

**A THESIS ON
MANAGERIAL BUDGETING PRACTICES
IN
NEPAL ELECTRICITY AUTHORITY**



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RECOMMENDATION

This is to certify that the thesis

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has been prepared as approved by this department in the prescribed format of the Faculty of Management, Tribhuvan University. This thesis is forwarded for examination.

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DECLARATION

I hereby declare that the work reported in this thesis entitled "**Managerial Budgeting Practices in Nepal Electricity Authority**" submitted to Shanker Dev Campus, Faculty of Management, Tribhuvan University, Kathmandu Nepal, is my original work done in the form of partial fulfillment of requirement for the Master's Degree in Business Studies (M.B.S.) under the supervision of **Dr. Narayan Krishna Pradhan** of Shanker Dev Campus, Putalisadak, Kathmandu, Nepal.

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ABBREVIATIONS

A.D.	Anno Domini
ARR	Account Rate of Return
B.S.	Bikram Sammat
BEP	Break Even Point
CVP	Cost Volume Profit
EOQ	Economic Order Quantity
FY	Fiscal Year
GWH	Gia Watt Hour
IRR	Internal Rate of Return
JIT	Just in Time
MBO	Management by Objective
MW	Mega Watt
NEA	Nepal Electricity Authority
NPV	Net Present Value
NTC	Nepal Tele Communication
PE	Public Enterprises
RS	Rupees

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CHAPTER: I

INTRODUCTION

1.1 General Background

Nepal is taken as a common garden of different races and casts, where people live peacefully with their different customs, duties, religions and cultural. In term of development, however, Nepal is one of the least developed countries all over the world. The economic inequality is great in Nepal. About 90% people live in rural areas. Nepal is landlocked country but home place of natural beauty. Because of complicated land structure and land lock nature, development is going on in the slow pace, At present, Nepal is facing a great problem from the economic point of view, not only that but also there has been un utilization of foreign aid, low rate of investment, worn out technology, illiteracy and landlocked nature add to economic rigidity of Nepal. Although Nepal has adopted mixed economy, it is mainly dominated by agriculture.

Nepal has a lot of natural resources, but still in backward in term of socio-economic development because of the inability in exploiting these resources. Among them resources available in the nation, water resource is the greatest one .It is the second richest country all over the world. The water resources of Nepal can be considered as incomparable means of all round development, if it used wisely. Proper utilization of these resources can be one of the means of economic development of Nepal. Effectively generating hydroelectricity emphasizes tourism development, industrial development, job opportunity and improves the socio-economic condition of the country by reducing the investment in other petroleum products. Nepal government is involving in specific sectors like infrastructure development, producing essential products and social welfare. Nepal has mixed economy where contribution of public and private sector are co-existed in harmony. However the utilization of natural resources should be done under supervision of governments. Establishment of public enterprises is felt necessary. PEs was established as a strong means of development after the Second World War in developing countries, such enterprise was established in developed countries from the 18th century. However in developing countries constraint of capital investment and professional skills, the significance of such

enterprises is evidently and even greater. Public enterprises are autonomous bodies which are owned and managed by the government and which provide goods and services for a reasonable price. The term "Public Enterprise" has been defined differently by different agencies and scholars.

United Nation had defined PE as "These organizations namely governmental enterprise and public corporation, which are entirely or mainly and or controlled by public authorities consisting of establishment which by virtue of their kind of activities technology and mode of operation are classified as industries"

According to Frideman "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, though responsible to the public through government and parliament on the other hand with independent and separate fund of its own and the legal and commercial attributes of commercial enterprises"

In Nepal there is no long history of PEs. The first public enterprise of Nepal is Nepal Bank Limited which was established in 1937 A.D. Nepal is one of the under developed country which is still in its crawling stage of industrial developments in Nepal, PEs, are not the matter of choice, rather they are a matter of necessity. There were 64 PEs before the privatization program. Now there are only two public enterprises named Nepal Electricity Authority and Nepal Water Supply Corporation.

Although PEs is service oriented than profit oriented, profits are the primary or key measures of its success. Profit is needed to operate the daily work also.

1.2 A Brief Overview of NEA

There are many PEs in various sectors such as industrial sector, financial sector and public utility sector. There are 2Pes providing service utilities to people. NEA is one of them which were established in 1st Bhadra 2042 BS (17th August 1985 AD) under the NEA act 2041 as the largest governmental corporation of Nepal. It was concerned with generation and supply of electricity in orderly manner of reasonable price for the overall development of country. It is a firm as an artificial person so it can obtain and sell fixed, non fixed assets, face with cases etc as a natural person. It has its name and

own stamp. Different government, non-government donations and fees collected from customers are the main sources of capital.

According to the suggestion of World Bank and Asian Bank several similar enterprises were amalgamated. In this process NEA was created at that time merging Nepal Electricity Corporation, (NEA act 2019), Electricity Department (1986BS), the eastern Electricity Corporation and several other power development boards. At the time of establishment the authorized capital was one billion. But in recent time authorized, issued and paid capital is Rs.1,273.1 million. Par up value and paid up value is Rs100 per share according to data available from accounting department of NEA. Its control office is situated at Katmandu having commercial and service principle. NEA has regional office in every development regions. There are 9 directorates. NEA has three principal objectives:

- To plan, construct, operate and maintain the electric power sub sector.
- As per the economical situation of industrial and non-industrial consumer sector, utilize the different plan for production, transmission and distribution of electricity.
- To use the available resources necessary for the development of electricity supply by the most efficient and effective manner.

1.3 Function and Duties of NEA

As per Nepal Electricity Authority Act, the function and duties of NEA are as follows:

- To supply electricity by generating, transmitting and distributing electricity pursuant to the prevailing law.
- To recommend Government to determine the long terms and short term policy relating to the supply of electricity.
- To fix electricity fee and other service charges relating to the electricity.
- To do necessary research work, relating to production, transmission and distribution electricity.
- To average the production, transmission and distribution of electricity of adequate standard in the regions, which are economically, appropriate for the industrial agricultural development and the facility of the people.

- 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. To provide technical advice and constancy relating to production, transmission or distribution of electricity.

1.4 Rights of NEA

The rights of authority as per the NEA act are as under:

- To raise loan form foreign government or foreign institution and international institution.
- To raise loan from national institutional banks or individuals.
- To collect fees of electricity and service charges form the customers.
- To sell and buy electricity to and from foreign countries.
- To invest the amount lying in the fund of the authority.
- To check the authoritative consumption's of the electricity applied by the authority.
- To buy electricity produced form private sector.
- To do all works which seems to inevitable and necessary for the fulfillment of the works and duties of its own.

1.5 Statement of Problem

Nepal is one of the developing poor countries. So developments of public enterprise bank, financial institutions etc. are necessary for stable economic development and sound economy. All public enterprises have been playing an important role to enhance the economy. Public enterprises are autonomous bodies which are owned and managed by government and which provide goods and services in a reasonable price. The ownership of government should be 51% or more to make an entity to PES. Public enterprises have become both necessary and useful as vehicles of development in developing nations because they play major role in achieving social and economical objectives of country. There were 64 PES in Nepal before the privatization program. Now a day's most of the PES is privatized. At present there are only two public enterprises related to service oriented. They are:

- Nepal Electricity Authority and
- Nepal Water Supply Corporation

Present age is the age of competition and there is a struggle for existence in every field particularly in the field of business. Because of the growth of industrial activities the management of resources has become complicated and difficult. It is necessary for the every business concern to carry out on its activities with utmost efficiency so as to ensure the optimum utilization of the limited resources. For this purpose managerial budgeting plays important roles in the effective and successful operation of business organization.

“Managerial budgeting is the formal expression of the enterprises plans and objectives stated in financial terms for a specified future period of time.”

The management is efficient if it is able to accomplish the objectives with minimum effort and cost. In order to attain long range efficiency and effectiveness management must chart out its course of action in advance. Systematic approaches that facility effective management performance is managerial budgeting. Managerial budgeting is therefore an integral part of management. Therefore we can define managerial budgeting as a goal-achieving machine for facilitating organizational co-ordination and planning while achieving the budgeted targets.

