii) Short - Term Planning or Tactical Planning

Tactical planning provides the specific ideas for implementing the strategic plan. Tactical plans have shorter time frames and narrower scopes than strategic plans. It is the process of making detailed decisions about what to do, who will do it, and how to do it. Tactical plans translate broad strategic goals and plans into specific goals and plans. There plans focus on functional areas of the organization. Because strategic plans are fairly broad, these have to be translated into specific plans. Each strategic plan is generally implemented through several tactical plans. Middle managers who are responsible for major divisions or branches in an organization develop tactical plans. The key task for them is to determine the specific details of targets, resource utilization and time frames. Tactical plans focus on the major actions that a unit must take to fulfill its parts of the strategic plan.

The short range planning is selecting to conform to fiscal quarters or years. Because of the practical needed for conforming plans to accounting periods and the some what arbitrary limitation of the long range to three of five years is usually based as has been indicated on the prevailing belief that the degree of uncertainty over long period makes planning of questionable value.

Thus, planning process, both short and long term, is the most crucial component of the whole system. It is both the foundation and the bond for the other elements because it is through the planning process that we determine what we are going to do, how are going to do and who is going to do it. It operates as the brain center of an organization and like the brain, it both reasons and communicates.

2.1.2 Planning and Forecasting

It is not easy to distinguish between planning and forecasting. According to Edwin, "Defined in its simplest terms planning is determination of anything in advance of action, it is essentially a decision making process that provides a basis for economical and effective action in the future. Effective planning sets the stage for integrated action to take places, reduces the number of unforeseeable crises, promotes the use of more efficient methods and provides the basis for the managerial function of control. Thereby assuring focus on organization objectives".

"A forecasting is a prediction of future event, condition or situation, whereas plan includes a program of intended future actions and desired results. Forecasting predicts the future events in such a way that the planning process can be performed more accurately. A forecast is not a plan, rather it is a statement and or a quantified assessment of future conditions about a particular subject (e.g. sales revenue) based on one or more explicit assumption. A forecast should always state the assumptions upon which it is based. A forecast should be view as only one input into the development of sales plan. The management of the company may accept, modify or reject the forecast, other inputs and management judgment about such related items as sales volume, prices, sales, efforts, production and financing. It is important to make a distinction between the sales, efforts, production and financing. It is important to make a distinction between the sales forecast and the sales plan primary because the internal technical staff should not be expected or permitted to make fundamental management decision and judgment implicit in ever-sales plan. Moreover, the influences of management actions are on sales potentials in difficult to quality for sales forecasting. Before, the elements of management experience and judgment must hold the sales plan. Another reason for identifying sales forecasting as only one step in sales planning is that sales forecasting is condition" (American Accounting Association).

The distinction between forecasting and planning is not an easy one. Webster gives-"To plan ahead" as the leading definition for forecast. Forecasting is our best thinking about what will happen to us in the future. In forecasting we define situations and recognize problems and opportunities. In planning we develop objectives in practical detail and we correspondingly develop schemes of action to achieve these objectives.

2.1.3 Planning and Budgetary Control

Planning is the process of establishing future objectives and formulating means of meeting those objectives. Control on the other hand, is the means by which management ascertains that the various parts of the business perform efficiently and progress toward the predetermined plans. Budgetary control is the process by which management keeps efficiencies of each part of the company's operation. Determining in advance the expected sales volume, the expected cost of merchandise to be purchased or produced, the number of employees needed, and the expenses to be incurred effects planning. Control, on the other hand, is exercised through budget performance reports prepared for each subdivision of the company reflecting the budget, the actual results of operation, and any differences.

2.1.4 Revenue Planning

“The revenue planning process is a necessary part of PPC because (a) it provides for the basic management decisions about marketing, and (b) based on those decisions, it is an organized approach for developing a comprehensive sales plan. If the revenue plan is not realistic, most if not all of the other parts of the overall profit plan also are not realistic. Therefore, if the management believes that a realistic revenue plan cannot be developed; there is little justification for PPC. Despite the views of a particular management, such a conclusion may be an implicit admission of incompetence. Simply, if it is really impossible to assess the future revenue potential of a business, there would be little incentive for investment in the business initially or for continuation of it except for purely speculation ventures that most managers and investors prefer to avoid". (Welsch, Hilton, Gordon, 2000:171)

"Revenue results from the sale of good and rendering of services and is measured by the charge made to customers, client or tenants for goods and services furnished to them. It also includes gains from the sale or exchange of assets other than stock in trade, interest, and dividends earned on investments and other increases in the owner's equity except those arising from capital contributions and capital adjustments. Revenue from ordinary sales or from other transaction in the ordinary course of business is some times described as operating revenue".

The revenue planning estimates are only a guide to the level of future revenues, not a guarantee. If the economy remains strong, the planning estimates are likely to underestimate future revenues. But, if the economy fails to perform at the high level anticipated in the control, the planning estimates will overstate future revenues.

"The revenue plan should be designed to coordinate the efforts of the sales department, production department and all other departments. Many factors must be considered when sales budget is established, including sales trends, limitations on the supply of merchandise or the company's market, competing products, the expected amount of advertising, and general level of the economy. Since most of these unknown companies frequently maintain a specially trained staff to increase them" (Seiler & Robert, 1964:659-660).

"The company earns profit only when it is able to sell its product and not when it produces them. It is no use producing goods that are not likely to be sold and for which there is a limited demand. In some business, it is necessary to establish that the product will sell even before it is produced. In normal times of keen competition, the sales forecast must be realistic. It is undoubtedly true that past can provide experience and information which will be of assistance in estimating present and future revenue but care must be taken in presenting past facts to management so that incorrect conclusions may not be drawn there from" (Mohan & Goyal, 1992:10).

"The logical starting point in developing the revenue planning is the estimates of sales. It does not follow, however, that the revenue estimation can be considered in isolation or that once the revenue estimates has been computed, the other elements of revenue and expenses will fall into place. There is circular relationship between sales and some expenses. In fact, the level or amount of certain expenses may have a considerable influence on the revenue. For example: the relationship between advertising and sales" (Finney, Miller, & Herbert 1963:389).

2.1.5 Factor Influencing Revenue Planning

The factors influencing the level of revenues may be classified as internal and external as follows:

1. Internal Factors

These include promotional aids, such as advertising, incentives to sales man, ability of the organization to satisfy demand, quantity of the finished product, changes in price etc.

2. External Factors

These include the fluctuations in the size of population, the general level of prosperity, the extent and severity of completion in the market, government policy and regulation. Changes in fashion and tastes, degree of competition expected from new product etc. Elasticity of demand for the product is of obvious importance if prices are expected to undergo a change.

2.1.6 Preparation of Revenue Planning

A planner should be completed the following steps for planning the revenue. They are listed below:

Step1. Development Management Guidelines for Sales Planning

All management particular in the sales planning process should be provided with specific management guidelines to be followed in revenue planning. Fundamentally, these guidelines should specify revenue-planning responsibilities. The purpose of these guidelines is to attain coordination and uniformity in the revenues planning process. The guidelines should emphasize enterprise objective, goals, and sales strategies. The guideline also should direct attention to such areas as product emphasis, general pricing policies, major marketing strategies, and competitive position.

Step2. Prepare Sales Forecast

One or more sales forecasts should be prepared. Each separate forecast should use different assumption, which should be clearly explained in the forecast. The management guidelines should provide the broad assumptions. Forecasting methods are broadly classified as a) quantitative b) technological c) judgmental. These forecasting methods include time-series smoothing, decomposition for time series, advanced time series, simple & multiple regression, and modeling. The forecasts should include strategic and tactical forecasts that are consistent with the time dimension.

Step3. Assemble Other Relevant Data

In addition to step1 and step2, all other information relevant to developing a realistic revenue plan should be collected and evaluated. This information should relate to both constraints and opportunities. The primary constraints that should evaluate are: a) manufacturing capacity b) sources of raw materials and supplies, or goods for resale, c) availability of key people and a labor force, d) capital availability and e) availability of alternative distribution channels. These five factors require evaluation and coordination among the heads of the various functional areas in developing a realistic revenue plan.

Step4. Develop the Strategic and Tactical Sales

Using the information provides in step 1,2&3, the management develops a comprehensive revenue plan to do this, the planning process must be structured to maximize a) motivation of the sales force and b) realism in the revenue plan. This process should recognize the importance of management goals both strategic and tactical. The process of developing a realistic revenue plan should be unique to each company because of the company's-its products, its distribution channels, and the competence of its marketing group. Four different participative approach widely used are characterized as follows; a) sales force composite b) sales division manager's composite c) executive decision and d) statistical approaches.

Step5. Securing Managerial Commitment to Attain the Goals in the Comprehensive Revenue Plans.

Top management must be fully committed to attaining the sales goals that are specified in the approve revenue plan. This commitment requires full communication to the sales manager of the goals: approve marketing plan, and strategies by sales responsibilities. The commitment must be strong and ever present in day-to-day operations (Welsch, Hilton, & Gordon, 1999:176-182).

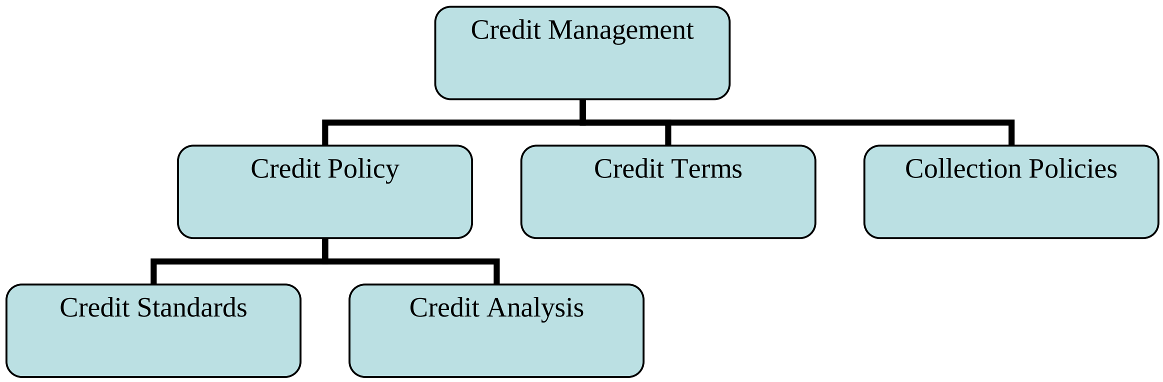
2.1.7 Credit Management

Credit Management is a branch of accountancy, and is a function that falls under the label of "Credit and Collection' or 'Accounts Receivable' as a department in many companies and institutions. They will usually deal with the credit vetting of customers, the resolution of any invoice queries or disputes, allocations of payments or cash application, internal fund movements, reconciliations and also maintaining positive working relationships with customer during the debt collection or credit review and approval process.

A key requirement for effective revenue and receivables management is the ability to intelligently and efficiently manage customer credit lines or credit limits. In order to minimize exposure to bad debt, over-reserving, and bankruptcies, companies must have greater insight into customer financial strength, credit score history and changing payment patterns. Likewise, the ability to penetrate new markets and customers hinges on the ability of a company to quickly make well informed credit decisions and set appropriate lines of credit.

Credit Management has evolved now from being a pure accounting function into a front-end customer facing function. It involves screening of customers and only those who are credits worthy are allowed to do business. A sound review of the financial position of the customer, and understanding of their business model is the first step in ensuring that the company does not end up selling to a customer who ends up seriously delinquent or in default.

Hence, before the sales function commences its business with the particular customer, the credit management role begins. Later as the customer starts dealing with the company, the accounts receivable function is used to ensure recovery as per agreed terms of credit is followed.



2.1.7.1 Credit Policy

According to Weston & Brigham,
"Credit Policy means a set of decisions that includes a firm's credit standards, credit terms, methods used to collect credit accounts, and credit monitoring procedure."

Credit policy can have significant influences on sales. In theory, the firm should lower its quality standard for accounts accepted as long as the profitability of sales generated exceeds the added costs of receivable is determined by the volume of credit sales and the average period between sales and collection.

Firm’s objective of credit management is not only to collect receivable promptly, but also to give an outlook to the benefit cost trade off involve in various aspects of accounts receivable management. The important criteria to maintain benefit cost trade off the firm’s receivable management are to set up credit policies.

The credit policy of a firm provides the framework to determine (a) whether or not to extend credit to a customer and (b) how much credit to extend. The credit policy decision of firm has two broad dimension (i) Credit Standards and (ii) Credit Analysis. A firm has to establish and use standards in making credit decisions, develop appropriate sources of credit information and methods of credit analysis.

(a) Credit standards
The term credit standards represent the basic criteria for the extension of credit to customers. The quantitative basis of establishing credit standards are factors such as credit rating, credit references, average payments period and certain financial ratios. Credit standards can be divided the overall standards in to (a) tight or restrictive and (b) liberal or non-restrictive. The trade-off with reference to credit

standards covers (i) the collection cost, (ii) the average collection period / Investment in account receivable, (iii) level of bad debts losses, and (iv) Level of sales.

These factors should be considered while deciding whether to relax credit standards or not. If standards are relaxed, it means more credit will be extended wile if standards are tightened, less credit will be extended. The implications of the four factors are elaborated below.

- **Collection Costs:** the implications of relaxed credit standards are (i) more credit, (ii) a large credit department to service accounts receivable and related matters, (iii) increase in collection costs. The effects of tightening of credit standards will be exactly the opposite. These costs are likely to be semi-variable.
- **Investment in Receivable / The average collection period:** The investment in accounts receivable involves a capital cost as funds have to be arranged by the firm to finance them till customers make payments. Moreover, the higher the average accounts receivable, the higher is the capital or carrying cost. A charge in the credit standards-relaxation or tightening-leads to a change in the level of accounts receivable either (a) through a change in sales, or (b) through a change in collections.

  A relaxation in credit standards, as already stated, implies an increase in sales which, in turn, would lead to higher average accounts receivable. Further, relaxed standards would mean that credit is extended liberally so that it is available to even less credit-worthy customers who will take a longer period to pay overdue. The extension of trade credit to slow-paying customers would result in higher level of accounts receivable.

  In contrast, a tightening of credit standards would signify (i) a decrease in sales and lower average accounts receivable, and (ii) an extension of credit limited to more credit-worthy customers who can promptly pay their bills and, thus, a lower average level of accounts receivable.

  Thus, a change in sales and change in collection period together with a relaxation in standards would produce a higher carrying cost, while changes in sales and collection period result in lower costs when credit standards are tightened. These basic reactions also occur when changes in credit terms or collection procedure are made.
- **Bad Debt Expenses:** Another factor which is expected to be affected by changes in the credit standards is bad debts (default) expenses. They can be expected to increase with relaxation in credit standards and decrease if credit standards become more restrictive.

- **Sales Volume:** Changing credit standards can also be expected to change the volume of sales. As standards are relaxed, sales are expected to increase; conversely, a tightening is expected to cause a decline in sales.

(b) Credit Analysis:
Besides establishing credit standards, a firm should develop procedures for evaluating credit applicants. The second aspect of credit policies of a firm is credit analysis and investigation. Two basic steps are involved in the credit investigation process: (a) obtaining credit information, and (b) analysis of credit information. It is on the basis of credit analysis that the decisions to grant credit to a customer as well as the quantum of credit would be taken.

a) **Obtaining Credit Information:** the first step in credit analysis is obtaining credit information on which to base the evaluation of a customer. The sources of information, broadly speaking, are (i) internal, and (ii) external.

1. **Internal:** Usually, firms require their customers to fill various forms and documents giving details about financial operations. They are also required to furnish trade references with whom the firms can have contacts to judge the suitability of the customer for credit. This type of information is obtained from internal sources of credit information. Another internal source of credit information is derived from the records of the firms contemplating an extension of credit. It is likely that a particular customer may have enjoyed credit facility in the past. In the case, the firm would have information on the behavior of the applicants in terms of the historical payment pattern. This type of information may not be adequate and may, therefore, have to be supplemented by information from other sources.

2. **External:** The availability of information from external sources to assess the credit worthiness of customers depends upon the development of institutional facilities and industry practice. Depending upon the availability, the following external sources may be employed to collect information.
   - Financial Statements
   - Bank References
   - Trade References
   - Credit Bureau Reports

(b) Analysis of Credit Information: Once the credit information has been collected from different sources, it should be analyzed to determine the credit worthiness of the applicant. Although there are no established procedures to analyze the information, the firm should devise one to suit its needs. The analysis should cover two aspects: (i) quantitative, and (ii) qualitative.

Quantitative The assessment of the quantitative aspects is based on the factual information available from the financial statements, the past records of the firm, and so on. The first step involved in this type of assessment is to prepare an Aging Schedule of the account payable of the applicant as well as calculate the average age of the account payable. This exercise will give an insight into the past payment pattern of the customer. Another step in analyzing the credit information is through a ratio analysis of the industry average. Moreover, trend analysis over a period of time would reveal the financial strength of the customer.