In order to insure service to public, managerial budgeting is felt necessary to use. Although PES is service oriented than profit oriented, Profit is the primary or key measure of its success. Limited profit is needed to operate the daily work. So managerial budgeting is a necessary tool of management to ensure reasonable profit for service oriented public enterprise.

Although the development of public enterprise has achieved the main aims in some extent they have not been functioning in efficient manner.

The proposed study is concerned with the following problem of Nepal Electricity Authority.

- Whether or not Nepal Electricity Authority is practicing managerial budgeting?
- Are the managers of Electricity Authority able to meet budgeted targets or not?

- What are the major difficulties to use managerial budgeting in Nepal Electricity Authority?
- How NEA formulates the various budgets.

On the basis of above ground the purpose study will focus on following matter of Nepal Electricity authority, which is considered as representative of all others public enterprises:

- Reason for poor performance of NEA
- Existing budgeting system of NEA
- Role of managerial budgeting in NEA

1.6 Objective of the Study

The basis objective of this research work is to examine the current practice of managerial budgeting and its effectiveness in NEA. Beside the main objectives following are the other objectives of this research work.

- To analyze profit plan and its control system of NEA.
- To analyze the effectiveness of NEA in respect of managerial budgeting.
- To analyze the variance between budgeted and actual achievement of NEA.

1.7 Scope of the Study

This study is focused in evaluating the different functions and attempts for the effective implementation of managerial budgeting in Nepal Electricity authority. The study will cover only last five years performance of NEA to analyze the budgeted and actual achievement of NEA. Generally the following budgets have been prepared.

- Sales budget
- Production budget
- Expense budget
- Capital expenditure budget
- Cash budget
- Budgeted profit and loss account.
- Budgeted balance sheet.

Thus the study is mainly concerned with the practice of managerial budgeting in service oriented public enterprise and Nepal Electricity authority is taken as a representative of all other public enterprises.

1.8 Research Methodology:

The Study Approach

The study is purely based on the explorative design finding the answer of research question.

The variable used in this study is as follows:

- i. Utilization of services.
- ii. Awareness of facilities gain by the customers on NEA.
- iii. Behavior of the staffs.

Different questionnaire were been prepared using these variables and 100 respondents were selected randomly from all the branches office to fill up the questionnaire. The explorative research was conducted to get the information about the perception of the customers and how they feel about the facilities provide by the bank. The research is based on “Managerial Budgeting of NEA”.

1.9 Source of Information:

Primary source of information were used in the study. Data collected through the survey were the main source of information to analyze the customer rating of NEA. Besides that, literature review and secondary data from the NEA are used for further analysis of the NEA competitive strength and weakness.

Primary Data:

- i. Interview
- ii. Visiting and viewing the NEA

Secondary Data:

- i. NEA Annual report 2012- 2013
- ii. Different books and reports

1.10 Data Collection Procedure:

Most of the data collection procedure was by the distribution and collection of the form of the structured questionnaire to sample respondents. Secondary data were collected from the NEA and from the annual report of NEA. For primary data, field visits were also made to the respondents (specially corporate or business) with the help of appointment fixed by the staffs in human resources department of the NEA. According to convenience and judgmental approach respondents were selected for detail questions together with a small interview session. In addition, heads and staffs of almost all the departments were interviewed for further analysis and data collection.

1.11 Limitation of the Study

The research is going to perform only the partial fulfillment of MBS program. Various sectors and field of NEA are also equally important from different point of view but they are outside the scope of the study. The main focus of this study is concerned only with the managerial budgeting of NEA. In this dynamic world every research faces some limitations. Similarly the limitations of this research work will be as follow:

- This study is concerned with only some managerial aspects not other area of NEA.
- Because of time and resource constraint the study will mostly based on secondary data.
- The study is based on the data provided by the head office of Nepal Electricity authority.
- The study is concerned only the previous five years i.e. FY2065/66 to 2069/70.

CHAPTER: II

REVIEW OF LITERATURE

2.1 Origin of Managerial Budgeting Practices in Nepal:

Every research requires clear idea about the problem of the study and its solution, which emerges from the review of literature. In fact the scientific research must be based on past knowledge. "The previous studies can not be ignored because they provide foundation to the upcoming study" The continuity in research is ensured by linking the present study with the past research studies.

The main objective of this chapter is to review the research studies in the related area of the study and clarify the need for conducting further research. The available literatures are reviewed relating to the field of study i.e. conceptual framework, view of different management expert and of MBA/MBS level students who have carried out research study of different companies as well as the same company related to this study. Normally this chapter is further classified into three parts.

- Conceptual framework of the study
- Review of previous research studies
- Finding the gaps

2.1 Conceptual Framework of the Study

2.1.1 Concept of the Budget

"The three important functions of management are planning, operating and control. Budget is used for assisting the management in the function of planning and control. So, a budget is a tool that helps manager in planning and control function. Budgets help with their control functions not only by looking forward but also looking backward. Budget of course, deal with what manager's plan for the future. However they can also be used to evaluate what happened in the past. So budget can be used as enchmark that allows managers to compare actual performance with estimated or desired performance.(Acharya, Joshi etc (2007:530))

"The management is efficient if it able to accomplish the objective of the enterprise. It is effective when if accomplishes the objectives with minimum effort and cost. In order to attain long range efficiency and effectiveness management must chart out its course of action in advance. A systematic approach that facilitates effective management performance is managerial budgeting. So the managerial budgeting can be described as a historical combination of a goal- setting machine for increasing enterprises profit and organizational co-ordination and planning while achieving the budgeted target. Profit is the ultimate goal of every business house, so the main purpose of managerial budgeting is to help the management to make profit with minimum effort and cost." (Glenn and Welsh(1992:30))

"Budget is a financial and quantitative statement prepared and approved prior to definite period of time and policy to be pursued during that period for the purpose of attaining a given objective". **The chartered Institute of Management Accountant, England.**

According to Lynch and Williamson "The concept o f comprehensive budgeting covers its use in planning, organizing and controlling all the financial and operating activities of the firm in the forth coming period".

According to IM Pandey "A budget is the formal expression of the enterprises plan and objective stated in financial terms for a specified future period of time."

According Welsch, Hilton and Gordon "Comprehensive profit planning and control is defined as a systematic and formalized approach for performing significant phases of the management planning and control function."

Budgeting is a significant tool of profit plan, Every one is familiar with that idea of a budget, it is prepared to have effective utilization of scare resources and for the realization of objective as efficient as possible. Budgeting is the powerful tool of the management for performing the functions like formulating plans, co-ordinating activities and controlling operation etc.

Managerial budgeting is a forward planning and involves the preparation in advance of the quantitative as well as financial statement to indicate the intention of the management in respect of the various aspects of the business. Similarly it is in fact as

a managerial technique and such a written plan in which all aspect of business operation with respect to a definite future are included. It is a formal statement of policy, planning, objectives and goals established by the management in respect of some future period of time. A budget is not a mere forecast to the future but rather a consideration of the future expressed in terms of plans and policies for the period. It is in short a program for the activities of a particular section based on a co-ordinates and profitable program for the business as whole."A systematic approach that facilitates effective management performance is managerial budgeting."(Pandey, I.M (1994:285)"Management Accounting)." It includes sales, production, distribution and financial aspects of an organization.

Thus managerial budgeting is a formal statement of policy, plan, objective and goal established by the management in respect of some future period of time, which should be prepared and managed regularly.

2.1.2 Development of Managerial Budgeting

The initiating management decision in developing managerial budgeting is the statement of broad objectives, specific goals, basic strategies and planning. Under consideration above factors the strategic (long-range) and tactical (short-range) plan of profit can be developed which is known as managerial budgeting. Development of profit plan includes the preparation of various functional budget, analysis of variance and presentation of projected income statement and balance sheet. And it begins with the preparation of master budget.

Generally budgets can be categorized as under:

- On the basis of time
- On the basis of function
- On the basis of flexibility
- On the basis of business activities.

According to the nature of the organization and on the base of above mentioned categories different budgets are prepared with in the organization. They are as follow:

- The sales plan or sales budget

- The production plan or production budget
- The material plan or material budget
- The purchase budget
- The labor budget
- The overhead budget
- The cash budget
- The capital expenditure budget
- Pro-forma financial statements
- Projected income statement
- Projected balance sheet
- Variance analysis and performance evaluation

2.1.3 Essentials of Managerial Budgeting

A successful and sound budgeting system is based upon certain pre-requisites. These are as follows.

- Top management support
- Clear and realistic goals
- Creation of responsibility centers
- Assignment of authority and responsibility
- Adaptation of accounting system
- Full participation of all levels staff
- Communication
- Flexibility

2.1.4 "Objectives of Budgeting" (Acharya and Joshi (2007:538))

Budget is planned to assist the management in the allocation of responsibilities and authorities to aid in making estimates and plans for future and to assist in analysis of variation between estimated and actual results and to develop basis of measurement or standards. The general objectives of budgeting are as follows:

Planning:- A budget is a plan of future and policy to be pursued during the defined period of time to attain a given objective. It forces management at all levels to plan all activities to be done during the future periods.

Co-ordination:- The budgets co-ordinates the various activities of the firm and secures co-operation of all concerned so that the common objective of the firm may be successfully achieved. It is also helpful in co-coordinating the policies, plans and actions. An organization without a budgetary control is like a ship sailing in a sea. A budget gives direction to the business.

Control:- Control consists of the action necessary to ensure that the performance of the enterprise is in well manner. Control of the performance is possible with pre-determined standards, which are laid down in budget. It helps the management to compare the actual performance with estimated performance.

Communication:- In any organization communication plays a vital role. So budget is also be taken as one of the important medium of communication. By which the policy and program can be clearly known.

Optimum Utilization:- Budget helps an organization to utilize its resources in optimum manner.

2.1.5 Feature of Budget

"The features of budget are as follows:"(Welsh, Hilton and Gordon (2006) Budgeting: Profit Planning and Control)

- **A budget is a plan:** A budget is an expression of the plan of the operations of an enterprise. The operations of an enterprise are affected by a number of factors both external as well as internal factors. The budget covers both external and internal factors and expresses partly what the management expects to happen and partly what the management intends to happen.
- **It is comprehensive:** A budget is comprehensive which means that it covers the activities and operations of all the segments or divisions of an organization. Budgets are prepared for each segment of an organization and all these are integrated into master budget.
- **It provides for a co-ordinate plan:** The budgets are prepared for various segments or divisions of an organization after considering the conditions and

problems of each segment. So it helps to co-ordinate all segments of an organization.

- **It is prepared in Advance:** A budget is prepared in Advance and devotes the future causes of action. Thus a budget is forward looking in approach.
- **It relates to a specified future period:** A budget always relates to a specified future period. A budget becomes meaningless if it is not related to a time horizon. Thus, budgeted production, sales, profit etc. are planned to be achieved in a pre-determined time.

2.1.6 Stages in Budgeting

There is certain process of managerial budgeting and this is repeated each budgeted year. They are as follows: -

Identification and evaluation of external variables: An organization is influenced by both internal and external variables. So they must be evaluated. The variables identification phases of managerial budgeting process focuses on identifying and evaluating the effect of external variables. Identification also involves separate consideration of variables that are controllable and non-controllable. Management planning must focus on how to manipulate the controllable, internal and non controllable variables for taking advantages of potential favorable impacts and minimize potential unfavorable impacts on the enterprise.

Development of the Board objectives of the enterprises: Development of the board objectives of the enterprises is a responsibility of executive management. The executive management can specify or restate this phase of budgeting based on realistic evaluation of the relevant variables and an assessment of the strength and weakness of the organization. The board objective should express mission, vision and continuity of the purpose and definition. It includes:

- To define the purpose of the company.
- To clarify the philosophy of the company.
- To create a particular climate within the business.
- To set down a guide for manager for the decisions.

The board objectives are brought into focus sharply. Those board, but specific goals must be developed for both the strategic and tactical plan.

Development of the specific goal for the enterprise: The main purpose of development of specific goal phase of managerial budgeting is to bring the statement of broad objective into sharper focus and to move from realism of general information to more specific planning information. It provides both narrative and quantitative goals that are definite and measurable. There are specific goals that relate to the enterprise as a whole to the major responsibility centers. Executive management as the second components of the substantive plan for the upcoming year.

Development and Evaluation of the basic company strategies: The basic company strategies are the basic trusts, ways and tactics that will be used to plan objectives and goals, particular strategy may be short term and long term. The main purpose of developing enterprise strategy is to find the best alternative for attaining the planned broad objectives and specific goals. Strategy is the bridge that relates the capabilities of organization with its objectives.

Executive management planning instruction: This phase involves communication of substantive plan to middle and lower management levels. It is also called the statement of planning guidelines. It explains the board objectives, enterprise goals. Strategies and any other executive management instructor needed to develop the strategic and tactical full communication, motivating the involvement in the development of managerial budgeting.

Preparation and evaluation of project plans: Project plan encompass such items as plans for improvement of present products, new industries, new technology and other major activities that can be separately identified for planning purpose. The nature of project is such that they must normally be the anticipated life span of the project.

Development and approve strategic and tactical budgeting: When the manager of various responsibility center in the enterprise receives the executive planning instruction and the project plans, they can do intensive activities to develop their respective strategic and tactical profit plan, the loan g range profit plans are usually developed concurrently.

Implementation of managerial budgeting: When and whether the strategy and tactical plan are accepted for enterprise at every level of management that should be

implemented. The using aspect will be the major significant. The effective management at all levels requires that enterprise objective, goals, strategic and policies be communicated and understood by subordinates comprehensive budgeting may aid substantially in performing this function

Use of periodic performance reports: Managerial budgeting is being implemented during the period of time specified in the tactical plan, periodic performance reports are needed. The accounting department on a monthly basis prepares those performance reports. These performance reports are:

- Compare actual performance with planned performance.
- Show each efficiency as a favorable or unfavorable performance variation.

Implementation of follow up: It is an important part of control because performance report are based on assigned responsibility, It is important to distinguish between cause and effect. The management must determine the underlying causes. The identification of cause of both favorable and unfavorable performance variance should be given immediate priority. In the case of unfavorable performance variance, an alternation for corrective action must be selected

In short the process of managerial budgeting can be noted as below: -

- Communication details of budget policy and guidelines to these people who are responsible for preparation of budgets.
- Determining the factor that restricts output.
- Preparation of sales budget.
- Initial preparation of various budgets.
- Negotiation of budgets with supervisors.
- Co-ordination and review of budgets
- Final acceptance of budgets.
- Ongoing review of budgets

Thus budgeting is such formed written plan in which all aspect of business operation with respect to a future period are included. It is a formal statement of policy, plan, objective and goal established by the management, which involves the preparation in advance of the quantitative as well as financial statements to indicate the intention of

management. Budgets are instruments of planning and financial control. So they must be based on realistic statements of goals and objectives of organization. It serves as a powerful media of communication between various level of management.

2.1.7 Function of Managerial Budgeting

Managerial budgeting is concerned with the following two main functions: -

- Planning
- Controlling

Planning: - To earn profit proper planning should be prepared so that loss may not be incurred in future. In simple term planning is deciding in advance about what to do, when to do, how to do something and who is to do the function. It is a systematic way to achieve the determined objectives and targeted goals of any business organization. Planning is the process of selecting and developing the best course of action. Planning is the primary essential function of management or it is the base of profit planning. Planning is the sole concept of any organization which makes any organization effectively run towards competitive business environment .It is the method of thinking out acts and purpose beforehand .It is known as decision making process and can never be considered as the final and ultimate product. Planning follows the lines of authority and responsibility in the enterprise. According to the George R Terry," Planning is the selecting and relating of facts in the visualization and format of proposed activities believed necessary to achieve desired results. Planning is the specific process of setting goals and developing way to reach them stated another way, planning represents the firm's effort to predict future events and be prepared to deal with them.