Qualitative The quantitative assessment should be supplemented by a qualitative interpretation of the applicant's credit worthiness. The subjective judgment would cover aspects relating to the quality of management. Here, the reference from other suppliers, bank references and specialist bureau reports would form the basis for the conclusion to be drawn. In the ultimate analysis, therefore, the decision whether to extend credit to the applicant and what to extend will depend upon the subjective interpretation of his credit standing.

2.1.7.2 Credit terms

The second decision area in accounts receivable management is the credit terms. After the credit standards have been established and the credit-worthiness of the customers has been assessed, the management of a firm must determine the terms and conditions on which trade credit will be made available. The stipulations under which goods are sold on credit are referred to as credit terms. These relate to the repayment of the amount under the credit sale. Thus, credit terms specify the repayment terms of receivables.

Credit terms have three components: (i) credit period, in terms of the duration of time for which trade credit is extended- during this period the overdue amount must be paid by the customer; (ii) cash discount, if any, which the customer can take advantage of, that is, the overdue amount will be reduced by this amount; and (iii) cash discount period, which refers to the duration during which the discount can be availed of. These terms are usually written in abbreviation, for instance, '2/10 net 30'. The abbreviation 2/10 net 30 means that the customer is entitled to 2 percent cash discount (discount rate) if he pays within 10 days (discount period) after the beginning of the credit period (30days). If, however, he does not want to take advantage of the discount, he may pay within 30 days. If the payment is not made within a maximum period of 30 days, the customer would be deemed to have defaulted.

2.1.7.3 Collection policies:

It refers to the procedure followed to collect accounts receivable when they become due. The firm determines its overall collection policy by the combination of collection procedure it undertakes. These procedures include telephoning the customer, sending a letter, resending the invoice, sometimes paying a person a visit, and legal action.

Credit and Collection Policies of a firm involve several decisions: (i) the quality of the account accepted (ii) the length of the credit period, (iii) the size of cash discount given, (iv) any special terms such as seasonal dating, and (v) the level of collection expenditure.

To maximize profits arising from credit and collection policies, the firm should vary these policies jointly until it achieves an optimal solution. That solution will determine the best combination of credit standards, credit period, cash discount policy, special terms, and level of collection expenditures. When there are no credit standards (that is, when all credit applicants are accepted), sales are maximized, but they are offset by large bad debt losses as well as by the opportunity cost of carrying a very large receivable position. The latter is due to a long average collection period. (Van Horne: 252)

2.1.7.4 Collection Strategy of NEA

To improve the cash flows, NEA has made provisions for its customers to pay their electricity bill in the monitoring even in the Saturday and public holidays in the revenue center within Kathmandu valley. Computerization of revenue bills in the collection centers located in Kathmandu valley and major town of Nepal are able to contribute to the reduction of non-technical losses and leakage of cash.

While paying electricity bills following facilities as well as penalty are made by NEA.

- **a)** 3% discount is offered to those customers paying the bill till 7th of next of the meter reading month.
- **b)** No discount from 8th to 22nd.
- **c)** 5% additional charge is added to those customer for clearing the till 23rd to last day of the month.
- **d)** 10% additional charge is made for those customers for clearing the bill till 15th of next month.
- **e)** 25% additional charge is added for clearing the bill till 6th to last of that month.
- **f)** Electricity line will be cut to those not clearing the bills till the time (duration) of 25% additional charge.

2.2 Review of Previous Research Work

The Revenue Planning and Credit Collection Policy seem to be new subject of study for research and study. Many researches have been made in the area of profit planning and control of NEA and public manufacturing enterprises. As profit planning and control covers some aspects of revenue planning, researches made on these areas are taken into consideration for the sake of review to examine how efficiently they apply Profit Planning & Control tools. An attempt is made here to review some of the researches which have been submitted in revenue planning and profit planning & control in the context of Nepal.

2.2.1 Mr. Jogindar Goet (1999)

Mr. Goet has made research on "Revenue Planning and Cash Management in Nepal, a case study of Nepal Electricity Authority", submitted to faculty of management Shanker Dev Campus for the partial fulfillment of M.B.S. on April, 1999. Using secondary sources to collect the data and other necessary information's Mr. Goet has pointed out following objectives and major findings.

Objectives:-

- i) To make a comparative study of revenue generation of NEA;
- ii) To examine revenue planning, policies and practices of NEA;
- iii) To analyze the relationship between sales, production and loses in transmission;
- iv) To examine credit policy of NEA;
- v) To examine revenue management aspect of NEA;

Major Findings:-

i) No plan and program has been made about possible consumption of electricity in agricultural sector.
ii) The revenue plans prepared by the branches and sub branches are not used to prepare central revenue plan.
iii) NEA has not considered demand determinates such as family income, price of electricity, connection charges, cost of alternatives available, cost of auto generation of electricity, and reliability of NEA service while forecasting demand.
iv) NEA has a practice to increase 10% in past year’s figure to forecast next year’s figures as a basis for forecast.
v) Planned sales unit and sales revenues is highly and positively correlated, the correlation of actual sales unit and revenue is also positive and high.
vi) NEA overdue amount of receivable is increasing year by year.

2.2.2 Mr. Chiranjibi Acharya (2000)

Mr. Acharya has made research on “Profit Planning in Nepalese Public Enterprise, a case study of Nepal Electricity Authority”, submitted to faculty of management Shanker Dev Campus for the partial fulfillments of M.B.S on July, 2000. In this study Mr. Acharya has pointed out following objectives and major findings.

Objectives:-

I. To examine the profit planning system applied in NEA;
II. To analyze the various functional budgets those are prepared by NEA;
III. To analyze the variance between budget and actual achievements of NEA;
IV. To access the financial performance analysis of NEA, by applying financial tools;
V. To make relevant suggestions and recommendation to the management of NEA on the basis of findings from the above analysis;

Major Findings:-

i) There is perfect positive correlation between the planned sales and actual sales.
ii) The authority is unable to sell the electric services to its customer according to the production or total energy available.
iii) Leakage, outage and theft is one of the major considerations in NEA. Due to this leakage there is a vast gap between sales and production and this leakage is reducing the NEA’s profit annually.

iv) Strengths and weaknesses are not analyzed in depth by NEA because of the monopoly situation or the obscene of competitors and it is not alert toward its possible threats and opportunity.

2.2.3 Mr. Ghana Shyam Thapa (2004)

Mr. Thapa has made research on "Profit Planning in Nepalese Public Enterprise, a case study of Nepal Electricity Authority," submitted to faculty of management Shanker Dev Campus for the partial fulfillments of M.B.S. on August,2004. In this study Mr. Thapa has pointed out following objectives and major findings.

Objectives:-

i) To examine the present profit planning premises adopted by NEA;
ii) To highlight the various functional budgets of NEA;
iii) To evaluate the variances between planning and actual performance of NEA;
iv) To provide valuable suggestions and recommendations on the basis of study;

Major Findings;

i) NEA prepares both tactical and strategic profit plan but strategic plan is confined only to the level executives.
ii) NEA is not successes to achieve sales target during the study period except in FY 2055/056.
iii) Achievement of capital expenditure budget is satisfactory.
iv) Operating costs have not been controlled effectively during the study period.
v) NEA has no maintained sound liquidity during the study period.
vi) NEA has not prepared plan and program for agriculture sector's consumption of electricity.
vii) NEA has not considered demand determinates such as family income, price of electricity, connection charge, cost of alternatives available, cost of auto generation of electricity and reliability of NEA service while forecasting demand.

2.2.4 Mr. Mahendra Rai (2004)

Mr. Rai has made research on Profit Planning in Public Utility Sector of Nepal – A case study of NEA; submitted to faculty of management, Shanker Dev Campus for the partial fulfillments of M.B.S. on May, 2004. In this study Mr. Rai has pointed out following objectives and major findings.

Objectives:-

i) To examine profit planning system applied by NEA;
ii) To analyze the financial performance of NEA by using various financial tools;
iii) To observe the various functional budgets of NEA associated with comprehensive profit planning;
iv) To evaluate budgeted and actual achievement of NEA;
v) To provide a package of recommendations and suggestions to be taken instantly and further to be encountered with identified budgeting & profit planning problems on the basis of findings;

Major Findings:-

i) Budgeted sales are more variable than actual sales.
ii) Budgeted production is more fluctuating than actual production.
iii) Authority formulates various functional budgets as a part of comprehensive profit plan.
iv) NEA has been paying a large amount of interest on long term loan.
v) Power leakage is significantly high in NEA.

2.2.5 Mr. Kamal Raj Joshi (2004)

Mr. Joshi has made research on Revenue Planning and Cash Management of NEA; submitted to faculty of management, Shanker Dev Campus for the partial fulfillments of M.B.S. on November, 2004. In this study Mr. Joshi has pointed out following objectives and major findings.

Objectives:-

i) To examine revenue planning, polices and practices of NEA;
ii) To analyze the relationship between sales and production;
iii) To make comparative study of revenue generation of NEA from different sector;
iv) To review cash flow from operating, financing, and investing activities;
v) To make suggestion effective of revenue mobilization of NEA;

Major Findings:-

i) NEA has a practice to increase 10 percent in past year figure to forecast next year's figure as a basis for forecast.

ii) Average achievement of actual sales unit is consistent with internal sale but higher in external sales. In indicates that the budgeted sales planning is less consistent with external sales market. Similarly, average achievement of sales revenue is also satisfied and highly consistent with internal and very small difference in external.

iii) Category-wise revenue analysis of NEA shows that the achievement in domestic, non-commercial, commercial, streetlight, temple categories are more heterogeneous than budgeted. Community sale achievement is too high. It means there is some problem in planning.

iv) Category-wise analysis of NEA shows that the major contribution of domestic and industrial categories to consumption of sales unit and increased in sales revenue.

v) Cash position of NEA shows that the cash from operating activities is in decreasing trend. It means, operating cost of NEA is too high. Similarly, the cash from investment activities is in highly increased up to 2057/58. Thereafter decreased but its return is very poor. It indicates that the utilization of assets is very poor. The cash from financing activities is highly increased in F.Y 2056/57. Thereafter, it is decreased.

2.2.6 Mr. Rabin Dahal (2005)

Mr. Dahal has made research on Profit Planning System & Financial Conditions of NEA; submitted to faculty of management, Shanker Dev Campus for the partial fulfillments of M.B.S. on January, 2005. In this study Mr. Dahal has pointed out following objectives and major findings.

Objectives:-

i) To examine the present planning premises adopted by NEA on the basis of budgeting;

ii) To observe the NEA's profit planning on the basis of overall managerial budgeting;

iii) To analyze the variances between budgets & actual achievement of the authority;

iv) To assess the financial performance of NEA;

v) To recommend measures to be taken instantly and further to encounter with the identified budgeting and profit planning problems;

Major Findings:

i) There is positive and perfect correlation between budget and achievement of NEA is higher than the budgeted sales.
ii) NEA ahs a practice of preparing both strategic long-range and tactical short-range profit plan.
iii) Actual sales are less than actual production and it indicates the remarkable loss of power in NEA.
iv) Total assets turnover ratio, profitability ratio and return on net capital employed ratio are not perfectly satisfactory.
v) There is perfect positive correlation between actual sales and actual production.

2.2.7 Mr. Narayan Ghimire (2006)

Mr. Ghimire has made research on Impact of Budgeting on Profitability, a case study of NEA, submitted to faculty of management, Shanker Dev Campus for the partial fulfillment of M.B.S. on September, 2006. In this study Mr. Ghimire has pointed out following objectives and major findings.

Objectives:-

i) To analyze the various functional budget of NEA;
ii) To obtain a true picture of profit planning diversification of NEA;
iii) To analyze the variance between budget and actual achievements of the authority;
iv) To printout the major shortcomings and recommended suggestive measures;

Major findings:-

i) Actual sales are more fluctuating than budgeted sales and budgeted sales is more fluctuating than actual production.
ii) NEA has a practice of preparing both strategic and tactical budgeting but tactical short range plan is prepared for external purpose and strategic plan is prepared for internal purpose.
iii) NEA has been paying huge amounts of interest on long term loan.
iv) There is perfect correlation between budgeted and actual sales and budgeted and actual production.
v) Actual sales are always less than actual production due to power loss which is a main problem of NEA.

2.2.8 Mr. Tara Nath Bhattarai (2006)

Mr. Bhattarai has made research on Sales Budget in Manufacturing Enterprises, a case study of Nepal Lever Limited, submitted to faculty of management, Shanker Dev Campus for the partial fulfillment of M.B.S. on February, 2006. In this study Mr. Bhattarai has pointed out following objectives and major findings.

Objectives:-

(i) To analyze the sales budget prepared by Nepal Lever Limited.
(ii) To evaluate the difference between budgeted and actual sales.
(iii) To comparison of sales with profit of the Nepal Lever Limited.
(iv) To provide the appropriate suggestion and recommendations for improvement of planning system of Nepal Lever Limited.

Major findings:-

(i) The company does not have practice of preparing sales budget although there is tentative sales budget.
(ii) Actual sales are below then the budgeted sales.
(iii) The correlation between budgeted and actual sales shows a positive correlation. It means that the company can meet its sales goals as specified in annual program.
(iv) There is no cost classification system in the company. The costs are not segregated into fixed, variable and semi variable in systematic manner.
(v) The company has no practice of systematic forecasting. Sales forecasting is not based on realistic ground. it has no practice of using statistical technique in sales forecasting.

2.2.9 Mr. Tanka Prasad Upreti (2007)

Mr. Upreti has made research on Revenue Planning & Cash Management- A Case Study of NEA, submitted to faculty of management, Shanker Dev Campus for the partial fulfillment of M.B.S. on October, 2007. In this study Mr. Upreti has pointed out following objectives and major findings.

Objectives:-

1. To analyze the relationship between total power available and losses in transmission.
2. To make a comparative study of revenue generation of NEA.
3. To evaluate financial performance of NEA.

4. To review cash management aspect of NEA.
5. To make recommendations for revenue management of NEA.

Major findings:-

1. Budgeted sales and actual sales both in unit and amount are in increasing trend.
2. There is highly positive correlation between budgeted sales and actual sales. By regression line, it is clear that future revenue will increase with compare to budgeted if other things remaining same.
3. The current ratios and quick ratio is below its standards which shows solvency position of NEA is not satisfactory.
4. The fixed assets turnover ratio shows that NEA is not utilizing its fixed assets to increase sales effectively.
5. NEA has not prepared plan and program for agriculture sector consumption of electricity.

2.3 Research Gap

There is gap between the present research and the previous research in terms of some objectives, tools for analysis, period of data and the organization. This topic is also called the difference between the previous researches and the current research. Most of the past research studies are about profit planning system of public enterprise. The previous researches did not disclose which of the profit planning and control tools are in practices and which are not and why? The researcher could find only three research study so far that has been related to revenue planning of NEA. But these research studies were not analyzed the Credit Collection Policy of NEA. So, there exists a research gap between the present and past researches. This research is conducted to fill up this research gap.

This research is a case study research. It is mainly based in secondary data. This study has tried to indicate the role of revenue planning and Credit Collection Policy and how effectively NEA is practicing the revenue planning and Credit Collection Policy. This study has analyzed the financial position of NEA by applying the tools of ratio analysis and other mathematical and statistical tools. Finally it concludes the various findings of research and recommendations of NEA.

CHAPTER -III

RESEARCH METHOLODOGY

3.1 Introduction

The knowledge of human being is rising through the getting answer of different questions like why, how, when, where, what etc. To answer these questions, they should gather information and analyze them to achieve their goals or satisfaction. The research for gaining the knowledge about method of goal achievement, which we desire, is known as research methodology. Research Methodology is the way of to solve systematically about the research problem. Research is to find out to gain knowledge about a phenomenon. Here research means repeatedly or again and again, and 'search' says to investigate or to find. Thus, Combine researching repeatedly is called research, which includes searching new facts, knowledge, principles and theories in scientific way Likewise; research needs various methodologies, tools, techniques etc. A systematic research studies needs to follow a proper methodology to achieve the pre mentioned objectives. "Research methodology is a sequential procedure and methods to be adopted in systematic study". The proper analysis of the study can be meaningful only on the right choice of research tools that help for meaningful conclusion. This study has an ultimate concerned with the applicability and effectiveness of revenue planning and credit collection policy in manufacturing concern. So, the objective of this study is to analysis, examine and interpret the application of revenue planning and credit collection policy of NEA. So, it requires an appropriate research methodology. The main contents of research methodology are mentioned as below:

3.2 Research Design

A research design refers to the conceptual structure within which the research is conducted. The research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose within the economy in procedure. Research design is necessary for each research work, it is a plan, structure and strategy of investigation conceived so as to obtain answer to reach question and to control variants. This study depends on the secondary data; some financial and statistical tools have been used to examine fact in this study.

The research design of this study is descriptive as well as analytical approaches. This study is an examination and evaluation of revenue planning and credit collection policy of NEA. Various functional budgets and other related accounting information and statements of NEA are the materials to analyze their achievement and effective application within the conceptual framework of revenue planning and credit collection policy for solving the problems that has accursed in NEA. This is a case study research.

3.3 Period Covered

The present study covers two time dimensions, long rang and short range. The time period of five years for the purpose of trend analysis for long rang planning and the time period of one year (current year) for the purpose of short rang planning. Data are collected from fiscal year 2059/60 to 2063/064 for long range planning and for short range planning data are collected from fiscal year 2063/064.

3.4 Population and Sample

As this research aims at studying the revenue planning and credit collection policy of NEA as a sample for the study. So, Nepal Electricity Authority is a sample and population itself. This study is based on revenue planning and credit collection policy of central office and branches, sub-branches of Nepal Electricity Authority. It is not centered with one branch. It is not possible to meet with all customers personally. For this, electricity subscribers were selected for this study using a stratified random sampling method.

3.5 Nature and Sources of Data

Any type of study having small or large for that study data is necessary. Data should not be hypothetical but it should have quality of accuracy. Data are the arms and weapons for successful analysis. Data may be information, statistics, figures, charts etc. For successful analysis and to draw meaningful conclusion, collection of data is necessary.

This study is mostly based on secondary data. However, primary data and information have been obtained through informal discussions with executives and other related staffs of the NEA. Secondary data have been collected from the annual reports of NEA, balance sheet, profit and loss accounts, cost detail sheet, previous thesis and other relevant published and unpublished documents and other related publications. The require data were also collected from the website of NEA (i.e. www.nea.org.np).

3.6 Tools and Techniques Employed

This research is confined to examine the Revenue Planning and Credit Collection Policy of NEA. Therefore, the data have been collected and managed, analyzed and presented in suitable tables, formats, diagrams, graphs and charts. Such presentations have been interpreted and explained wherever necessary. To analyze the secondary data collected from various sources financial and statistical and mathematical tools are used.

3.6.1 Statistical Tools

Statistical tool is very useful tool to analyze the available data to find the relation between these data and to predict about the trend and hidden fact in the relation. So, different related tools from the statistical tool are utilized in terms research objectives. They are:

a) Percentage
b) Standard deviation
c) Coefficient of Variation
d) Correlation
e) Regression
f) Time series analysis

3.6.2 Financial Analysis

Financial Analysis is the process of identifying the financial strength and weakness of the firm by properly establishing relationship between the items of Balance Sheet and Profit & Loss Account. Financial Analysis can be undertaken by management of the firm or by parties outside of the firm viz. owners, creditors, investors and other. Ratio Analysis is a powerful tool of financial analysis. A ratio is defined as "The indicate quotient of two mathematical expressions" and as the relationship between two things.

Ratio Analysis is the process of determining and interpreting numerical relationships based on financial statement. a ratio is a systematical yardstick, that provides a measure of the relationship between two variables or figures.

3.7 Research Variables

The research variables of this present study are mainly sales in units and amounts, generation and purchase of power in units, contribution by different category, income statement, balance sheet, cash flow statement of NEA. Other variables are also used where it is necessary.

3.8 Research Procedure

The research procedure includes the following steps for resent study:-

a) Collection of various books and other publications relevant for study.
b) Assimilation of useful secondary data.
c) Description and analysis of collect data in light of theoretical basis.
d) Tabulation and presentation of data through tables, charts, graphs etc.
e) Analysis of data by using approved statistical and financial tools.
f) Extraction of valuable conclusion and recommendation.

CHAPTER -IV

PRESENTATION AND ANALYSIS OF DATA

4.1 Introduction

In this chapter, the researcher analyses & interprets the relevant and available data of selected company to research methodology as mentioned in previous chapter. The main purpose of this study is to examine the revenue planning and credit collection policy in manufacturing enterprises in the context of profit planning and control in public utility concern. So, Nepal Electricity Authority has been selected for this purpose. To accomplish these objectives this chapter of study paper will analyze the various aspects of revenue planning and credit collection status and their related variance of the authority and also deals with the effectiveness of units and revenue separately.

4.2 Revenue Planning Applied by NEA

Revenue results from the sales of goods and rendering of service. It is measured by the charge made to customers, clients or tenants for goods and services furnished to them. It also includes gains from the sales or exchange of assets other then stock in trade, interest and dividends earned in investments and other increases in the owners equity except those arising from capital contributions and capital adjustments. Revenue from ordinary sales on from other transaction in the ordinary course of business is same times describes as operating revenue.

Revenue plan is the key factor in profit planning and control. Unless there is a realistic and practical revenue plan one can not be sure of accuracy and practicability of other elements of profit plan.

Revenue plan is prepared on the basis of sales forecast. NEA has practice of preparing sales forecast based on annual revenue. Sales revenue are categorized like domestic, non-commercial, commercial, industrial, water supply and irrigation, street light, temporary supply, transport, temple, community sale, and bulk supply (India).

Load forecast are made on yearly basis. Demand and supply of energy are forecasted yearly as well as for 10 to 15 years. NEA has its own hydro generation units and thermal generation units. Besides these, NEA purchases the power from internal IPPs (Independent Power Producers) and it also import deficit energy from India (from Bihar and UP States). Sales revenue is projected base on the total available energy in the system less system loss of NEA. Total available energy is equal to NEA's own generation, IPPs generation and import from India when system demands. System loss is deducted from the total available energy and converted into sales revenue based on just previous year's average revenue rate. The following table 4.1 presents the Revenue Planning of NEA in unit and Rupees respectively from the fiscal year 2059/060 to 2063/064.

Table 4.1
Revenue Planning of NEA
From FY 2059/060 to 2063/64

Particular	2059/060	2060/061	2061/062	2062/063	2063/064
Hydro Power	1,834.73	1,928.68	1,476.60	1,533.90	1,748.60
Small Hydro Plant	33.27	31.27	31.94	26.00	9.00
Thermal Generation	12.00	5.50	15.50	20.00	27.00
NEA Own Generation (A)	**1,880.00**	**1,965.45**	**1,524.04**	**1,579.90**	**1,784.60**
IPPs Generation (B)	763.06	914.94	899.77	904.90	930.00
Import from India (C)	101.11	106.00	142.00	300.00	380.00
Total Available Energy (A+B+C=D)	**2,744.17**	**2,986.39**	**2,565.81**	**2,784.80**	**3,094.60**
Internal Consumption	23.25	19.76	20.18	23.50	26.00
Loss	497.15	543.34	556.78	615.82	706.26
Spill Energy	418.87	516.67	-	-	-
Total (E)	**939.27**	1,079.77	**576.96**	**639.32**	**732.26**
Total Sales in Units (in GWH) (D-E=F)	**1,804.90**	**1,906.62**	**1,988.85**	**2,145.48**	**2,362.34**
Rate per Unit (G)	6.78	6.73	6.67	6.65	6.62
Total Sales Revenue (in Million) (F*G)	**12,238.80**	**12,825.73**	**13,275.38**	**14,260.34**	**15,638.12**

Source: Annual Report and Budget Book of NEA

The above table 4.1 shows that budgeted sales in unit and Rs. of NEA from FY 2059/060 to 2063/064. The table shows that NEA Own Generation is increased in FY 2060/061. After that it has slightly gone down upto FY 2062/063. Then it has increasing trend up to FY 2063/064. As a same way IPPs Generation is increased in FY 2060/061. After that it has slightly gone down upto FY 2062/063. Then it has increasing trend up to FY 2063/064. But Import from India is in increasing trend from FY 2059/060 to 2063/064.

The Internal Consumption of NEA was Fluctuating trend. It decreased from FY 2059/060 to 2060/061. But after that it has increasing trend up to FY 2063/064. The loss of NEA was also increasing trend from FY 2059/060 to 2063/064.

In conclusion, the budgeted total sales in units and Rs. are increasing trend during the research period, it can be suggested that NEA must be reduced the loss of generation, transmission & distribution.

The beginning point for the evaluation of existing revenue planning practices is to analyze past trends of planned sales revenue and its achievements. The following table 4.2 presents the sales budget and actual sales in unit and Rupees respectively from the fiscal year 2059/060 to 2063/064

Table 4.2
Revenue Trend of NEA
From F/Y 2059/2060 to 2063/64

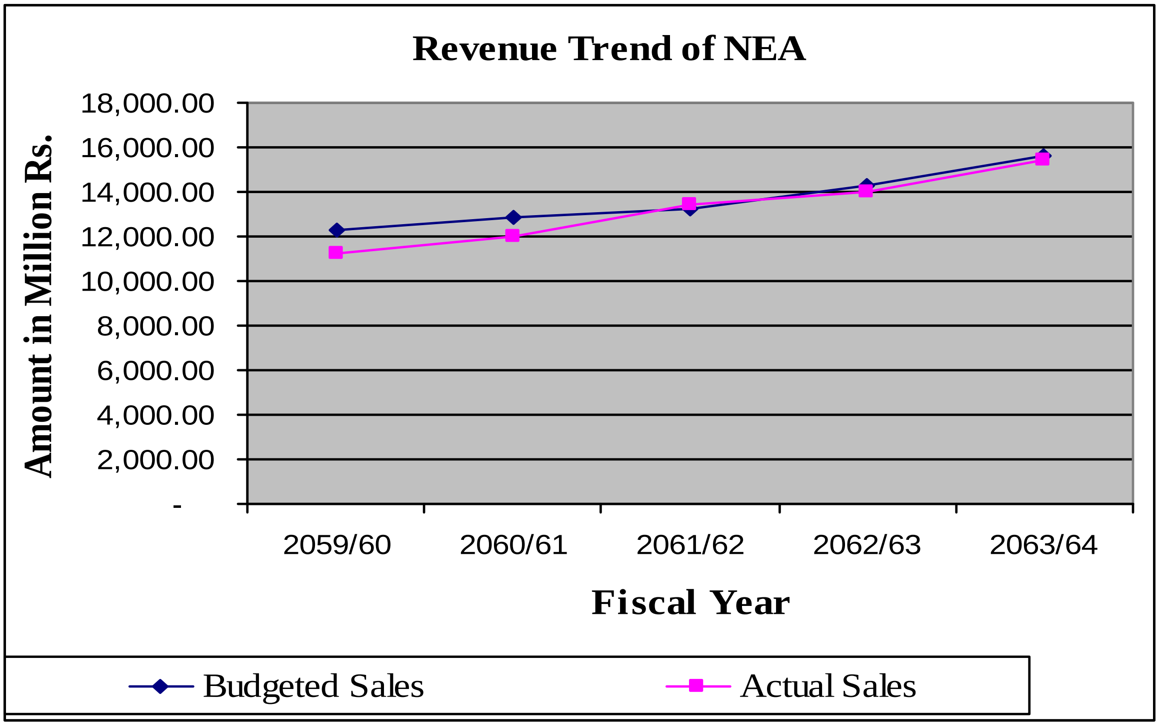
Year	Budgeted sales		Increase over previous years		Actual sales		Increase over previous years	
	Unit in GWH	Amount in million in Rs.	Unit %	Amount %	Unit in GWH	Amount in million Rs.	Unit %	Amount %
2059/60	1,804.90	12,238.80	-	-	1,701.56	11,237.50	-	-
2060/61	1,906.62	12,825.73	5.64	4.80	1,800.81	11,992.59	5.83	6.72
2061/62	1,988.85	13,275.38	4.31	3.51	1,964.38	13,389.05	9.08	11.64
2062/63	2,145.48	14,260.34	7.88	7.42	2,032.62	14,008.80	3.47	4.63
2063/64	2,362.34	15,638.12	10.11	9.66	2,204.20	15,466.34	8.44	10.40

Source: Annual Report and Budget Book of NEA

It is clear from the Table 4.2 that in year 2060/061 budgeted sales in unit and Rs are increased by 5.64% and 4.80% respectively. At the same period actual sales revenue in unit and Rs. are increased by 5.83% and 6.72% respectively. Similarly in fiscal year 2061/062 planned growth in sales unit and revenue are 4.31% and 3.51% respectively. At the same period actual sales in units and Rs. are increased by 9.08% and 11.64% respectively. In fiscal year 2062/63 budgeted sales in unit is increased by 7.88% and 7.42% increased in budgeted sales revenue. At the same period increased in actual performance in units and Rs are 3.47% and 4.63% respectively. In fiscal year 2063/64, there was an increase in sales unit by 10.11% and by 9.66% in sales revenue. At this period achievement are 8.44% and 10.40% in sales unit and revenue respectively. The budgeted sales and actual sales both in units and rupees are fluctuating trend. The main reason of this is lack of proper demand forecasting, lack of collection policy, political issue and lack of good governance. It shows that there is no consistent between budgeted and actual sales revenue, It is clear that the forecast of demand is not realistic.

The revenue trend of NEA can be efficiently presented by the help of following graph.

Graph 4.1



The above graph 4.1 shows the budgeted revenue trend of NEA is always higher than the actual revenue trend during the research period that means the target has not been meet in the entire research period.

Table 4.3 shows the budgeted sales and actual sales with their respective achievements from the fiscal year 2059/060 to 2063/064.

Table 4.3
Budgeted Sales and Achievement in Unit and Rs
From F/Y 2059/060 to 2063/064

Fiscal year	Sales Unit in million (i.e. in GWH)			Sales Rs. in Million		
	Budgeted	Actual	Achievement %	Budgeted	Actual	Achievement %
2059/60	1,804.90	1,701.56	94.27	12,238.80	11,237.50	91.82
2060/61	1,906.62	1,800.81	94.45	12,825.73	11,992.59	93.50
2061/62	1,988.85	1,964.38	98.77	13,275.38	13,389.05	100.86
2062/63	2,145.48	2,032.62	94.74	14,260.34	14,008.80	98.24
2063/64	2,362.34	2,204.20	93.31	15,638.12	15,466.34	98.90
Average	-	-	95.11	-	-	96.66

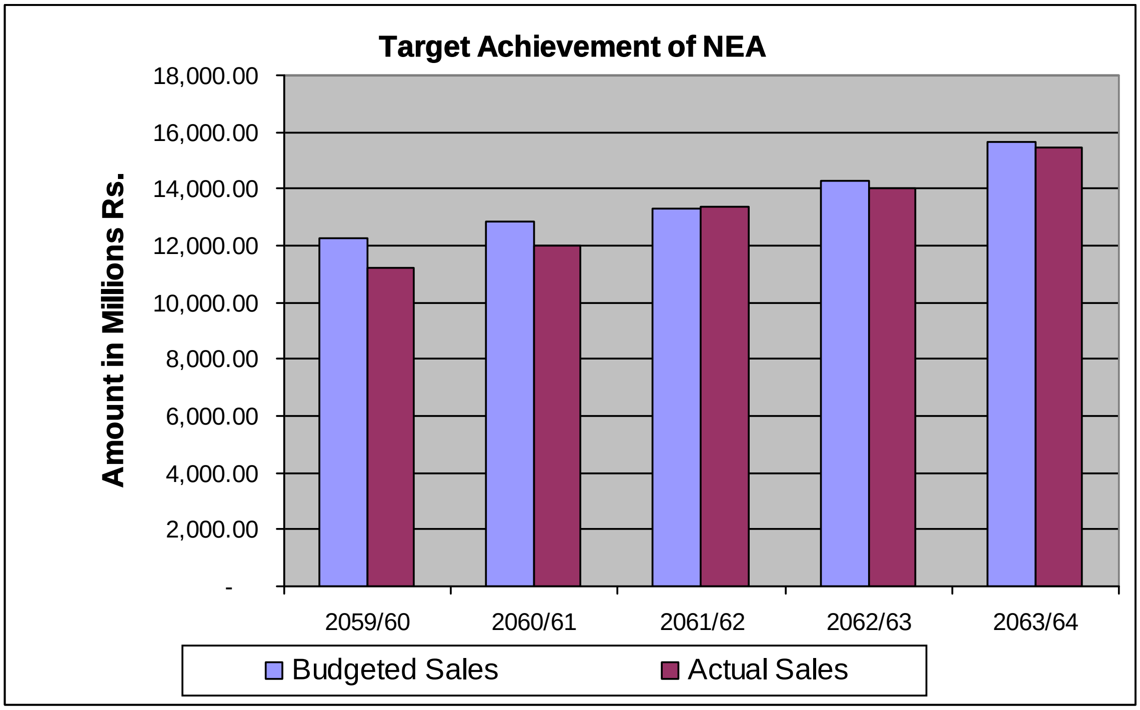
Source: Annual reports and budget book of NEA

The table 4.3 signifies that the budgeted and the actual sales in unit and Rs with their respective achievements of NEA. In the FY 2059/060 the budgeted sales of NEA was 1804.90 million units and gradually increased up to the FY 2063/064, which is 2362.34 million units. On the other side the actual sales of NEA in FY 2059/060 was 1701.56 million units which is increased to 2204.2 million units up to FY 2063/064. The annual achievement in units is not less than 93.31 percent. This shows that achievements are satisfactory regarding the sales unit.