A Plan is the schedule of the work. Nothing is more important for a sound management than systematic planning and judgment.

Planning is the essence of management; all other related functions are performed within the frame.(Willsmoe,A.W(1971:197))

Planning could be taken as a road of achieving organizational goals efficiently and effectively from the selection of various alternatives. (Richard, Lynch and Robert, W. Williamson, (1989:20))

"Planning is the feed forward process to reduce uncertainty about the future. The planning process is based on the convictions." (Pandey, I.M. (1992:534))

After analyzing and defining the planning concept, we can point out the following features of planning: -

- Planning is a goal oriented task
- Planning is a primary function of management.
- Planning includes all managerial activities.
- It is an intellectual process of management.
- It includes both short range and long range time span.
- It is used to reduce the uncertainty of future.
- It is directed towards efficiency.
- It is for to achieve pre-determined objective and targeted goals.

Planning is a mental process requiring the uses of intellectual facilities; imagination, foresight and sound judgment etc. is prepared on the basis of past experience, present information and future expectation. It helps to show the way of performing the task. This is required as true matter in every area such as production, marketing, finance etc. Whether the top-level management, medium level management or the lower level management can not be separated from the planning. It operates as the brain center of an organization. Management planning is the process, which includes the following phases:⁹ -

- Establishing enterprise objective.
- Developing premises about the environment in which they are to be accomplished.
- Selecting a course of action for accomplishing the objectives.
- Initiating activities necessary to translate plans into action.
- Current re-planning to correct deficiencies.

Similarly the organizational planning can be divided into two categories they are: -

- Strategic planning.
- Tactical planning.

The strategic planning is one that establishes a broad flexible objective to serve, as guideline for subordination plan and that is not likely to become absolute as a result of rapidly changes technology. "It is a continuous process of making present entrepreneurial decision systematically and with the best possible organizing system, the effort needed to carry out this decision against expectation through organized systematic feedback. It is more that organization and analysis of information. It is a decision-making process."(Drucker, P.E, (1964:12)

The tactical planning is synonymous with the classical budgetary period of one year's planning which is prepared for short period of time and end after attaining the purpose is known as tactical planning. According to Kerntz Z and Cyric O, Donnell,"The short range planning is to confirm to fiscal quarters of years. Because of the practical needed for confirming plan to accounting periods and the same what arbitrary limitation of the long range to 3-5 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.

Controlling: "Control is a process of measuring and evaluating actual performance and initiating corrective action. Planning and organizing establish the goals and standards with which control is implemented. Basically control measures performance by comparing actual result with planned result and measuring variance above or below than plan." (Welsh,Hilton and Gordon,(2006:3)

Control follows planning so it is another major function of management.

It is the process to ensure that plans are being attained or not. It is a feedback system. It tells how effectively objectives, goals and plans are accomplished, what went wrong and what can be done to assure adherence to planned activities in future. Control implies measurement and evaluation of performance .For control, performance evaluation should be reported to the responsible manager, which should clearly indicate to the manager, what activities were established by him and what were not. Control is effective if it is exercised before an event occurs."The past events can not be controlled. For existing control prior to the occurrence of an event, seeking the participation of those who have to use them should develop budgets and standards.

Control would be effective only when performance is evaluated in an optimum manner. (Pandey, I.M (1999:10)

The principle steps involved in control function of managerial budgeting are as below:

-

- Comparison of actual performance against per-determined budgets and standards
- An analysis of the variance from budgets and standard in order to determine the underlying causes.
- Initiation of an action that may the deficiencies indicated.
- Follow up to appraise the effectiveness of the corrective action and
- The feedback of the information to the planning process to improve future planning and control activities.

2.1.8 The Sales Plan or Sales Budget

"The sales budget is the starting point in preparing the master budget. A sales budget is a detailed schedule of expected sales for the coming period. It is usually expressed in both amount and units. Once the sales budget has been set, a decision can be made on the level of production that will be needed to support sales and production budget can be set well. The sales budget is constructed by multiplying the expected sales units by sales price. The computation is needed to assist in preparing the cash budget for the year. Unless there is a realistic sales plan, practically all the elements of planning will be out of reality. The sales plan is foundation of periodic planning in the firm because practically all other enterprise plans are built on it." (Welch, Hilton and Gordon (2005:172))

A comprehensive sales plan includes two separate but related plans they are strategic and tactical sales plan.

The necessities of sales planning are as below: -(Welsh, Hilton and Gordon,(2006:172))

- It provides for the basic management decision about marketing.
- It reduce uncertainty about the future revenues
- It incorporates management judgments and decision into the planning process.

- It provides necessary information for developing other elements of a comprehensive budgeting
- It facilitates management control of sales activities.

The sales plan can be divided into two parts: -

- Long-range sales plan
- Short-range sales plan:

Strategic sales plan:- It is also known as long-range sales plan. Usually it is prepared 5 to 10 years. Long-range sales plan usually involves in depth analysis of future market potentials, population changes, state of economy, industry projections, affect in such area as pricing, development of new product etc.

Short-range plan: - It is also called tactical sales plan. Usually it is to be developed for short period of time detailed by products, months and quarters for future 12 months. Generally it is developed in terms of physical units and in sales price.

2.1.9 Components of the Foundation for Comprehensive Sales Plan

- External variables identified and evaluated
- Broad enterprise objectives and goals formulated
- Strategies for the company is developed
- Planning premises specified

2.1.10 Components of Comprehensive Sales Planning

The components of comprehensive sales planning are as below: -(Welsh, Hilton and Gordon, (2006:175))

- Management policies and assumption
- Marketing Plan (sales and service revenue)
- Advertising and promotion plan
- Distribution expenses

2.1.11 Developing a Comprehensive Sales Plan

The factors, which are to be considered while developing comprehensive sales plan is as below: - (Welsh, Hilton and Gordon, (2006:178))

- Develop management guidelines for sales planning
- Prepare sales forecast
- Assemble relevant data

Manufacturing Capacity

Sources of raw materials and supplies

Availability of key people and labor forces

Capital Availability

Availability of alternative distribution channels

- Develop a strategic and tactical sales budget
- Consideration of alternatives
- Developing Pricing policies
- Developing product line consideration
- Price-Cost-Volume consideration

Figure No. 1
Specimen of Sales Plan

Month	Product-A					Product-B				
	Area-1		Area-2		Total	Area-1		Area-2		Total
	Units	RS	Units	RS	RS	Units	RS	Units	RS	RS

Sources: -A year in review of NEA 2013

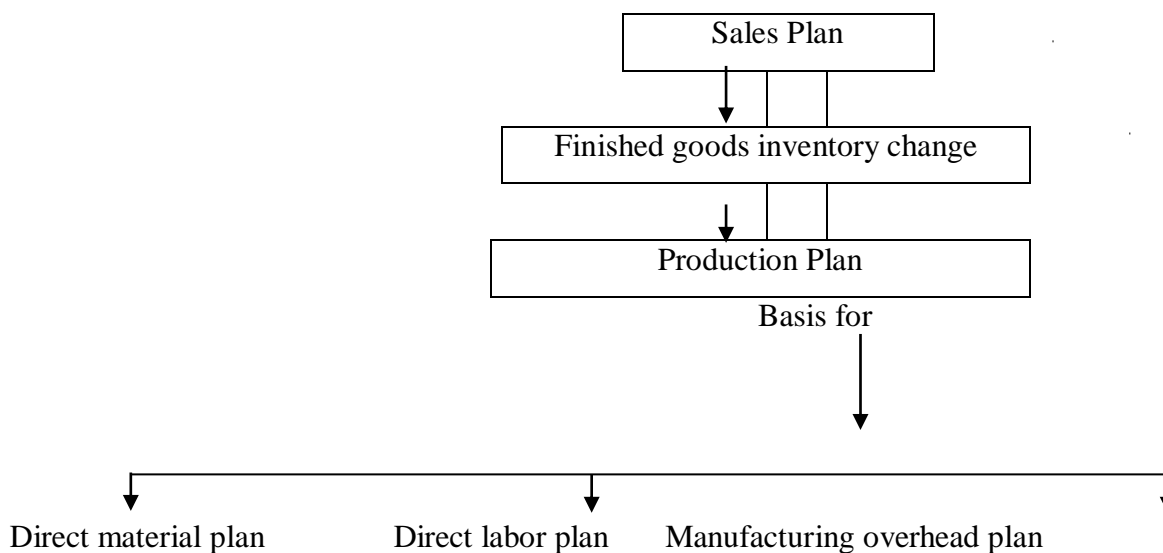
2.1.12 Production Budget

A next step in the manufacturing enterprise after a tentative approval of sales plan is the preparation of production plan. It is an important tool of planning, co-ordination and control in a manufacturing organization. Development of production plan requires the conversion of sales plan into production program. It interlines the activities such as material planning, labor planning, overhead planning etc.