In the same way in the FY 2059/060 the budget sales revenue was Rs.12238.80 million. Annual targeted sales budgeted is increasing from the FY 2059/060 up to the FY 2063/064. In FY 2063/064 the budgeted sales was Rs.15638.12million. On the other side the actual sales revenue of NEA in FY 2059/060 was RS 11237.50 million which is reached to RS 15466.34 million up to FY 2063/064. Annual achievement in sales revenue is also in increasing trend up to 2061/062 and after that it went down in FY 2062/063 and 2063/064. In FY 2059/060, 2060/061 and 2061/062 achievement in sales revenue was 91.82%, 93.50% and 100.86% respectively.

In conclusion, the sales budget shows that the actual achievement is high during the research period. More then 91% achievement is satisfactory. It denotes that an actual achievement is near to budgeted achievement. Average achievements over five year are 95.11% and 96.66% in units and Rs. respectively, which is good signal for NEA. Lastly if the actual sales are increase under this figure NEA will achieve good prosperity in coming days.

Diagram 4.1



The above diagram 4.1 shows the achievement of sales of NEA from fiscal year 2059/060 to 2063/064 which explains that the actual sales is always lower than the budgeted sales except in FY 2061/062. But in the fiscal year 2061/062 the actual sales is greater than the budgeted sales.

Trends of Actual Sales of NEA are presented below in Table 4.4

Table 4.4
Trends of Actual Sales of NEA
From FY 2059/060 to 2063/064 (In Million)

FY	Units	Increase/Decrease	Rupees	Increase/Decrease
2059/60	1,701.56	-	11,237.50	-
2060/61	1,800.81	5.83	11,992.59	6.72
2061/62	1,964.38	9.08	13,389.05	11.64
2062/63	2,032.62	3.47	14,008.80	4.63
2063/64	2,204.20	8.44	15,466.34	10.40

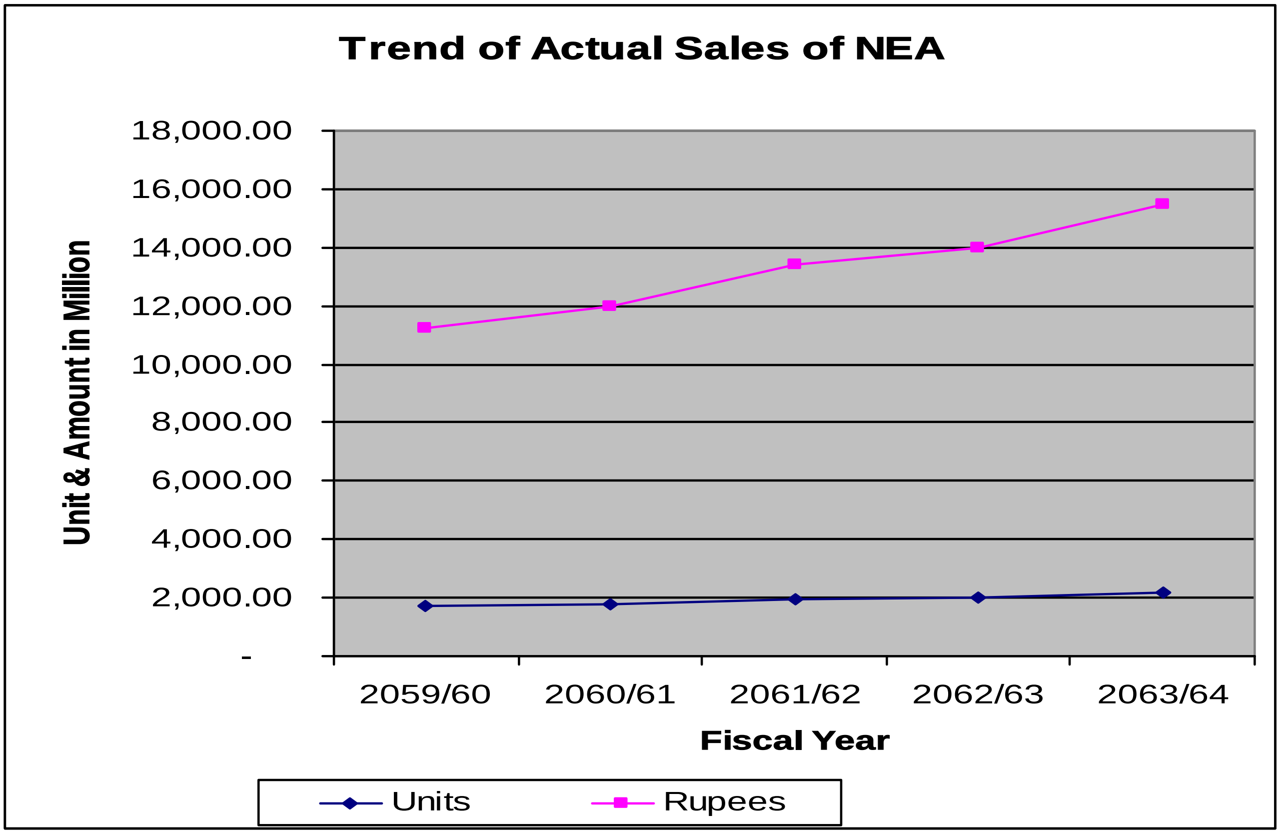
Source: Annual reports of NEA

The above table shows the increasing trend of actual sales of NEA since FY 2059/060 to 2063/064. The increment unit in FY 2060/061 was seen to be 99.25 units which is increment by 6.72% in terms of Rupees. Similarly the increment in unit in the fiscal year 2061/062, 2062/063 and 2063/064 are 9.08%, 3.47% and 8.44% respectively. While on the other side the increment in terms of rupees in the year 2061/062, 2062/063 and 2063/064 is 11.64%, 4.63% and 10.40%

respectively. The increment in the fiscal year 2061/062 is maximum in units and in rupees while the minimum increment is in the FY 2062/063 both in units and rupees. During the study period of FY 2059/060 to 2063/064, NEA could not maintain its growth rate for revenue and unit sales, due to lack of proper demand forecasting, revenue collection strategies, active internal management, effective government policy etc. NEA has been fluctuated its revenue and sales unit for the last five years.

The trend of NEA can be shown effectively in the graph as follows;

Graph 4.2



The above graph shows that the actual sales in rupees and sales in units are in increasing trend during the research period. But the increment in sales in rupees is higher than the increment in the sales units.

4.3 Summary of Statistical Calculation

The table 4.5 presents the summary of statistical calculation.

Table 4.5
Summary of Statistical Calculation

(In Rs. '00000')

Statistical Tools	Budgeted Sales in Rs. 'X'	Actual Sales in Rs. 'Y'
Mean	13647.68	13218.86
Standard Deviation	1194.69	1492.22
Co-efficient of Variation (C.V.)	8.75%	11.29 %
Correlation of Co-efficient (r)	0.9753	
Co-efficient of Determination (r^2)	0.9512	
Probable Error (P.E.)	0.0147	

Sources: Appendix I

The above table 4.5 shows the value of statistical tools. A distribution having more C.V is considered more variable or more heterogeneous or less consistent. A distribution having lesser C.V is considered less variable or more homogeneous or more consistent or more uniform. It also states that the actual sales are more deviated or fluctuated year by year as the coefficient of variation of the actual sales as shown in the table is greater than the budgeted sales. The C.V of actual sales is 11.29% where as budgeted sales is 8.75%.

Another statistical tools "correlation coefficient" can be used to analyze the degree of relationship or association between the degrees of relationship or association between the budgeted sales and actual sales. To find out the correlation between budgeted sales and actual sales, we can use Karl Pearson's correlation coefficient which is denoted by 'r'. Karl Pearson's correlation coefficient is the most commonly used measure of the relationship between the two variables. The value of correlation coefficient is 0.9753 which shows that there is highly positive correlation between budgeted sales and actual sales achievement. That means the actual sales should increase as the budgeted sales and vice- versa.

A regression line can also be fitted to show the degree of relationship between the budgeted sales and actual sales and to forecast on estimate the possible actual sales achievement with given budgeted sales. For this purpose, the actual sales have been assumed to be dependent upon the budgeted sales, as independent. So, the regression line of actual sales (Y) on budgeted sales (X) or Y on X is as follows.

$$(Y - \bar{Y}) = r \frac{\sigma_y}{\sigma_x} (X - \bar{X})$$

Substituting the value from above table 4.4, We have,

$$Y - 13218.86 = 0.9753\ \frac{1492.22}{1194.69}(X - 13647.68)$$

Or, $Y - 13218.86 = 0.9753 \times 1.2490(X - 13647.68)$

Or, $Y - 13218.86 = 1.2182(X - 13647.68)$

Or, $Y - 13218.86 = 1.2182X - 16625.50$

Or, $Y = 1.2182X - 16625.50 + 13218.86$

Or, $Y = 1.2182X - 3406.64$

The above regression line shows that there is a positive relationship between budgeted sales and actual sales. It is obvious that the actual sales are in increasing trend and it will be increased by Rs.1.2182 million with increasing the budgeted sales for Rs.1million. By the help of this regression equation, we can estimate the expected sales achievement for the fiscal year 2064/065 with the given value of budgeted sales ‘X’.

Budgeted sales for 2064/065 (X) = Rs.16220.95

Hence, the expected sales achievement

Y =1.2182 ×16220.95 -3406.64

=Rs.19760.36 million

If the relationship between budgeted sales and actual sales remain the same as the previous years then the actual sales for the fiscal years then the actual sales for the fiscal year 2064/065 will be expected to be Rs.19760.36 million as stared up by the above regression equation.

Another statistical tool called least square methods can be used to analyze the trend of actual sales and to estimate the possible future sales for a given time (years). This tool is considered as a time factor because time and element is also an important factor to analyze the trend with the passage of time the sales achievement will be changed, which can be expressed by the components of time series.

A straight line trend by the method of least squares will show the relationship between actual sales and years (time). For the least square method, it is assumed that the sales are consistently changed (increased or decreased) with the change in time. To fit the straight line trend, time factor is considered as independent variable(X) and actual sales achievement(Y) is assumed as dependent upon time (years).

Now the straight line trend by least square method for actual sales upon time is expressed by

Y_c =a +bx…………………..(i)

Where,

Y=Actual sales achievement
X=Deviation taken in time
a=Fixed value
b=Variable value

Table 4.6
Fitting Straight Line Trend by Least- Square
From FY 2059/060 to 2063/064

Fiscal Year (X)	Actual Sales in Rs.00000(Y)	x=X-2061/062	x^2	xY
2059/60	11,237.50	-2	4	(22,475.00)
2060/61	11,992.59	-1	1	(11,992.59)
2061/62	13,389.05	0	0	-
2062/63	14,008.80	1	1	14,008.80
2063/64	15,466.34	2	4	30,932.68
	Y =66094.28	x =0	x^2 =10	xY =10473.89

Since, x =0, then,

$$a \text{ X} \frac{Y}{n} \text{ X} \frac{66094.28}{5} \text{ X}13218.86$$

$$b \text{ X} \frac{xY}{x^2} \text{ X} \frac{10473.89}{10} \text{ X}1047.39$$

Now the best fit of straight line trend is obtained by substituting the value of 'a' and 'b' in equation {1} i.e. Y_c= a + bx, we get,

Y_c=13218.86+1047.39 x

This trend line equation shows the positive relationship between time [years} and actual sales achievements. The actual sales will be increased by 1047.39 million every year if the sales trends of past years continue in the future.

By using this trend line equation, we can estimate the actual sales for fiscal year 2064/065.

The value of deviation {x} for fiscal year 2064/065 is 3.

We have,

$$Y_c = 13218.86 + 1047.39x$$
$$= 13218.86 + 1047.39 \times 3$$
$$= \text{Rs.}16361.03\text{million.}$$

If the past sales trend does not change, then the future actual sales will be Rs.16361.03 million in fiscal year 2064/064. By the help of least square method we can say that the trend of actual sales will have an increasing pattern.

In addition to this, hypothesis testing or test of a Hypothesis can be used. Hypothesis testing is a well defined a clear cut decision making procedure. Hypothesis testing begins with an assumption or supposition, called a hypothesis that we make about a population parameter.

In hypothesis testing, the first thing is to set up a hypothesis about a population parameter. Then we collect sample data, produce sample statistics, and use this information to decide how likely it is that our hypothesized population parameter is correct. Suppose we assume a certain value for a population mean. To test the validity of our assumption we gather sample data and determine the difference between the hypothesized value and the actual value of the sample mean. Then we judge whether the difference is significant. The smaller the difference, the greater the likelihood that our hypothesized value for the mean is correct. The larger the difference, the smaller the likelihood. The statistical hypothesis may be divided into two types: Null hypothesis (H_0) and alternative hypothesis (H_1). The null hypothesis is testing the significance. States that there is no real difference in the sample mean and the population mean and is denoted by (H_0). Any hypothesis which is complementary to the null hypothesis is called on alternative hypothesis and is denoted by H_1.

In a hypothesis testing the level of significance is set up. It is denoted by 'α' {alpha}. We generally use 5 %.{ 0.05} level of significance unless otherwise stated. For a hypothesis testing student's t-distribution or 't' test is adopted here which was developed by W.S.Gosset. The t- distribution {t-test} is used when the sample is 30 or less than 30(≤30).

The t-test can be numerically presented as under:

$$t = \frac{\bar{X} - \mu}{\frac{S}{\sqrt{n}}}$$

Where,

$$\bar{X} = \frac{X}{n} = \text{Sample Mean}$$

μ = population mean

n = sample size

S = standard Deviation of Sample

$$= \sqrt{\frac{x^2}{n-1}}, \; x = X - \bar{X}$$

Now formulation of Hypothesis:

Null Hypothesis (H_o): There is no significant different between actual sales achievement (i.e. sample mean) and budgeted achievements (i.e. population mean) or $\bar{X} = \mu$

Alternative Hypothesis (H_1): There is significant different between actual achievement and budgeted Sales or $\bar{X} \neq \mu$.

Hence applying t-test formula

We have,

$$t = \frac{\bar{X} - \mu}{\frac{S}{\sqrt{n}}} = \frac{13218.86 - 13647.68}{\frac{1668.36}{\sqrt{5}}} = -\frac{428.82}{746.10} = -0.5747$$

Hence, (t) = -0.5747

Where,

$\bar{X}$ = Sample mean or actual sales mean.

μ = Population mean or budgeted sales

$$S = \text{Sample S.D.} = \sqrt{\frac{x^2}{n-1}}, \; x = X - \bar{X}$$

$$= \sqrt{\frac{11133661.75}{5-1}}$$

$$= 1668.36$$

Therefore degree of freedom (d.f.) = n-1 = 5-1= 4

Tabulated value of ‘t’ at 5% level of significance for 4 d.f.for two tail test =2.776.

The tabulated value of ‘t’ (i.e. 2.776) is greater than computed value of t (i.e. -0.5747). So, the alternative hypothesis is rejected and null hypothesis is accepted. Therefore we can say that there is no significance difference between actual sales and budgeted sales of NEA.

4.4 Category-wise Analysis of Revenue

While preparing revenue plan, the emphasis needs to be given to category of customer. Different segment or category has different tariff rate and most of the activity of NEA is based on the customer's .It is serving. Therefore, analysis of sales of each category of customer is important. The major aspect of this analysis is to measure the achievement of actual sales and actual sales revenue of each category of NEA.

Table 4.7 shows category wise achievement of budgeted sales unit of NEA and Table 4.8 shows the category wise achievements of sales revenue. The detail calculations of this analysis are presented in appendix.

Table 4.7
Category-wise Achievement of Sales Units (%) of NEA
From FY 2059/60 to 2063/64

	2059/60	2060/61	2061/62	2062/63	2063/64	Average
Domestic	95.14	98.11	101.09	98.86	101.00	98.84
Non-commercial	89.71	89.81	89.77	82.86	90.97	88.62
Commercial	84.31	98.29	102.16	107.70	106.21	99.73
Industrial	95.38	101.76	105.38	94.41	91.74	97.73
Water supply & Irrigation	81.03	95.54	94.30	84.26	102.04	91.43
Street Light	101.78	128.37	91.43	108.10	95.16	104.97
Temporary Supply	70.00	86.21	111.43	164.15	157.50	117.86
Transport	79.00	75.97	82.86	94.17	95.61	85.52
Temple	100.36	137.92	101.78	91.73	88.52	104.06
Community Sales	118.50	111.60	100.50	122.40	116.18	113.84
Bulk Supply (India)	96.13	57.58	67.50	68.96	46.59	67.35
Average	91.94	98.29	95.29	101.60	99.23	97.27

Source: Appendix II (a)

The Category wise average achievement in units of NEA during the whole research period can be efficiently shown in the following bar diagram 4.2.

Diagram 4.2

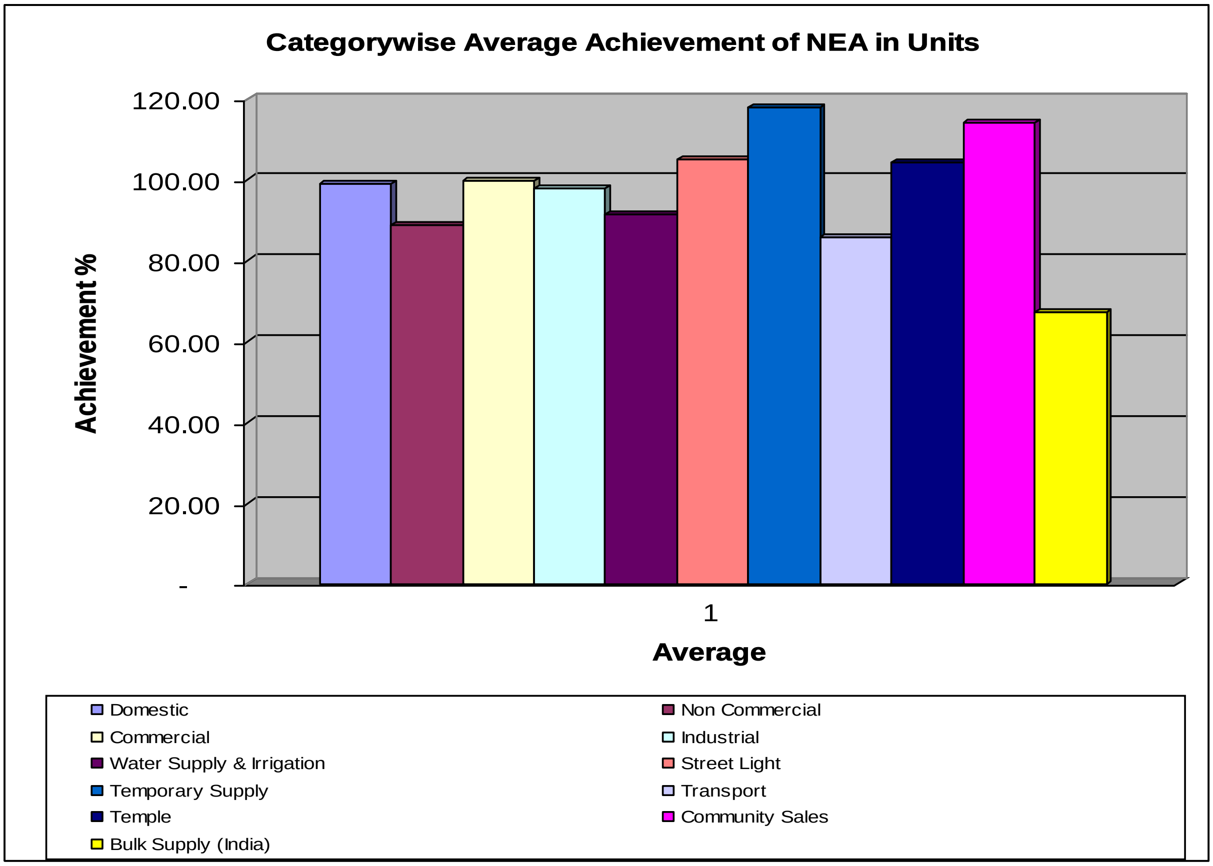


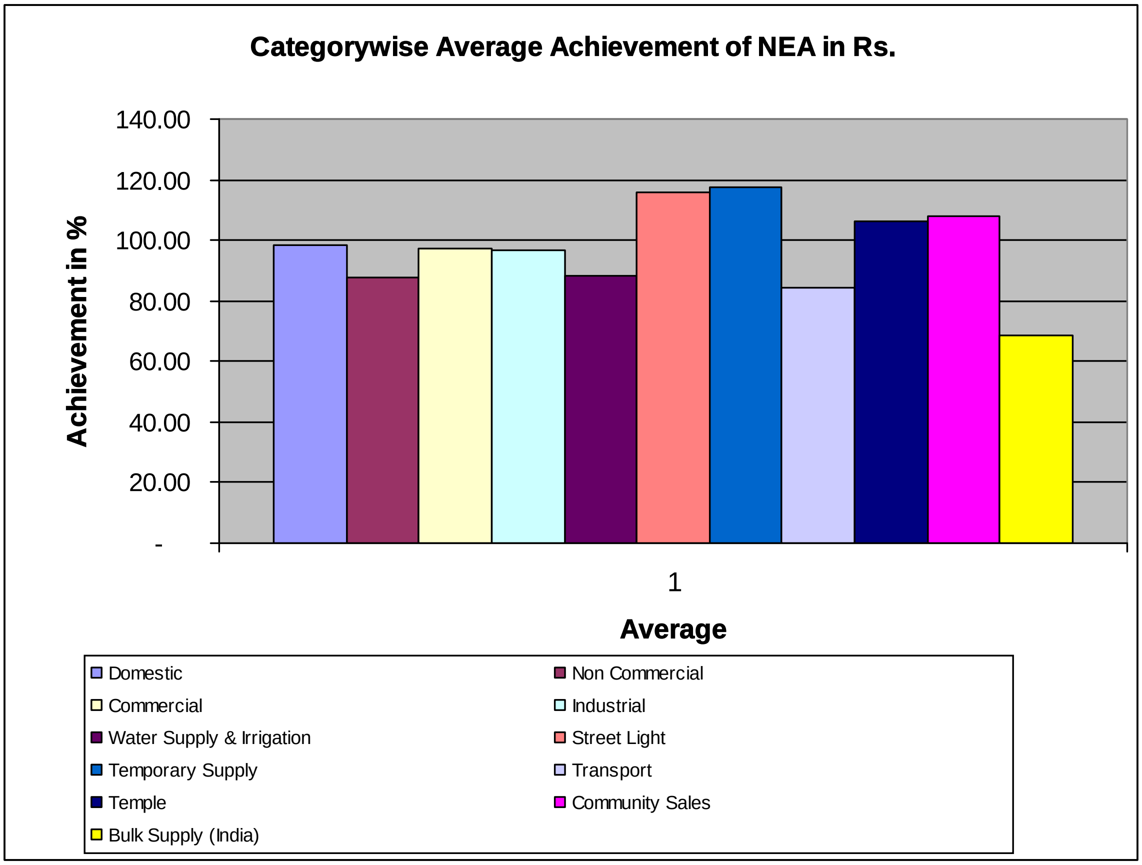
Table 4.8
Category wise Achievement of Sales Rupees (%) of NEA
From FY 2059/60 to 2063/64

	2059/60	2060/61	2061/62	2062/63	2063/64	Average
Domestic	92.55	95.98	99.94	99.28	102.85	98.12
Non-commercial	87.11	88.28	89.44	81.39	92.48	87.74
Commercial	82.18	90.55	101.58	107.76	104.72	97.36
Industrial	94.16	99.10	105.33	94.23	91.34	96.83
Water supply & Irrigation	78.88	95.25	92.06	76.64	99.04	88.37
Street Light	104.46	145.97	92.16	125.56	111.55	115.94
Temporary Supply	70.22	88.38	116.40	150.67	160.74	117.28
Transport	76.08	73.08	82.79	94.54	94.03	84.10
Temple	101.71	139.60	101.23	93.18	94.52	106.05
Community Sales	118.50	114.80	102.00	89.92	113.31	107.70
Bulk Supply (India)	92.98	58.19	68.29	79.89	43.33	68.54
Average	90.80	99.02	95.56	99.37	100.72	97.09

Source: Appendix II (b)

The above average achievement of sales revenue of NEA during the research period can be shown in the following diagram 4.3.

Diagram 4.3



The above table 4.7 & diagram 4.2 and 4.8 & diagram 4.3 shows the category wise achievement of sales unit and category wise achievement of sales rupees of NEA. The categories are domestic, Non-commercial, commercial, Industrial, water supply and irrigation, street light, Temporary Supply, Transport, Temple, community sale and Bulk Supply {India} respectively.

It is predicated that the average domestic achievement of sales units is 98.84 while the average domestic achievement of sales Rupee is 98.12. The domestic sales unit in FY 2059/060 is 95.14 which reached to 101.00 in the FY 2063/064. It is in increasing trend since FY 2059/60 to 2061/62. It has slightly gone down to be 98.86 in the FY 2062/063 in comparison to FY 2061/062, which is 101.09 in 2061/062. Similarly a domestic sales rupee is in increasing trend. The mean figure of domestic shows that mean domestic in sales unit is in better position than mean domestic in rupees of NEA.

In the non-commercial category, the average achievement is 88.62 and 98.12 in sales unit and sales rupees respectively. The sales unit has gone slightly down after the FY 2062/063 while the remarkable change in sales rupees has been during the year 2061/062.

The average achievement in commercial category is 99.73 and 97.36 in sales unit and sales Rupees respectively. Both the sales are in good increasing trend except FY 2063/064. The commercial achievement sales unit was 84.31% in the year 2059/060 which then mounted to reach the peak or 107.70% in the year 2062/063. Likewise the achievement in Sales rupees in FY 2059/060 was 82.18%which then reached the peak of 107.76 in the FY2062/063. But in FY 2063/064, it is 104.72%. This shows that sales unit is in better position than sales rupees.

In the industrial, the average sales unit is 97.73 and the average sales Rupees is 96.83. Both sales have gone slightly down after the FY 2061/062. Though there are ups and downs in sales unit it is in better position than sales rupees.

In water supply and irrigation category, the average sale Rupee is 88.37 which is neither low nor the least in comparison to other. The average sales unit is 91.43 which are around the Averages of average.

The street light categories in both sales unit and sales Rupees are in fluctuating trend. The average achievement in sales unit is 104.97. The average achievement in sales Rupees is 115.94.

In the Temporary supply, the achievement in sales unit is the highest average which is 117.86. The sales unit is maximum during the FY 2062/063 and minimum during the year 2059/060. The average achievement in sales rupees is 117.28. This average is also the highest percentage. The sales rupees are maximum during the FY year 2063/064 and minimum during the FY 2059/060.

In the Transport category, the sales unit and rupees are slightly increasing trend. The average achievement in sales unit is 85.52 and a sales rupee is 84.10.

In the Temple category, the achievement in sales unit and sales rupees is decreasing trend except FY 2059/060. The average achievement in sales unit and sales rupees are 104.06 and 106.05 respectively.

The community sales in unit only started since the FY 2059/060. It has always exceeded 100%. The highest sales unit is 122.40% in FY 2062/063 and lowest sales unit is 100.50% in FY 2061/062. In terms of sales rupees too, it has exceeded 100% in every consequent years from FY 2059/060 to 2063/064 except FY 2061/062. The average community sales unit and sales rupees are 113.84% and 107.70 respectively. It figures out to be in thousand while in other consequent FY it is only in three digits. Therefore, NEA must revise the calculation of realistic demand of electricity in this category on the basis of sufficient home task.

The last category in the above table is the bulk supply {India}. The average achievement of sales unit in this category is 67.35%. The sales unit seems to be unsatisfactory. It has the lowest average sales unit. The average achievement of sales rupees is 68.54%. This is also not satisfactory sales in comparison to other category. During the year 2059/060 the sales were going well but during the years 2060/061 it went down below 70%. These fluctuating figures suggest that the planning in this category is not satisfactory. In succeeding years, NEA must calculate the demand of electricity on the basis of realistic information and sufficient home tasks.

It can be concluded from the above table 4.7 that achievement of sales unit in domestic, commercial, industrial, street light, temporary supply, temple and community sales categories are relatively satisfactory but lacks consistency in planning. Similarly from table 4.8 it can be concluded that achievement of sales rupees in domestic, commercial, industrial, street light, temporary supply, temple and community sales categories are satisfactory to some extend but this too shows lack of consistency in planning.

In conclusion, it can be suggested that NEA must calculate the demand of electricity in each categories on the basis of realistic information and sufficient home tasks. NEA must be reduced the transmission loss, theft and also initiated demand side management campaign targeting the customers to heighten then awareness on efficient use of electricity for balancing demand and supply.

4.5 Contribution of Each Category in Total Sales

Contribution of each category in total sales unit and total sales revenue from fiscal year 2059/060 to 2063/064 are presented in table 4.9 and 4.10 respectively.

Table 4.9
Contribution of Each Category in Total Sales Units
From FY 2059/60 to 2063/64

Fiscal year / Particulars	2059/60 Contribution (%)	2060/61 Contribution (%)	2061/62 Contribution (%)	2062/63 Contribution (%)	2063/64 Contribution (%)	Average Contribution (%)
Domestic	36.27	37.56	38.60	39.64	40.53	38.52
Non-commercial	4.75	4.61	5.12	4.69	4.56	4.74
Commercial	5.45	6.00	5.56	5.92	6.43	5.87
Industrial	37.00	38.30	38.89	38.65	38.52	38.27
Water supply & Irrigation	1.76	1.76	2.54	2.24	2.18	2.10
Street Light	2.69	3.07	2.79	3.11	3.04	2.94
Temporary Supply	0.02	0.01	0.02	0.04	0.06	0.03
Transport	0.32	0.30	0.30	0.28	0.29	0.30
Temple	0.17	0.23	0.23	0.23	0.22	0.22
Community Sales	0.28	0.31	0.31	0.45	0.70	0.41
Bulk Supply (India)	11.30	7.84	5.64	4.75	3.49	6.60
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: Appendix III (a)

Table 4.10
Contribution of Each Category in Total Sales Revenue
From FY 2059/60 to 2063/64

Fiscal year / Particulars	2059/60 Contribution (%)	2060/61 Contribution (%)	2061/62 Contribution (%)	2062/63 Contribution (%)	2063/64 Contribution (%)	Average Contribution (%)
Domestic	37.82	38.18	38.77	39.53	40.75	39.01
Non-commercial	6.98	6.80	7.23	6.45	6.36	6.76
Commercial	7.96	8.22	7.75	8.18	8.72	8.17
Industrial	35.95	36.52	37.02	36.41	35.87	36.36
Water supply & Irrigation	1.32	1.29	1.83	1.45	1.45	1.47
Street Light	2.20	2.75	2.41	3.09	3.08	2.70
Temporary Supply	0.04	0.03	0.04	0.08	0.12	0.06
Transport	0.26	0.24	0.23	0.22	0.21	0.23
Temple	0.13	0.17	0.18	0.18	0.18	0.17
Community Sales	0.15	0.17	0.16	0.18	0.36	0.20
Bulk Supply (India)	7.20	5.62	4.38	4.24	2.90	4.87
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: Appendix III (b)

The above table 4.9 and 4.10 gives the contribution of each category with respect to total sales in sales units and in sales rupees respectively.

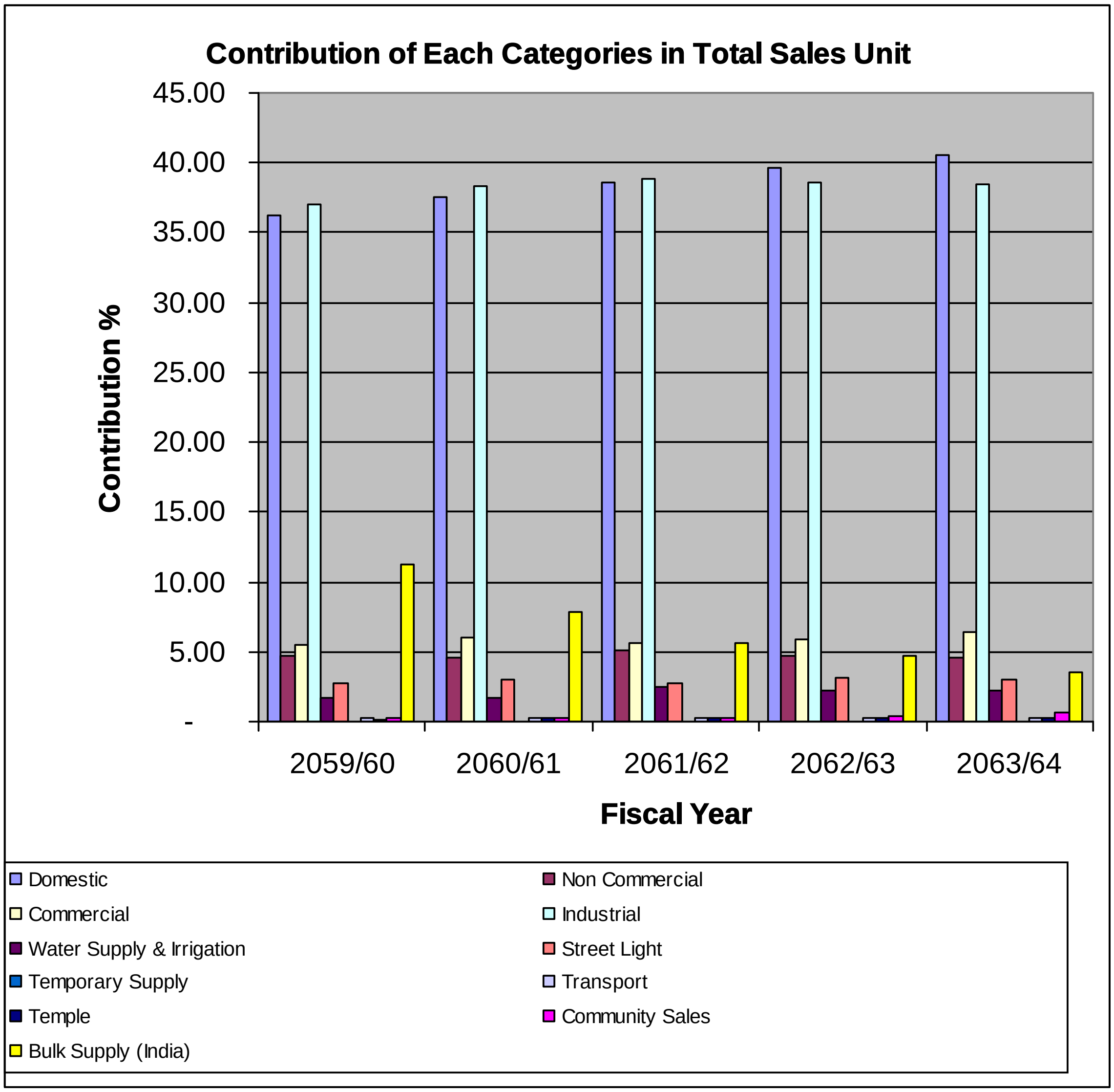
The Domestic category gives the highest contribution in sales unit. The sales unit remained in between 36.27% and 40.53% averaging to 38.52% while the contribution in sales rupee was in between 37.82% and 40.75% whose average remained to 39.01%. The second highest contributing category in sales unit is Industrial category. The contribution in sales unit was between 37.00% and 38.89%. The average contribution was 38.27%. Similarly the contribution in sales rupees was in between 35.87% and 37.02% having the average contribution of 36.36%.