The production plan specifies the planned volume of each product to be produced for each time period throughout the planning period. This entails the development of policies about efficient production levels, use of production facilities and inventory

levels. The quantities specified in the marketing plan adjusted to conform to production and inventory policies give the volume of goods that must be manufactured. It can be presented in equation sales volume \pm finished goods inventory = Production

Figure No. 2
Planning Production



2.1.13 Responsibility for Production Plan

Responsibility of preparing production plan goes to various managers such as:

Chief Executive:- The responsibility of Chief executive is to formulate objectives and policies of the organization. Concerning to production and inventory levels.

Sales Managers:- The input of producing plan is sales plan. So the responsibility of sales manager in production planning is to provide a sales plan.

Production Manager:-The production manager is responsible to prepare production plan for the company. He defines production system of his department.

Production Supervisor:- He/she is responsible to prepare tactical production plan detailed by time and product for short period.

Administrative Manager:- He/she is responsible to supply optimal manpower for production plan in time. He/she must provide information of available manpower.

Financial Manager:- He/she is responsible to provide past data, standard rate, capital addition plan etc. in time.

2.1.14 Developing the Production Budget

The production budget is an estimate of the quantity of goods to be manufactured during the budget period. The production budget is developed in three steps. They are:

- Formulate policies related to inventory levels and production levels.
- Determine the total quantity of each product that is to be manufactured during the budget period.
- Schedule this production by interim periods,

The production executives must convert sales budget into unit production requirements for the budget period for each product while considering the managements inventory policies. After the budgeted production has been developed for the budget period, the next problem is scheduling this production by interim periods. During the year interim production must be planned so as to:

- Have sufficient goods to meet interim sales requirements.
- Keep interim inventory levels within reasonable limit and
- Manufacture the goods as economic as possible.

To plan production effectively, the manufacturing executive must have overlap information relative to the manufacturing operations necessary for each product.

Factor considerations while developing the production budget are as follow:(Welsh, Hilton and Gordon,(2006:214))

1. Total production requirements by product for the budget period.
2. Inventory policies about levels of finished goods, work-in-process and the cost of carrying inventory.
3. Plan capacity policies such as the limits of permissible departures from a stable level throughout the year.
4. Adequacy of manufacturing facilities.
5. Availability of direct materials, purchased components and labor.

6. Length of processing time.
7. Economic costs or run.
8. Timing of production throughout the budget period by product by responsibility.
9. Establishment cost

2.1.15. Economic Cost Size Inventory Policy

In determining inventory policies for finish goods, management should consider these important factors:

- Quantities need to meet sales requirements.
- Perishability of items.
- Length of the production period.
- Storage facility.
- Adequacy of capital to finance inventory, sometime in advance of sales.
- Cost of holding inventories.
- Protection against labor shortage.
- Protection against price increases.
- Risk involved in inventory.
 - Price Declines
 - Obsolescence of Stock
 - Casually Loss and Theft
 - Lack of Demand
 - Customers Return Policies. etc.

Depending upon suitability of its nature, a firm may adopt any of the following inventory policy:

Stable Inventory Policies:- An equal ending inventory is kept every time, so the planned production fluctuates with the size of planned sales units.

Fluctuated Inventory Policies:- An equal production is maintained throughout the year. So the size of inventory fluctuates with the size of planned sales units.

Inventory-Production Co-ordination:- Production and inventory units are adjusted as per the change in sales units.

2.1.16 Just-In-Time Production

JIT is both a philosophy and a set of methods for manufacturing. It emphasizes waste reduction, total quality control etc. The JIT approach to production planning is a recent trend in manufacturing. The main characteristics and modern production on which JIT is based are:(Goet,Gautam and Bhattarai,(2006))

- It is inefficient and costly to hold large inventories of raw materials sub assemblies or finished goods. The safety inventory should be minimized.
- Set up times for production can be minimized through the use of robotics and process improvement studies.
- Thus frequent production set-ups may not be inefficient.
- Very high quality of sub assemblies and final products must be achieved in order to reduce the need for safety stock.

JIT is a production concept in which virtually nothing is purchased a manufactured until just before it is needed.

2.1.17 Material Budget

A comprehensive profit planning and control program or budgeting includes planning and controlling raw materials and components used in the manufacturing of finished products. When the required quantities of each product to be manufactured are specified in the production plan. The next step is material plans. Material budget co-ordinates raw material and parts required for production, inventory level of raw material and parts that must be purchased is prepared after the planned production. As we know material may be direct or indirect. Thus material budget deals with the requirements and procurement of direct materials. Indirect materials are dealt with under the works overhead budget.

The objectives of material budget are as follows: (Welsh, Hilton and Gordon. (2006))

- To provide quantity data for purchase materials and parts.
- To provide quantity data to compute material cost per unit.
- To establish effective inventory policy.
- To prepare effective cash budget.

- To introduce effective control system on material use.

Planning raw materials and parts usually required the following sub budgets.

2.1.18 Materials and Parts Budget

Generally the quantities of raw materials and parts are shown by time, product and responsibility center. Planning and controlling of the required quantities of raw materials and parts for production is materials and parts budget. It helps to determine the quantities of direct materials and parts needed for production. Production manager is responsible to prepare this budget on the basis of production budget. Direct controlling the raw materials and parts at the point of uses, the organization will be able to minimize the product cost which is the basis objective of materials and parts budget. This is determined as follows:

Material Budget: production budget x standard usage rate of materials

2.1.19 Materials and Parts Purchase Budget

It includes the quantities of materials to be purchased; estimated price and the required inventory level for seasonal variation. The purchasing manager must order materials and parts inventory levels and usage requirement in the production process. Timing for purchase and quantity to be purchased can be determined as follows.

Timing for Purchase:- The time when a purchase is made is called the re-order. The re-order point is reached when the inventory level is equal to the quantity needed to sustain production for a period. Time to re-order and receive the replenishments should be considered. Often, it is also desirable to include a safety stock to dismiss the effect of unusual fluctuation. So,

Re-order Point = Replacement Stock + Safety Stock

Quantity to be Purchased:- How much to purchase at a time is determined by well-known approach i.e. in economic order quantity. EOQ should be in that quantity in which ordering cost and storing cost is equal. Because at that time total cost will be

minimized otherwise total cost will be increased. So, ordering the quantity of each type of product and materials by EOQ method cost will be minimized

$$EOQ = \sqrt{\frac{2AO}{C}}$$

SO,

Where, A= Annual requirement

O= ordering cost per order

C= carrying cost per unit

Thus, purchase of materials can be determined as follows:

Material Purchase = Material usage + closing stock of Raw Material- opening stock of Raw material.

2.1.20 Material Inventory Policies

The primary considerations in setting inventory policies for materials are:

- ❖ Quantities of raw materials needed with time lag.
- ❖ Economic in purchasing through quantity discounts.
- ❖ Availability of materials.
- ❖ Motive of business.
- ❖ Perishability of materials.
- ❖ Storage facilities needed.
- ❖ Capital requirement to finance inventory.
- ❖ Expected changes in the cost of materials.
- ❖ Protection against shortage.
- ❖ Risk involved in inventories.
- ❖ Opportunity cost.

Materials inventory budget reports the planned levels of raw materials inventory in terms of quantities.

2.1.21 Cost of Materials and Parts Used Budget

This budget specifies the planned cost of the materials and parts that will be used in the production process. This budget is completed until the planned cost of purchase is developed.

Material Cost = Material Usage × Material Cost

2.1.22 Just in Time Purchasing

A recent development in material inventory management is JIT purchasing. It is Japanese approach of purchasing in small lots with frequent deliveries. The JIT purchase assumes that the purchase of raw materials and component parts arrive just in time for use in the manufacturing process; often within a few hours of time they are scheduled for uses and sales. In this approach materials and manufacturing goods are ordered only as needed to fill the customers orders. So it is a demand-pull manufacturing system as purchase of inventory is totally driven by the customers orders and it is a replacement of traditional supply-push system.

Advantages of JIT Purchase

- It reduces the amount of money tied-up in inventories of raw material and finished goods.
- It reduces inventory-holding cost.
- It makes possible to dictate quality problems as they occur.
- It helps to improve the labor efficiency variances.
- The wastage will be minimized, the customer will be highly satisfied by receiving high quality, better delivery and greater product variety.

2.1.23 Direct Labor Budget

For the annual plan of profit, the direct labor budget should be developed by responsibility centers, interim periods and products. The approach used to develop the direct labor budget depends primarily on the: (ibid p.281)

- Method of wage payment
- Type of production process involved.
- Availability of standard labor time.
- Adequacy of the cost accounting records relating to direct labor costs.

Normally three approaches are used to develop the direct labor budget

1. Estimate the standard direct labor hours required for each unit of each product then estimate the average wage rate of department, cost center or operation;

multiply the standard time per unit of product by the average hourly wage rate which gives the direct labor cost per unit of product for the department, cost center or operation. By multiplying the units of output planned for the department, cost center or operation by the unit direct labor cost rate gives the total direct labor cost by product.

2. Estimate ratios of direct labor costs to some measure of output that can be planned realistically.
3. Develop personnel tables by enumerating personnel requirement (including cost) for direct labor in each responsibility center.

2.1.24 Expenses Budget

To maintain reasonable expenses level to support the objectives and planned programs of enterprise, it is necessary to plan expenses. The expense budget should be developed for each responsibility center after completion of the production plans. Expenses planning should not focus on decreasing expenses but rather on better utilization of limited resources. Expenses planning and control should focus on the relationship between expenditures and the benefits derived from those expenditures. The desired benefits should be viewed as goals. Sufficient resources must be planned to support the operating activities essential for their accomplishment.

The essence of expense control is the concept of a standard. A standard is the amount that expenses should be under a given set of conditions.

For the purpose of planning and controlling; the expenses may be broadly divided as manufacturing expenses (Factory overhead), administrative expenses and selling and distribution expenses. In order to achieve objectives, expenses should be classified by responsibility, designated controllable or non controllable and estimated with respect to their cost behavior pattern.

2.1.25 Cost Behavior

In cost planning and control, it is essential to have knowledge of cost behavior i.e. the response of cost to different volumes of output. Three distinct expense categories can be identified when expenses are viewed in relation to change in output which are as follows:¹²

Fixed Expenses:- Those expenses, which are constant in total, from month to month regardless of fluctuations in output or volume of work done. This concept must be applied

- to a realistic or relevant range of output and
- In relation to a given set of conditions.

Examples of fixed expenses are salaries, property taxes, insurance and depreciation etc.

Variable Expenses: - Those expense that change in total, directly with changes in outputs or volume of work done. The output must be measured in terms of some activity base such as units completed, direct labor hours, sales dollars, number of service calls, depending on the activities in the responsibility center. The examples of variable costs are direct materials, direct labor and power usage.

Semi-Variable expenses: - Those expenses which are neither fixed nor variable because they possess some characteristics of both. As output changes semi- variable expenses change in the same direction but not in proportion to change in output.

2.1.26 Reason for Expenses Planning

Detailed expenses budgets for each responsibility center should be included in the short-term profit plan for a number of reasons:

- The effect of various planned revenues and related expenses can be aggregated in a planned income statement.
- The cash outflow required for costs and expenses can be realistically planned.
- A standard can be provided and used during the period covered by the profit plan for each expense in each responsibility center for comparison with actual expenses on the performance reports.

2.1.27 "Planning Manufacturing Overhead" (factory overhead)

After the production plan has been completed expenses budget should be developed for each responsibility center in the organization. The expense budget should be detailed by interim time period. Manufacturing overhead is a part of total production cost. It has not directly traceable to specific product or jobs. Manufacturing overheads

consists of indirect material, indirect labor and all other miscellaneous factory expenses such as taxes, insurance, depreciation, repair etc. It is difficult in the allocation of manufacturing overhead to products because it includes many dissimilar expenses. There are two distinct types of responsibility centers in most manufacturing companies. They are producing and servicing. Producing centers are those manufacturing departments that work directly on product manufactured. But service department does not work to products directly rather they furnish service to the producing departments and to the other service departments. While developing manufacturing overhead following steps should be taken:

- Translate the requirements specified in the production plan into output or activity in each department.
- Plan department overhead expenses.
- Allocate the planned departmental expenses to the producing departments.
- Allocate the producing department expenses to the product.

Following the above steps, per unit overhead rate for each product can be computed and by adding direct material, direct labor cost for each product measure in position to compute the cost of goods manufactured.

To plan cost of goods manufactured, all the manufacturing overhead costs are to be allocated to production. The following steps should be followed.

- Selection of appropriate activity base.
- Computing total volume of work /activity for all department.
- Computing overhead cost per unit for each product.
- Transforming overhead rate per unit to product
- Computing cost of goods sold.

2.1.28 Planning Selling and Distribution Overhead

Distribution expenses affect the plan of profit. It is a significant portion of total expenses. It includes all costs related to selling, distribution and delivery of products to customers. The two primary aspect of planning distribution expenses is as follows: (Gautam & Bhattarai (2006:7-8))

Planning and co-ordination: - Marketing executive is directly responsible for planning the optimum economic balance between sales budget, advertising budget and distribution expenses budget.

Control of distribution expenses: - Distribution includes head office expenses and field expenses. From the planning and controlling point of view, these expenses must be planned by responsibility center. These expenses are not product cost. They are not allocated to special product. So separate distribution expenses plan should be developed for each responsibility center.

When developing the expenses budget, the managers should conform to the board guidelines establish by management, plans, program and their own judgment.

2.1.29 Planning Administration Overhead

"All these expenses other than manufacturing overhead and distribution expenses are administration expenses. In the other word, this budget covers the expenses included in directing and controlling the business operation. It provides an estimate of the expenses of the management salaries etc. It can be prepared with the help of past experience and anticipated changes. Administrative expenses are incurred in the responsibility centers that provide supervision and service to all function of the enterprises rather than in the performance of any variable cost. Mostly administrative expenses are determined by management decisions. Each administrative expense should be directly identified with a responsibility center, the center manager should be responsible for planning and controlling these expenses."(Welsh, Hilton and Gordon.(2006))

2.1.30 Capital Expenditures Budget

Capital expenditure budgeting is the process of planning and controlling the strategic (long-term) and tactical (short-term) expenditures for expansion and contraction of investments in operating (fixed) assets.

A capital expenditure is the uses of funds (e.g. cash) to obtain operational assets that will (a) help to earn future revenue or (b) reduce future cost. Capital expenditures include such fixed (i.e. operational) assets as property, plant, equipment, major

renovations and patents. Typically, capital expenditure projects involve large amounts of cash, other resources and debt that are tied up for relatively long periods of time.

Capital expenditures are investments because they require the commitment of resources today to receive higher economic benefits (i.e. profits) in the future. Capital expenditures become expenses in the future as their related goods and services are being used to earn higher future profits from future revenues or to achieve future cost savings. The related future expenses, such as depreciation expense are identified with the future periods when the capital additions are used for their intended purposes. Therefore, capital expenditures involve two planning and controlling phases

- Investments and
- Expenses.

2.1.31 Characteristics of a Capital Expenditures Budget

The capital expenditure budget (or plan) is an important part of a comprehensive profit plan. It is directly related to a company's operating assets, especially land, equipment and other operational assets and cash. Capital expenditures are usually classified in a capital expenditures budget as follows.