Like wise bulk supply India has the contribution in between 3.49% and 11.30% averaging to 6.60% in sales unit and averaging to 4.87% in sales revenue. Similarly the average contribution of commercial, Non commercial, street light and water supply and irrigation in sales unit are 5.87%, 4.74%, 2.94% and 2.10% respectively. But rest other category have less than 1% contribution.

The highest contribution in sales revenue is from domestic category in sales unit followed by industrial. The average contribution of commercial, Non commercial, Bulk supply (India) street light, and water supply and irrigation are 8.17%, 6.76%, 4.87%, 2.70%and 1.47% respectively. All other category has average contribution below 1%.

The contribution of each category in total sales in units can be shown effectively in the following diagram.

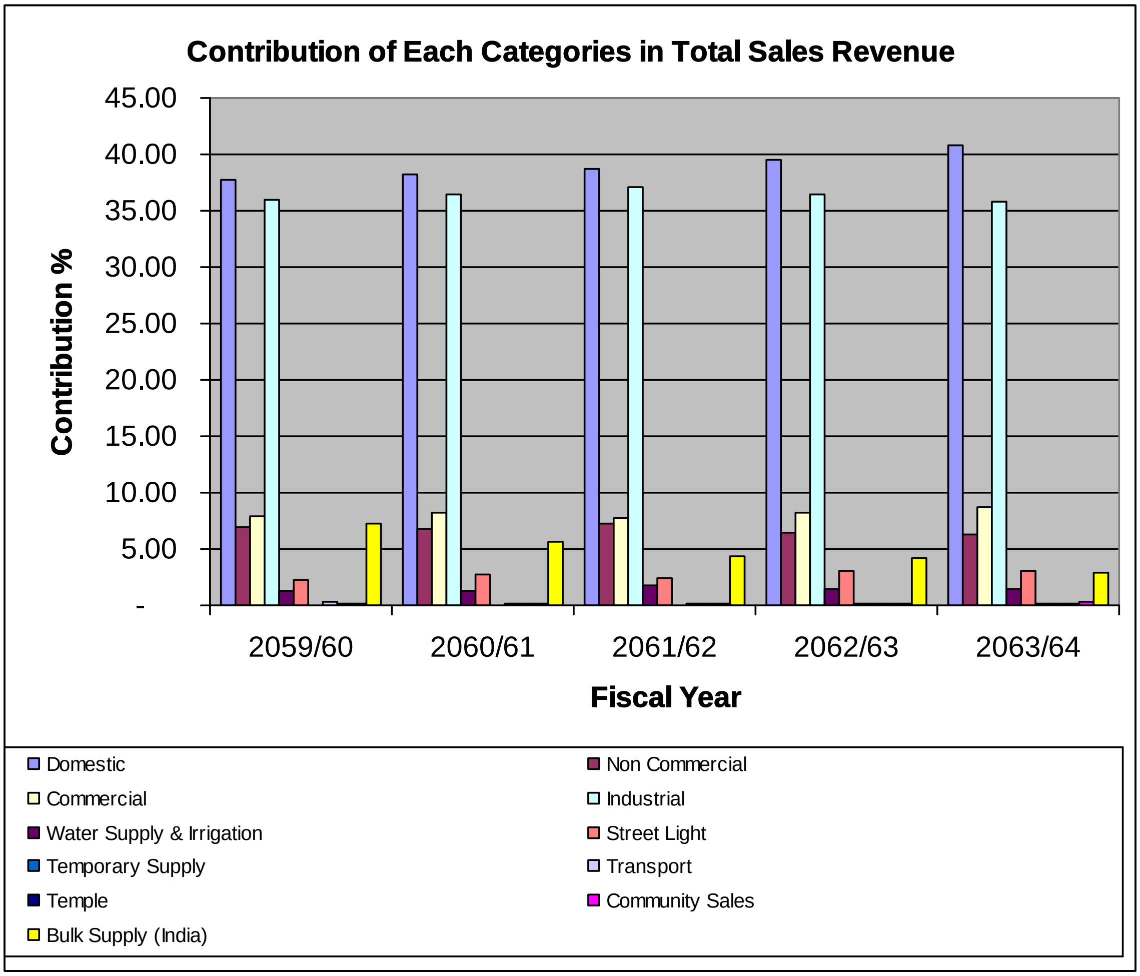
Diagram 4.4



The above diagram 4.4 shows that the contribution of domestic is the highest which is followed by industries categories whereas the contribution of temporary supply is the lowest in total sales of NEA during the research period.

Similarly, the contribution of each category in total sales revenue of NEA can be presented by the following sub divide bar diagram.

Diagram 4.5



The above diagram 4.5 shows that the contribution of domestic category in total sales revenue is the highest which is closely followed by the industrial categories and the contribution of temporary supply is the lowest in the total sales revenue of NEA.

4.6 Contribution of Consumers in Each Category

The detail studies about contribution of each category with no. of consumers are presented in appendix IV. The brief analysis of the results of contribution of consumers in each category from FY 2059/060 to 2063/064 is presented in table 4.10 as below:-

Table 4.11
Contribution of Consumers in Each Category
From FY 2059/060 to 2063/064

FY / Category	2059/060 Contribution %	2060/061 Contribution %	2061/062 Contribution %	2062/063 Contribution %	2063/064 Contribution %	Average Contribution %
Domestic	95.87	95.90	96.02	96.07	95.81	95.94
Non-Commercial	1.002	0.936	0.858	0.784	0.731	0.862
Commercial	0.55	0.52	0.517	0.483	0.43	0.50
Industrial	2.04	2.03	1.94	1.802	1.723	1.91
Water Supply	0.031	0.033	0.032	0.030	0.030	0.031
Irrigation	0.18	0.243	0.293	0.505	0.943	0.432
Street Light	0.127	0.136	0.129	0.121	0.12	0.13
Temporary Supply	0.014	0.014	0.013	0.013	0.02	0.014
Transport	0.005	0.005	0.0043	0.0042	0.003	0.004
Temple	0.179	0.186	0.185	0.179	0.188	0.184
Community Sales	0.0001	0.0014	0.003	0.005	0.012	0.0042
Bulk Supply{India}	0.0005	0.0005	0.00043	0.0004	0.0004	0.0004
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: Appendix-IV

The contribution of domestic category of consumer during the research period ranks in the first position. The contribution in total sales is between 95.81% and 96.07% averaging to 95.94%. Like wise industrial category ranks in the second position. Its contribution lies between 1.723% to 2.04% the average contribution lies being 1.91%. The contribution of all other category of consumer is below 1%. The average contribution of Non- commercial, commercial, Irrigation, Temple, Street light, Temporary supply, Water supply, Community Sales and Bulk supply {India} are 0.862%, 0.50%, 0.432%, 0.184%, 0.13%, 0.014%, 0.031%, 0.0042% and 0.0004% respectively. Except Domestic and Industrial category, the contributions of consumer during FY 2059/060 to 2063/064 were very low. NEA focuses the domestic and industrial customer on the basis of Government of Nepal policies for rural electrification and industrial areas.

4.7 Relationship between Total Revenue and Profit

Profit is the major element of each and every business endeavor for survival and future development. Business without Profit exists no where. No matter the concept of profit is changing from time to time. It presents reasonable profit approach seems to hold a strong position. Profit is the nerve center of any business organization. So it can be said that profit is the blood circulation of any organization. Profit is essential to pay expenditure dividends and to get benefits from opportunities and financials contribution to natural treasury is a source of revenue as well as mobilization of domestic resources. Profit of any organization highly depends upon sales relationship.

NEA has been generating negative returns. NEA is unable to earn profit from years 2003 and is not able to pay loan. There is no effective control system for reward and punishment system. The following table shows the profit and loss trend of NEA from FY 2059/060 to 2063/064.

Table 4.12
Total Revenue and Profit / (Loss) Trend of NEA
From FY 2059/060 to 2063/064

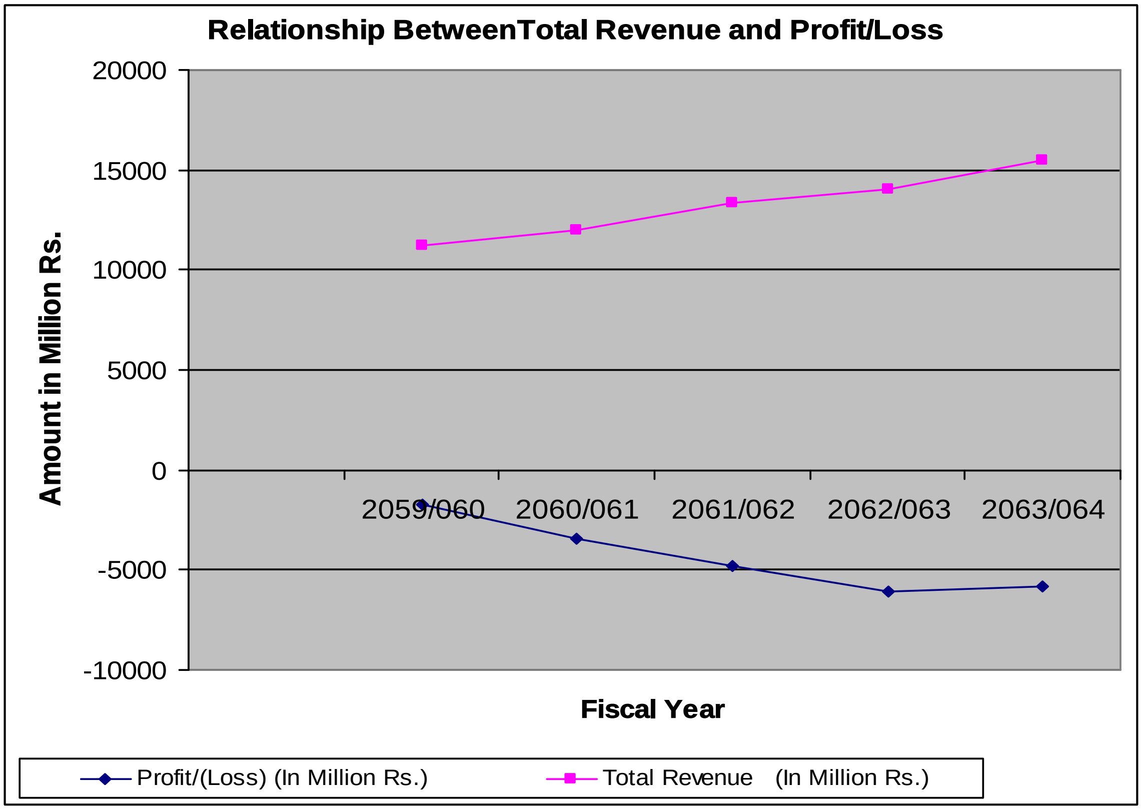
Fiscal Year	Profit/(Loss) (In Million Rs.)	Total Revenue (In Million Rs.)	% of Profit/(Loss) on Total Revenue
2059/060	(1,694.90)	11,237.50	(15.08)
2060/061	(3,475.20)	11,992.59	(28.98)
2061/062	(4,808.00)	13,389.05	(35.91)
2062/063	(6,095.80)	14,008.80	(43.51)
2063/064	(5,801.61)	15,466.34	(37.51)

Source: Annual Report of NEA

The table above 4.12 gives the account of Total Revenue and Profit/(Loss) trend of NEA from FY 2059/060 to 2063/064. During the research period, NEA went in loss. The loss was in increasing trend starting from 1694.9 million to the height of 6095.80 million. This shows that the percentage loss started from 15.08% and reached to 43.51%. In the research period, NEA has suffered the loss. The main reason for loss is the leakage of power in transmission by technical problem, leakage of power in distribution, high purchasing cost from IPPs (Independent power producers), expansion of services in rural areas, staff expenses increases simultaneous with government decision, operating and maintenance loss and high investment cost due to high depreciation.

The relationship between total revenue and profit can be presented by the following graph.

Graph 4.3



The above line graph gives the clear picture of relationship between total revenue and profit/ (loss) of NEA during the research period of 2059/060 to 2063/064. The total revenue is in increasing trend whereas the profit is in decreasing trend that shows the relationship between total revenue and profit is in totally inverse direction.

The least square method can be used to analyze the trend of profit/ (loss) and to estimate the possible future profit or loss for a given time of year. Considering the time factors as independent and profit or loss as dependent factor upon time, it will show the relationship between year and profit or loss.

Let, the straight line trend be $y_c = a+bx$

Table 4.13
Fitting Straight Line Trend by Least Square
From F/Y 2059/60 to 2063/64

F/Y (X)	Profit/loss (Y) (in Rs.000000)	x=X-2061/62	x^2	xY
2059/060	(1,694.90)	-2	4	3,389.80
2060/061	(3,475.20)	-1	1	3,475.20
2061/062	(4,808.00)	0	0	-
2062/063	(6,095.80)	1	1	(6,095.80)
2063/064	(5,801.61)	2	4	(11,603.22)
	∑Y=(21,875.51)	∑x=0	$\sum x^2=10$	∑xY=(10,834.02)

Since ∑x=0 then,

$$a = \frac{\sum Y}{n} = \frac{-21875.51}{5} = -4375.102$$

$$b = \frac{\sum xY}{n} = \frac{-10834.02}{5} = -2166.804$$

Now substituting the value of 'a' and 'b' in the above equation,
We have,

Y_c= -4375.102 + (-2166.804) x
= -4375.102 - 2166.804x

For the estimation of profit or loss for the year 2064/65,
We have,

a = 3
Y_c= -4375.102 - 2166.804×3
= -10875.514 million

The estimated loss for the fiscal year 2064/065 will be Rs.10875.514 millions if the past profit trend continues. With the help of least square method we can say the trend of loss of NEA is increasing.

To analyze the relationship between sales and profit of NEA some statistical tools are used which are presented below.

Table 4.14
Summary of Statistical Tools

(In Rs. 000000)

Statistical Tools	Total Renenue "X"	Profit "Y"
Arithmetic Mean	13218.86	-4375.102
Standard Deviation	1492.22	1623.36
Coefficient of variation	11.29 %	37.11%
Correlation Coefficient	-0.9126	
Coefficient of Determinant	83.28 %	
Probable error	0.0504	

Source: Appendix V

The above table shows that the profit is more deviated than sales being CV 83.28% as compared to CV 11.29% of total revenue. The correlation coefficient is used to analyze the relationship between total revenue and profit. From above table, the value of correlation is -0.9126 which is low negative correlation between total revenue and profit. That means total revenue and profit moves in quite opposite direction.

One very convenient and useful way of interpreting the value of co-efficient of correlation is coefficient of determination (r^2). The value of coefficient of determination between total revenue and profit is 0.8328 which shows that profit is expanded up to 83.28% only by total revenue and remaining part by other factors.

The significance of correlation can be tested or verified by probable error. If the value of "r" is less than six time of P.E there is no evidence of correlation i.e. the value of "r" is not significant. Here the value of "r" is smaller than 6×PE (i.e. -0.9126<0.2514) that means the value of 'r' is not significant. So it can be concluded that the value of profit will go on for opposite direction of total revenue.

4.8 Analysis of Account Receivable of NEA

The following table 4.15 shows that the account receivable, sales revenue, average collection period and debtor turnover of NEA.