Major Capital Addition Projects:- Requiring large commitments of funds for operational assets that have lives that extend over a long period of time. They tend to be unique, nonrecurring projects that represent new directions and major steps, and technological improvements e.g. acquisitions of land, new buildings, and extensive renovations, improvements, maintenance,

Minor or Small Capital Expenditure:- These are small, low-cost, recurring, and ordinary capital expenditures. Examples are recurring replacements and maintenance of operational assets and the purchase of special tools and attachments that contribute to future revenues or cost savings.

Since the time dimensions of a capital expenditures budget must be consistent with the comprehensive profit plan. It must include: -

- Strategic (long-term) capital expenditures budget and
- A tactical (short-term) capital expenditures budget.

2.1.32 Benefits of a Capital Expenditures Budget

"A capital expenditures budget provides many benefits from the management planning and controlling viewpoints. The capital expenditures budget enables executive management to plan the amount of resources that should be invested in capital additions to satisfy customer demands, meet competitive demands and ensure growth. The budget process for capital additions is essential for management to avoid

- Idle operating capacity,
- Excess capacity and
- Investments in capacity that will earn less than an adequate return on the funds invested.

The development of a strategic (long-term) and tactical (short-term) capital expenditures budget is also beneficial because it requires sound capital expenditures decisions by management. By using this process, management can develop and carefully evaluate alternative capital expenditures. The capital expenditures budget also focuses the attention of executive management on cash flows, a crucial and often neglected problem. Finally, the capital expenditures budget increases coordination among responsibility centers because capital addition decisions often affect the entire company, although not in the same way for all units of the organization". (Welsh, Hilton and Gordon.(2006: 399))

2.1.33 The Capital Expenditures Budget Process

Capital expenditure involves the long-term commitment of large amounts of resources, decision concerning them have a significant effect on the economic health of a company. There is a need for careful analysis and planning on the part of top management. Inadequate management attention to a capital addition may result in overinvestment or underinvestment. Because of the importance of sound capital expenditure decisions, the management should design a systematic process to develop the long-term and short-term capital expenditure budget.

The primary phases of a yearly budget process for planning and controlling capital expenditure are summarized below-

Phase Activity

1. Identify and generate capital additions projects and other needs, this activity should be continuous in most cases.
2. Develop and refine capital addition proposals, collection of relevant data about each proposal including any related alternatives.
3. Analyze and evaluate all capital additions proposals and alternatives, emphasis should be given to the validity of the underlying financial and operational data,
4. Make capital expenditure decisions to accept the best alternatives and the assignment of project designations to selected alternatives
5. Develop the capital expenditure budget.
 - **Strategic Plan:** Re-plan and extends the long-term plan by dropping the past year and adding one year into the future.
 - **Tactical Plan:** Develop a detailed annual capital expenditure budget by responsibility center and time
6. Establish control of capital expenditures during the budget year by using periodic and special performance reports by responsibility centers
7. Conduct post completion audits and follow-up evaluation of the actual results from capital expenditures in periods after completion.

2.1.34 Capital Expenditures Decisions

The crucial capital expenditure decisions are the choices of management from the competing capital expenditures alternatives. Capital budget decisions about the alternatives should usually be based on an objective evaluation of the investment worth of each alternative. Basically investment worth is profit divided by investment. Normally, companies measure investment worth by using two basis approaches:

- Discounted cash flows (present value) and
- Shortcut and simple methods

The discounted cash flow methods are preferable because they explicitly use the time value of money i.e. interest

Discounted Cash Flow Methods

- Internal rate of return

- Net present value
- Profitability index

Shortcut and Simple Method

- Average rate of return
- Payback

Internal rate of return:- The internal rate of return of an investment proposal is the discount rate that equates the present value of the expected cash outflows with the present value of the expected inflows.

Net present value: -The net present value method is also a discounted cash flow approach to capital budgeting. With the present value method, all cash flows are discounted to present value using the required rate of return. If the sum of these discounted cash flows are zero or more then the proposal is accepted.

Profitability index: - The profitability index or benefit/cost ratio of a project is the present value of future net cash flows over the initial cash outlay. The decision criterion is higher profitability index is selected.

Average rate of return: -This accounting measure represents the ratio of the average annual profits after taxes to the investment in the project.

$$\text{Average Rate of return} = \frac{\text{Annual profit after taxes}}{\text{Initial investment}}$$

Payback period: - The payback period of an investment project tells about the number of years required to recover initial cash investment. It is the ratio of the initial fixed investment over the annual inflows for the recovery period.

$$\text{Payback period} = \frac{\text{Initial investment}}{\text{Annual cash inflows}}$$

The criteria using above methods of measuring capital investment can be summarized as follows:

Method	Criteria
Internal rate of return	Higher IRR
Net present value	Higher NPV
Profitability index	High pi
Payback period	Lower PB period
Average rate of return	Higher ARR

A common cause of business failure is lack of capital arising from, neglect to estimate financial requirements in advance and plan operations accordingly. Its advantages, however, is that it establishes a clear picture of the nature and extent of the problems lying ahead and indicates the best courses of action that can be followed to cope with the situations as they arise. (Willsmore,A.W)

2.1.35 Cash budget

Cash budgeting is an effective way to plan and control the cash flows, assess cash needs and effectively use excess cash. The primary objective cash budget is to plan the liquidity position of the company as a basis for determining future borrowing and future investment. Cash budget shows the planned cash inflows, outflows and ending position by interim periods for a specific time span. Most companies should develop both long term and short term plans about their cash flows. The short-term cash budget is included in annual profit plan. Cash budget basically includes two parts: -

- The planned cash receipts (inflows) and
- The planned cash disbursements (outflows).

Planning cash inflows and outflows gives the planned beginning and ending cash position for the budget period. Planning the cash inflows and outflows includes

- The need for financing probable deficits or
- The need for investment planning to put excess cash to probable use

The cash budget is directly related to other plans such as the sales plan, accounts receivable, the expense budgets and capital expenditure budget. Nevertheless,

planning and controlling of these activities do not automatically take care of the cash position. The cash budget focuses exclusively on the amounts and timings of cash inflows and outflows. The cash budget is prepared from the previously completed budgets such as sales, material, labor, overhead and capital expenditure budget. Thus preparing the cash plan primarily involves two activities: -

- Combining all the planned cash inflows and outflows and
- Making decision about interim financing in case of cash shortages and interim investing in case of excess cash excess.

The primary purposes of cash budget are to: (Welsh, Hilton and Gordon)

- ❖ Give the probable cash position at the end of each period as result of planned operation
- ❖ Identify cash excess or shortages by time periods
- ❖ Establish the need for financing and the availability of idle cash for investment
- ❖ Coordinate cash with total working capital, sales revenue, expenses, investment and liabilities.
- ❖ Establish a sound basis for continuous monitoring of the cash position

2.2 Review of Previous Related Studies

" Every research requires clear cut idea about the problem of the study and its solution which emerges from the review of literature. Scientific research must be based on past knowledge. The main objective of this chapter is to review the research studies in the related area of the study and clarify the need for conducting further research. The review of the previous research work on the related topic is essential to know what had been done on the concerned topic and what is to be done. There are many research work under taken in manufacturing, commercial and trading sector in the Nepalese context. Here some reviews are made which are directly or indirectly related with selected topic i.e. managerial budgeting practices in "Nepal Electricity Authority".

2.2.1 Niraula (2008) had made research on the topic of "Impact of budgeting in profitability of Nepalese public enterprises (A case study of Nepal Electricity Authority) submitted to Shankar dev campus. In this research Niraula has pointed out the following specific objectives and core findings: -

Main Objectives

- To analyze the various functional budgets of NEA.
- To analyze the true picture of ppc adopted by NEA.