Table 4.15
Account Receivable, Sales Revenue, Average Collection Period And Debtor Turnover From FY 2059/060 to 2063/064

Fiscal year	Sales Revenue in Rs.million (A)	Account receivable in Rs.million (B)	Debtor Turnover (C=A/B)	Average Collection Period=360/C
2059/060	11,237.50	3,380.20	3.32 times	109.79 days
2060/061	11,992.59	3,735.71	3.21 times	113.70 days
2061/062	13,389.05	3,697.70	3.62 times	100.80 days
2062/063	14,008.80	4,088.00	3.43 times	106.51 days
2063/064	15,466.34	5,151.41	3.00 times	121.57 days

Source: Annual Report of NEA

The above table 4.15 shows that sales revenue, account receivable, debtor turnover and average collection period of NEA from fiscal year 2059/060 to 2063/064. The debtor turnover and average collection period are calculated by using following formula:

Debtor turnover = Sales/closing debtors or Sales /Account Receivable
Average collection period = Days in a year/Debtor Turnover

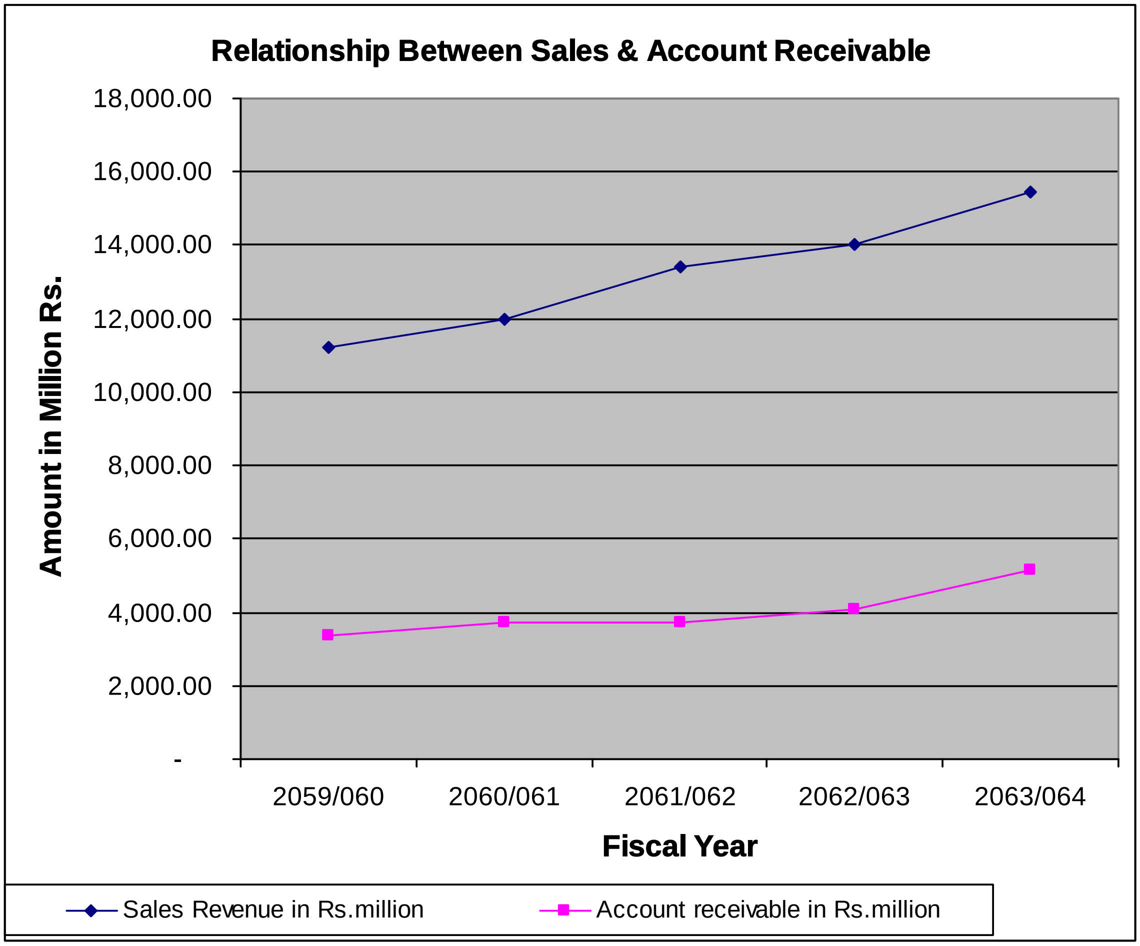
The table shows that as sales revenue increases, it puts impact on Account receivable, so does account receivable increases. Debtor Turnover is in fluctuating trend. It decreased from 3.32 times to 3.21 times during the FY 2060/061. Then it has slightly gone up to 3.62 times during the year 2061/062 and then again it has decreased to 3.00 times in FY 2063/064.

The average collection period of NEA during the fiscal year 2059/060 was 109.79 days. It increased to 113.70 days during the FY 2060/061. In FY 2061/062, it decreased to 100.80 days. After that it has gone up to 106.51 days and 121.57 days in FY 2062/063 and 2063/064 respectively. The above table shows that the collection period was good enough during FY 2061/062. This is so because the collection period was the lowest during the year 2061/062.

There is 60 days standard average collection period fixed by NEA, which is noted on meter billing. But the table shows that the NEA could not success to achieve that policy in practice. The causes behind the increase in average collection period may be the interim government and ineffectiveness in revenue collection and unpaid of dues by public institution, municipalities and government offices. But policies about the autonomy of NEA issued a circular to pay the electricity bill in the time for all office.

The relationship of sales and account receivables can be shown by graph as follows:

Graph 4.4



The above graph shows that both the sales and account receivables are increasing in the whole research period. Account receivable is increasing with the increase in sales.

4.9 Cash Collection Status of NEA

The following table 4.16 shows that the cash collection status of NEA.

Table 4.16
Cash Collection Status
From FY 2059/060 to 2063/064

FY / Particular	2059/060 In Million	2060/061 In Million	2061/062 In Million	2062/063 In Million	2063/064 In Million
Opening Balance of A/R	4,088.00	3,697.70	3,735.71	3,380.20	2,284.90
Add: Sales During the Year	14,449.73	13,331.90	12,605.20	11,874.70	11,012.60
Total Account Receivable	**18,537.73**	**17,029.60**	**16,340.91**	**15,254.90**	**13,297.50**
Less: Closing Balance A/R	5,151.41	4,088.00	3,697.70	3,735.71	3,380.20
Cash Collection	**13,386.32**	**12,941.60**	**12,643.21**	**11,519.19**	**9,917.30**

Source: Annual Report of NEA

The above table 4.16 shows cash collection status of NEA from fiscal year 2059/060 to 2063/064. The table shows that as sales revenue increases, it puts impact on Account receivable, so does account receivable increases. Cash collection status is in decreasing trend. It decreased from 2059/060 to 2063/064 every year. The main reason of low cash collection is due to the fear of insecurity threatening large in the rural areas made Meter Reading extremely difficult, which resulted in poor revenue collection, lack of collection policy, lack of good governance and unpaid of dues by public institution, municipalities and government offices.

4.10 Analyses of Financial Ratio

A ratio is a relationship expressed in mathematical terms between two individual and groups of figures connected with each other in some logical manner. The ratio analysis is based on the premise that a single accounting figure by itself may not communicate any meaningful information but when expressed as a relative to some other figure, it may definitely give some significant information. The relationship between tow or more accounting figures/groups is called a financial ration. A financial ratio helps to summarize a large mass of financial data into a concise form and to make meaningful interpretations and conclusions about the performance and positions of a firm. The ratios can be studied by classifying into the following groups (Source: R.P. Rastogi, 2001: 53).

I. Liquidity Ratios
II. Leverage Ratios
III. Activity or Turnover Ratios
IV. Profitability Ratios

4.10.1 Liquidity Ratios

The liquidity refers to the maintenance of cash, bank balance and those assets which are easily convertible into cash in order to meet the liabilities as and when arising. So, the liquidity ratios study the firm's short term solvency and its ability to pay off the liabilities. It should be intuitive to observe that a firm, no matter how profitable it is, cannot continue to exist unless it is able to meet its obligations as they arise. The day to day problems of financial management consists of highly important task of finding sufficient cash to met current obligations. To the extent that the firm has to make payments to its suppliers before it is paid for the goods and services it provides, a cash short fall has to be met, usually through the short term borrowings. Although this financing of working capital needs is routinely done in most firms, the liquidity ratios have been devised to keep a track on the extent of the firm's exposure to the risk that it will not be able to meet its short term obligations.

These ratios as a group are intended to provide information about a firm's liquidity and the primary concern is the firm's ability to pay its current liabilities. Consequently, these ratios focus on current assets and current liabilities. The liquidity ratios provide a quick measure of the firm by establishing a relationship between its current assets and its current liabilities. If a firm does not have sufficient liquidity, it may not be in a position to meet its commitments and thereby may loose its credit worthiness. The liquidity ratios are also called the balance sheet ratios because the information required for the calculation of liquidity ratios is available in the balance sheet only. Some of the common liquidity ratios are as follows.

A. Current Ratio:

Current ratios show the relationship between current assets and current liabilities. The current ratio is a measure of firm's short term solvency. It indicates the availability of currents assets in rupee for every of current liability. In other words it is an indicator of firm's ability to meet its short term obligation. It is also known as short term solvency ratio or working capital ratio. Generally current ratio of 2 times or 2:1 is considered to be satisfactory. The table below presents current ratio of NEA from fiscal year 2059/060 to 2063/064.

Table 4.17
Current Ratio of NEA
From FY 2059/060 to 2063/064

Fiscal Year	Current Ratios
2059/060	0.62 :1
2060/061	0.54 :1
2061/062	0.49 :1
2062/063	0.45 :1
2063/064	0.45 :1

Source: Appendix-VI

The above table 4.17 shows the current ratio of NEA from FY 2059/060 to 2063/064. It is clear from above table that all current assets ratios are less than 2:1which is considered to be standard. All current ratios lie “between” 0.64 to 0.45 in the above table. Since the current ratio of 2:1 is considered as satisfactory, therefore solvency position of NEA is not satisfactory being current ratio less than standard.

B. Quick Ratio:

It is also called the acid test ratio or liquid ratio. This ratio establishes the relationship between quick/liquid current assets and the current liabilities. A current assets is considered to be liquid if it is convertible into cash without loss of time and value. On the basis of this definition of liquid assets, the inventory is singles out of total current assets as the inventory is considered to be potentially illiquid. The reason for keeping inventory out is that it may become obsolete, unsaleable or out of fashion and always requires time for realizing into cash. Moreover, the inventories have tendency to fluctuate in value. Another item which is generally kept out is the prepaid expenses because by nature these prepaid expenses are not realizable in cash. So, the quick ratio looks for the ready availability or convertibility into cash. Generally, a quick ratio of 1:1 is considered to be satisfactory because this means that the quick assets of the firm are just equal to the quick liabilities and there does not seem to be a possibility of default in payment by the firm. The quick ratio is considered to be a better test of liquidity than the current ratio.

The table 4.18 below shows the quick ratio of NEA from FY 2059/060 to 2063/064.

Table 4.18
Quick Ratio of NEA
From FY 2059/060 to 2063/064

Fiscal year	Quick Ratios
2059/060	0.36 :1
2060/061	0.33 :1
2061/062	0.29 :1
2062/063	0.27 :1
2063/064	0.29 :1

Source: Appendix -VI

As the above table 4.18 states that the quick ratio of NEA in all fiscal years is below the standard (1:1). So it can be concluded that the quick ratio of NEA is unsatisfactory in any fiscal years.

4.10.2 Leverage Ratios

Leverage ratios are also called long term solvency ratios or capital structure ratios. The term "solvency" implies the ability of a company to meet the payments associated with its long- term debts. Thus solvency ratios are the measure of the company's ability to meet its long term obligations. Generally, these ratios are expressed in proportions. The following are the major types of leverage ratios.

A. Debt to Total Capital Ratio
B. Debt-equity Ratio

Among the two we will discuss only the A, which is frequently used in NEA.

A. Debt to Total Capital Ratio

This ratio shows the relationship between total debt and total capital employed by the company. Total capital includes long term liabilities plus shareholders equity. Total capital is also regarded as permanent capital or capital employed or long term fund. This ratio is ascertained by using the following formula.

Debt to total capital ratio=Total Debt/Total capital

Table 4.19
Debt to Total Capital Ratio
From FY 2059/060 to 2063/064

Fiscal Year	Debt to total capital ratio
2059/60	0.94 :1
2060/61	0.99 :1
2061/62	1.03 :1
2062/63	1.04 :1
2063/64	1.02 :1

Source: Appendix- VI

Table 4.19 shows the debt to total capital ratio. Debt to capital ratio of 2:3 is considered as satisfactory level. Debt to total capital ratio of NEA for all fiscal years starting since 2059/060 to 2063/064 is well enough satisfactory. The highest satisfaction was gained during the FY 2061/062 and 2062/063. The satisfaction level is in increasing level.

4.10.3 Turnover Ratios

A turnover ratio or an activity ratio is a measure of movement and thus indicates as to how frequently an account has moved/turned over during a period. It shows as to how efficiently and effectively the assets of the firm are being utilized. The activities ratios therefore, measure the effectiveness with which the firm uses its resources. These ratios are usually calculated with reference to sales/cost of goods sold and are expressed in terms of rate or times. The activity ratios may be calculated for all the specific assets, however, some of the important activity ratios are as follows:

A. Capital Employed Turnover Ratio

Capital turnover ratio establishes the relationship between the amount of sales and capital employed. It shows how efficiently capital employed in the NEA has been utilized in generating its sales revenue. Table 4.20 below presents the capital employed turnover ratio of NEA.

Table 4.20
Capital Employed Turnover Ratio
From F/Y 2059/060 to 2063/64

Fiscal Year	Capital employed Turnover ratio
2059/60	0.20 times
2060/61	0.21 times
2061/62	0.22 times
2062/63	0.22 times
2063/64	0.22 times

Source:-Appendix VI

The capital employed turnover ratio has lied between 0.20 times to 0.22 times from FY 2059/060 to 2063/064. The capital employed turnover ratio explains that, the higher the turnover ratio, the more effective utilization of the creditor's fund.

B. Total Asset Turnover Ratio:

This ratio shows the relationship between total assets and sales. Total assets turnover ratio indicates how well the firm's total assets are being used to generate its sales. A higher total assets turnover ratio indicated better utilization of total assets in generating sales and lower total assets turnover ratio indicates over investment in total assets. Generally, a higher ratio is preferable which gives the result if better profitability. The following table 4.21 presents the total asset turnover ratio of NEA.

Table 4.21
Total Asset Turnover Ratio
From F/Y 2059/060 to 2063/64

Fiscal years	Total Assets turnover Ratio
2059/60	0.17 times
2060/61	0.17 times
2061/62	0.17 times
2062/63	0.17 times
2063/64	0.17 times

Source: Appendix VI

The above table shows the Total Assets Turnover Ratios. The total assets turnover ratios of NEA during the year 2059/060 to 2063/064 are 0.17 times. It is constant up to 2063/064. This shows that the total asset turnover ratio of NEA is not satisfactory. One of the reasons behind it that the NEA has invested large amount in assets.

C. Fixed Assets Turnover Ratio:

Fixed assets turnover ratio is also termed as the ratio of sales to fixed assets. Fixed assets turnover ratio indicates how efficiently the fixed assets are used. It measures the efficiency with which the firm has been using its fixed assets to generate sales. A higher fixed assets turnover ratio indicated better utilization of fixed assets in generating sales and lower fixed assets turnover ratio indicates over investment in fixed assets. Following table shows the fixed assets turnover ratio of NEA.

Table 4.22
Fixed Assets Turnover Ratio
From F/Y 2059/060 to 2063/64

Fiscal years	Fixed Assets turnover Ratio
2059/60	0.22 times
2060/61	0.23 times
2061/62	0.26 times
2062/63	0.27 times
2063/64	0.30 times

Source: Appendix VI

In the above table the fixed asset turnover ratio is 0.22 times during the year 2059/060, which rose up to 0.23, 0.26, 0.27 and 0.30 during the FY 2060/061, 2061/062, 2062/063 and 2063/064 respectively. It indicates that NEA has unsatisfactory fixed assets turnover ratio. It is because of large investment in fixed assets.

D. Inventory Turnover Ratio (I/T Ratio):

This ratio is also called stock turnover ratio. This ratio shows the relationship between the cost of goods sold and the average inventory. This ratio measures how frequently the company's inventory turned into sales. It, therefore, shows the efficiency with which the company's inventory has been converted into sales. There is no ideal standard for evaluating an Inventory Turnover Ratio of a firm so it should be compared with the Inventory Turnover Ratio of other firms or past Inventory Turnover Ratio of the same firm. Since the Inventory Turnover Ratio is a test of efficient inventory management, the higher the Inventory Turnover Ratio, the better its is. But this is true only up to a point and a very high Inventory Turnover Ratio may signal problems e.g. a firm may have a high Inventory Turnover Ratio if it is maintaining a low level of inventory. The following table shows the Inventory Turnover Ratio of NEA.

Table 4.23
Inventory Turnover Ratio of NEA
From F/Y 2059/060 to 2063/064

Fiscal years	Inventory Turnover Ratio
2059/60	11.05 times
2060/61	11.44 times
2061/62	9.75 times
2062/63	10.34 times
2063/64	10.32 times

Source: Appendix VI

Inventory Turnover Ratio during the FY 2059/060 remained to 11.05 times. It increased to 11.44 times during 2060/061. During the FY 2061/062 it went down to 9.75 times, but the FY 2062/063 it went up to 10.34 times and 10.32 times in the FY 2062/063 and 2063/064 respectively.

4.10.4 Profitability Ratios

The profitability ratios measure the profitability or the operational efficiency of the firm. The main objective of a company is to earn profit. Profit is both a means and an end to the company. Therefore profitability shows the overall efficiency of the company. Profitability ratios are the measure of its over all efficiency. Generally profitability ratios can be calculated in term of the company's sales investments and earning and dividends. The following are the main types of profitability ratios.

A. Gross Profit Ratio:

Gross profit ratio is also termed as gross profit margin. This ratio shows the relationship between gross profit and net sales and it measures the overall profitability of the company in terms of sales. It is generally expressed in percentage. Following table shows the gross profit ratio of NEA.

Table 4.24
Gross Profit Ratio of NEA
From FY 2059/060 to 2063/064

Fiscal years	Gross Profit Ratio
2059/60	51.44%
2060/61	43.03%
2061/62	40.80%
2062/63	37.50%
2063/64	37.48%

Source: Appendix VI

The above table shows the Gross Profit Ratio of NEA during FY 2059/060 to 2063/064. The gross profit ratio has remained "between" the 37.48% to 51.44%. The gross profit ratio remained below 38% during FY 2062/063 and 2063/064, while it was around 40% during FY 2060/061 and 2061/062. The highest gross profit ratio was achieved during FY 2059/060, i.e. 51.44%.It shows that the gross profit ratio is decreasing trend. It is obvious that higher the gross profit, higher the strength of the authority.

B. Net Profit Ratio:

This ratio is also called net profit margin. This ratio measured the overall profitability of a business by establishing the relationship between met profit and net sales. This ratio is calculated by dividing net profit after tax by net sales. It is expressed in terms of percentage. The following table 4.25 shows the net profit ratio of NEA from FY 2059/060 to 2063/064.

Table 4.25
Net Profit Ratio of NEA
From FY 2059/060 to 2063/064

Fiscal years	Net Profit Ratio (%)
2059/60	(17.74)
2060/61	(14.82)
2061/62	(10.41)
2062/63	(9.51)
2063/64	2.17

Source: Appendix -VI

The above table 4.25 gives the Net profit Ratio of NEA during FY 2059/060 to 2063/064. Since FY 2059/060 to 2062/063 NEA could not make any Net profit, it has only experienced the net loss. But it has earned a little profit in FY 2063/064. So, it has only achieved a bitter negative net profit ratio in every successive year since 2059/060 to 2062/063. This data of loss in net profit ratio of NEA suggests the Authority to have a well organized planning and monitoring of the activities those results to bring the authority to have positive results.

C. Return on Assets (ROA):

This ratio measures the relationship between the total assets and net profit after tax plus interest. It measures the productivity of the assets and determines how effectively the total assets have been used by the company. The table 4.26 presents the ROA of NEA from FY 2059/060 to 2063/064.

Table 4.26
Return on Assets (ROA)
From FY 2059/060 to 2063/064

Fiscal years	Return on assets (ROA)
2059/60	1.52%
2060/61	1.74%
2061/62	2.28%
2062/63	2.13%
2063/64	2.93%

Source: Appendix VI

The above table 4.26 draws the picture of return of Assets in percentage of NEA. The Return on asset is positive, but it is very low. It is in increasing position since 2059/060 to 2063/064, which was 1.52%, 1.74%, 2.28%, 2.13% and 2.93% respectively. In conclusion it can be concluded that NEA has very low productivity of assets. Hence it is suggested to NEA's management group to manage its management for increasing the productivity of assets.

D. Return on Capital Employed (ROCE)

The net result of operation of a business is either profit or loss. The fund used by the company to generate profit consists of both proprietors/ shareholders fund and borrowed funds. Therefore, the company's overall performance can be judged in terms of capital employed. This ratio measure the relationship between capitals employed and net profit after tax plus interest. This ratio indicates how well the management has used the fund supplied by creditors and owners. Higher ratio indicates the efficient of fund entrusted to the firm by creditor and owners. Table 4.27 shows the return on capital employed {ROCE} of NEA from FY 2059/060to 2063/064. It is quite unsatisfactory.

Table 4.27
Return on Capital Employed [ROCE] of NEA
From FY 2059/060 to 2063/064

Fiscal years	Return on Capital Employed
2059/60	1.84%
2060/61	2.19%
2061/62	2.93%
2062/63	2.78%
2063/64	3.90%

Source: Appendix VI

The table 4.27 shows the return on capital employed ratio of NEA. The return on capital employed is increasing trend. The lowest return was during 2059/060 i.e. 1.84% and the highest return was during FY 2063/064 i.e. 3.90%. The return on capital employed is very low in every year. This shows that capital employed is very low.

4.11 Major Findings

The major finding of this research study is based on the analyses of available data which are pointed out as follows.

a. NEA has not adopted practice of preparing monthly budget

b. Budgeted sales and actual sales both in unit and amount are in increasing trend. Increase in actual sales in percentage both in unit and amount are fluctuating, from 3.47 to 9.08 and 4.63 to 11.64 respectively.

c. Achievement has not been met during the research period. The highest achievement in unit 98.77% during the fiscal year 2061/062 and achievement in amount is 100.86% during the fiscal year 2061/062.

d. The correlation coefficient (r) of budgeted sales and actual sales is 0.9753 which shows that the correlation is highly positive. This means they move to the same direction.

e. The coefficient of determination is 0.9512{95.12%}. This means that sales are explained by budgeted sales up to 95.12% and the remaining portion i.e. 4.88% is explained by other factors.

f. The probable error is 0.0147 which is six times less than correlation coefficient i.e. 0.9753>0.0882. Hence the correlation coefficient is significant.

g. The regression line Y=1.2182'X'-3406.64; shows the positive relationship between budgeted sales and actual sales. The actual sales will increase by Rs.1 million while in the next fiscal year actual sales will reach to Rs.19760.36 million if other factors remaining constant.

h. The ‘t’ test distribution shows that there is no significant difference between budgeted sales and actual sales of NEA.

i. The analyses of category wise achievement of sales unit and sales rupees of NEA i.e. 117.86% and 117.28% shows that the highest achievement is achieved by Temporary Supply while the lower is made by bulk supply{India},i.e. 67.35% and 68.54% respectively.

j. The highest contribution in total sales in unit and in rupees in category wise contribution of NEA are contributed by Domestic sales which is 38.52%and 39.01% in average while the least contribution is 0.03% and 0.06% in average respectively contributed by Temporary supply.

k. The highest contribution of consumer is 95.94% in average which is gained by Domestic category of consumer; while the lowest is 0.0004% in average is gained by Bulk supply (India).

l. Analysis of Profit and loss shows that NEA is in loss during FY 2059/060 to 2063/2064, where the % of loss on total revenue is 15.08%, 28.98%, 35.91%, 43.51% and 37.51% respectively. The loss was in increasing trend up to in FY 2062/2063 and that it goes down in FY 2063/064.

m. The regression line calculated by least square method shows loss even in next fiscal year 2064/065 which figures out to be 10875.514 million in rupees.

n. The coefficient of variation shows that profit and loss is highly fluctuating than actual sales. The CV of total revenue is 11.29% and CV of profit and loss is 37.14%.

o. The correlation coefficient between total revenue and profit/ (loss) is negative .i.e. -0.9126.

p. The coefficient of determination between total revenue and profit / (loss) is 0.8328 (83.28%).

q. The Probable Error between total revenue and profit/ (loss) is 0.0504.

r. The highest account receivable sales revenue, debtor turnover and average collection period during the research period are 5151.41 million 15466.34 million, 3.62 times and 121.57 days respectively.

s. Cash collection status is in decreasing trend. The highest and lowest cash collection during the research period is 13,386.32 million & 9,917.30 million respectively.

t. Findings on analysis of financial ratio:

    i. The highest current ratio and quick ratio is 0.62 and 0.36 during the FY 2059/060 and 2059/2060 respectively, while the lowest current ratio and quick ratio is 0.45 and 0.27 respectively during the year 2062/063.

    ii. The highest and the lowest debt to total capital ratio is 1.04 and 0.94 during the FY 2062/063 and 2059/2060 respectively.

    iii. The highest capital employed turnover ratio, total assets turnover ratio fixed assets turnover ratio and inventory turnover ratio is 0.22 times, 0.17 times 0.30 times and 11.44 times during the research period.

iv. The highest gross profit ratio, net profit ratio, return on assets and return on capital employed is 51.44% in FY 2059/060, 2.17% in FY 2063/064, 2.93% in 2063/064 and 3.90% in 2063/064 respectively.

CHAPTER -V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

The main objective of planning business is to increase the chances of making profit. Business managers are continuously in organizing, planning and controlling the operation of both large and small business organization. Revenue planning and credit collection policy is one of the most important management tool used to plan and control business operation. The effective operation of a business concern resulting into the excess of income over expenditure fully depends upon as to what extend the management follows proper planning, effective co-operation and dynamic control.

Nepal, being and underdeveloped country, her desire of rapid growth to reach at the level of developed countries gave away to planned economy and established of PEs. PEs has come to play major role in economic development of Nepal. Government of Nepal has investment a huge amount of resources in PEs. But its contribution to government of Nepal is negative. Every year government allocated the huge amount for subsidies to most of the Nepalese manufacturing PEs. Out of 36 PEs only 22 PEs earn small return. Most of the public enterprises of Nepal are suffering from losses year by year due to unclear policies and procedures regarding goals and objectives. There is no concept of effectiveness and appropriate planning system and procedure. Due to adequate knowledge about revenue planning and lack of planning export, most of PEs is suffering from serious problem of under utilization of available capacity, excess amount of production cost, high amount of fixed cost and the problem of managerial inefficiency.

Nepal Electricity Authority is the largest government undertaking PEs in Nepal with the highest capital investment, assets and human resource. GON established NEA for development of electricity, a major infrastructure requirement for development. It has undertaken all the responsibility of planning, construction, operation and generation all over the country. The main objective of NEA is to provide nationwide low cost and reliable electricity resource to people and to create the infrastructure of the development of the country as a whole. Though, NEA’s market is pure monopoly, it is continuously facing problem of liquidity and under capitalization due to the improper management of revenue and over due account receivables and suffering by loss.

NEA has a challenge to operate in a systematic manner that improves the key business process. Maximizes the availability of current fixed assets base for revenue generation and optimized the current available profitability of the organization. The budgeting system of NEA is realistic to some extent but its financial situation is very serious. NEA is also suffering from the problem of interventions. Most of the executives and managers are directly related with political parties. In NEA the managing director also comes from political appointment. There is absence of responsibility accounting system. There is no practice of variable budget and flexible budgets in NEA. In real sense, without developing realistic flexible budget, revenue planning system becomes baseless and groundless.

Planning is the essence of management. Planning is the job of making things happens that would not otherwise occur. Management planning provides the basis for performance. In NEA revenue results from the sales of electricity. Revenue is influenced by both internal and external factors. Most of the corporate planning process starts from revenue planning which co-ordinates the effort of revenue department, production department and all other departments. Many factors should be considered for revenue planning including revenue trends limitations of supply, potential competitors and general level of economy. NEA must consider revenue planning as the starting point for its overall planning. Basically, it can be measured from revenue planning, production planning, overheads planning, capital expenditure, cash management and credit collection strategies, and its actual achievement.

As per the nature of the study secondary data's are used with descriptive and analytical approach for this research study five years data from fiscal years 2059/060 to 2063/064 has been used. Data are tabulated as per the requirement of the study.

Statistically tools like arithmetic mean, standard deviation, and coefficient of Variation, correlation of coefficient, coefficient of determination, probable error of correlation, regression, graphs, diagrams and hypothesis testing have been used to analyze the data. Similarly a financial tool that is ratio analysis has also been used.

This study has been organized in five main chapters consisting of Introduction, Review of Literature, Research Methodology, Presentation and Analysis of Data and Summary, Conclusion and Recommendations.

Conclusions

After analyzing the present practice of revenue planning and credit collection of NEA the following conclusion are made.

1. NEA has not exercised in preparing monthly budget which is extremely necessary for planning and controlling.

2. During the whole study period the actual sales achievement is lower than budgeted targets. This fact is realized due to ineffective implementation of budgeted.

3. NEA should take under consideration the demand determinants such as price of electricity cost of auto generation of electricity, family income, cost of alternative and reliability of NEA service while forecasting demand.

4. The category wise achievement both in sales unit and Rs. shows fluctuation in mean, which is due to ineffective and timely planning. So, the categories having mean below hundred percent should be increased.

5. NEA should get consistency between budgeted and achievement level, especially in some sector such as bulk supply and temporary supply.

6. NEA has suffered a loss. The loss is in increasing pattern with respect to sales revenue. The reality of loss is due to high investment in fixed assets.

7. The relationship between budgeted sales and actual sales is positive. This shows that sales in the future will increases.

8. The statistical tools (C.V) show that the actual sales are highly fluctuating during the entire research period.

9. In comparison to Actual sales profit is highly fluctuating during the entire research period. This shows that there may arise a question mark to the management of NEA for not meeting its sustainable profit in the long run.

10. NEA has not prepared plan and programs for agricultural sectors consumption of electricity.

11. The due amount of account receivable denotes inefficiency of NEA's collection policy.

12. Cash collection status shows that NEA is decreasing trend during the research period which is due to lack of collection policy, inefficiency in management.

13. NEA has failed to make collection plans of next year on the basis of previous years' collection.

14. The current ratio and quick ratio is below its standard which shows solvency position of NEA is not satisfactory.

15. The fixed assets turnover ratio shows that NEA is not utilizing its fixed assets to increase sales effectively.

16. The net profit ratio is in negative during the research period which indicates that NEA is not in sound position.

Recommendations

1. Many Nepalese manufacturing public enterprises have no policy of developing strategy. GON should give the authority to develop the strategy for the general manager.

2. NEA should make a keen effort to prepare monthly budget for sales revenue.

3. NEA should pay more effort to manage the supply to the profitable sector such as domestic, industrial, commercial, non-commercial and temporary supply. Traffic rate for water supply and irrigation supply to India should be revised in such a way by which NEA could cover operating cost at least.

4. NEA should consider demand determinants such as family income, price of electricity, connection charge, cost of alternative sources, cost of self-generation of electricity and reliability of NEA service while forecasting demand.

5. NEA should be focused on demand side management of electricity by Captive Generation, Peak Clipping, Peak Load Shifting, Energy

Efficiency Program, Power Factor Improvement and Control the theft.

6. NEA's planners must be properly trained for budgeting and credit collection.

7. Almost 96% of total customers are engaged with domestic category but the actual consumption is not satisfied. So, NEA should be made the effective plan and programmed for increasing consumption rate. For this purpose, NEA can apply the discount policy on consumption rate, low charge at time period consumption of raining season and high charge at winter season consumption.

8. NEA should get consistency between budget and achievement level, especially in some sector such as domestic, commercial, street light, temporary supply, temple and community sales.

9. NEA should excise to prepare plans and programs for agriculture sector, which is capable of massive consumption of electricity.

10. NEA should reduce its huge amount of fixed cost resulting from over staffing, fuel and other overheads.

11. NEA should introduce programs and action plans for the reduction of transmission loss, both technical and non-technical. NEA can improve its efficiency in the metering device instantly either by changing old meters or utilizing only efficient meter readers or by improving its transmission system. Non-technical loss can be reduced by adopting effective managerial, social, legal and other measures.

12. NEA should try to reduce overdue amount of receivables. NEA should provide incentive to staff to encourage them for collection of overdue amount of receivable. In revenue collection, any kind of pressure, nepotism and biases should strictly be discouraged.

13. NEA should forecast planned collection for next year on the basis of actual collection of previous year.

14. To generate adequate sales and profit, NEA should efficiently utilize its total resources (total assets); because it's total turnover ratio seems low.

15. NEA should provide the electricity services to customers in remote areas of the country continued with the construction of small and middle hydropower projects.

16. NEA should prepare the budget based on the principles of programming and performance budgeting. As the objectives of the programming and performance budgeting is result oriented, it will help NEA to analysis its real achievement.

17. Government should format a tariff fixation commission for the purpose of fixing electricity tariff and other charges in the interest of both consumers and service provides (NEA).

18. The management should focus on cash collection process; some of the ways often used to improve the cash collection process are as follows:

    i. Providing cash discount for the early payment.

    ii. Reviewing the credit granting process to determine whether bad credit risks are being screened out. All accounts receivables are received before due date or not.

    iii. Customers are encouraged for immediate payment of credit sales and account receivables.

19. NEA should adopt standard costing system and also establish a cost control centre for cost control purpose; NEA should reduce high operating cost to reduce loss.

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