Major Findings

1. Actual and budgeted sales are found to be significant but the difference between budgeted and actual production is found too vague. In spite of the fact, there is perfect correlation between budgeted and actual sales and production respectively.
2. NEA is bearing a high fixed cost due to the technology that is using now, over staffing and many more.
3. Actual sales are always less than actual production due to power losses.
4. It has not classified its overhead systematically which has created difficulties in analyzing the expenses properly.
5. NEA has no sufficient cash surplus to pay for expenditures, it was to borrow loan to meet minimum cash balance and it is clear that it is the result of poor cash plan. And for that it is paying a huge amount of interest in every year and the trend is of adding on it rather than of paying back.

2.2.2 Pradhan (2007) has submitted a thesis on the topic "Profit planning and control system in Nepalese public enterprise" taking NEA as a sample of public enterprise. The main objectives of this study are as below: -

- To analyze the effectiveness of profit plan in NEA.
- To assess load forecasting and achievement trend of NEA
- To check the CVP analysis.

By using analytical and descriptive research methodology she has pinpointed the following finding and recommendation: -

1. NEA formulates various long range as well as short range budget as a comprehensive profit planning but the long range plan are concerned only the top level staff.
2. Category wise sales indicate the share of domestic category has the highest among total sales revenue.

3. Export and import relationship of Nepal is only with India and export tariff rate is less than import.
4. Budgeted production is more fluctuated than actual production.
5. Only short-term capital budget is prepared and published where as long term capital budget is also prepared but not published.
6. Low level of sales revenue is also one of the causes of reducing profitability.
7. There is not clear-cut provision of segregating cost into fixed and variable, which has created difficulty to analyze its cost.
8. Calculation of CVP is also not considered while developing the sales plan and pricing strategy.

Recommendation

1. There is no proper communication and coordination system so she recommended establishing a good communication system so that the lower level staff can get real information about objectives, goals and plan of organization.
2. She suggested NEA to establish the system of realistic forecast and target in sales, production and profit.
3. She suggested to minimize the loss or maximization of the profit by launching cost control program because there was negative relationship of sales and profit and to control leakage and loss of power by improving meter reading and joining system.

2.2.3 Upreti (2006) has submitted his research work entitled "sales budgeting as the tools of profit planning in public enterprises case study of Nepal Electricity Authority" This research is mainly concerned with sales budgeting and its effectiveness on profitability in NEA. The main findings and objectives of this research are as below: -

Main Objectives

- To analyze the sales budgeting practices adopted by NEA.
- To examine sales trend of NEA.
- To analyze the relation between budgeted sales and its effect on profitability.

Main Findings

1. NEA has practice of preparing both strategic and tactical profit plan but the strategic plan is limited only top level of management.

2. NEA's sales achievement has neither touched nor crossed the target sales during the study period. The sales achievement during five years period is about 93% of target sales in average and the sales is increasing in every year.
3. There is higher degree of positive correlation between planned and actual sales i.e.0.99 approximately. It means actual sales changes the same direction and in about same speed of the planned sales.
4. The C.V. and S.D. of actual sales are more than theses of planned sales. It indicates that actual sales are more than budgeted sales.
5. NEA is suffering from losses since last half decade .Its losses is in increasing trend in the first two years and again it is increasing in last two fiscal year taken for the study.
6. The actual profit of NEA has a very high degree of negative correlation with actual sales i.e. - 0.86 approximately. Therefore an increase in sales reduce the profit.
7. The actual profit of NEA has also very opposite relation with its target profit due to improper cost and profit budgeting system and policy.
8. NEA is paying more than 60% of its revenue only for purchase price of electricity.
9. Power losses of NEA are about one-fourth of its total power available. This power loss is about 10% more than normal acceptance.

2.2.4 Acharya (2006) has submitted his research report on the topic of "Profit planning in public utility" taking Nepal electricity authority as a sample. He had covered the time period from F/Y 2055/56to FY2060/61. The main objective of this study is to check the budgeting system in public enterprise in Nepal and he had followed analytical and descriptive research methodology. The main finding and suggestion of the study are as below: -

1. NEA's goals and objectives are not communicated to lower level of staff. There is the absence of M.B.O. principles of participation management and not any system of M.I.S. report.
2. Only top level executives are involved in planning and decision making process.
3. Financial position is not satisfactory because it is in operation loss and they show net profit after the adjustment of revelation surplus.

4. NEA is suffering from power loss, which is 24% of production, which is very remarkable in budgeting.
5. There is a problem of autonomy; government direct interferes to the public enterprise. Political leaders directly influence any decisions like pricing, service and personnel.

Suggestions are:

1. NEA should introduce programs and action plan for the reduction of transmission loss both technical and non-technical. It can improve its efficiency in the metering device i by changing old meter and keeping efficient meter reader and improving its transmission system. Non- technical loss can be reducing by adopting effective managerial, social, legal and other measure.
2. Government should not interference to NEA. Government may give only guideline.
3. Cost control program should be established.
4. There is not a practice of preparing projected balance sheet. So immediately they should start to prepare the projected balance sheet after preparing all functional budgets.
5. The knowledge of profit planning like components of profit planning, fundamentals of profit planning, advantage of profit planning should be given to the all level of management.
6. For the control of leakage and bad debts NEA also should start the pay- card system like NTC.

2.2.5 Shrestha (1998) has submitted thesis on the topic of "A comparative financial analysis between NEA and NTC."

The main objectives of this study are as follows: -

- To analyze and compare the financial performance of NTC and NEA by using the different indications and standards like profitability, liquidity and capital structure turn over etc.
- To present the existing financial performance of NTC and NEA.
- To identity the strength and weakness of both public enterprises.

The conclusions drawn by Shrestha are as follows:

(a) Liquidity

There is no significant difference between NTC and NEA in their mean, current ratio, however NTC is found to be more consistent than NEA in maintaining the said ratio.

The average acid- test ratio maintained by both enterprises in above study period is recognized and satisfactory. There is no significant difference between two enterprises in term of acidity test of quick assets and current liabilities. Both enterprises have been making up the defensive internal ratio. However NTC is noticed to be significantly better than NEA.

(b) Profitability

NTC is significantly better than NEA in terms of making net profit. It has reasonable rate of return on stockholder's investment. Even NTC is found to be more consistent than

(c) Turnover

The major portion of the total assets is invested in fixed in both enterprises. NTC has better utilized the fixed assets than NEA, but they are more or less equally in consistent in terms of utilization of the said assets. NTC is found to be significantly better than NEA in utilizing total assets. Also NTC is found to be more efficient than NEA in turning the inventory into cash.

(d) Financing Structure

NTC, on an average has fairly lower combination of debt in its financing structure. It is significantly better than NEA in terms of debt to equity ratio.

(e) Bankruptcy Test

Both NTC and NEA have the beta value below the standard value, however the said value of NTC is 6.64 times greater than that of NEA. Therefore NEA is more possible to go into bankruptcy. The main objective of this study was to analyze the financial position of Nepalese

2.2.6 Dahal (2005) had submitted his thesis work on the topic of "Profit Planning system and financial condition of NEA". The main objective of this study is to analyze the financial position of NEA as a public enterprise. He had used the ratio analysis as a tool of interpretation and descriptive research methodology. The major findings of his research are as follows: -

NEA has a practice of preparing both long term and short term profit plan. NEA is paying huge amount of interest in every year and it is suffering from huge fixed cost. It has sufficient cash surplus to make payment for expenditures. Overheads are not classifying systematically. So there is a problem of analyzing its expenditures properly. It does not maintain its periodic performance report systematically.

Dahal has recommended some suggestions on his study. Leakage of electricity should be controlled. For this, meter reading and meter joining should be improved. NEA should try to maximize its operating profit. Cost control program should be established. There should not be political interference. The installed capacity of NEA should be utilized fully. The employee productivity is low; it should be improved as soon as possible.

2.2.7 Rai (2004) has made a research on the topic of "Profit planning in public utilities sector of Nepal"(A case study of NEA) .The main objectives of this study are as follows: -

- to highlight the NEA
- to observe profit planning system of NEA

The major's findings and recommendations are as follows: -

Findings

1. Budgeted sales are more variable than actual sales
2. Authority formulates various functional budgets as a part of comprehensive profit planning.
3. Budgeted production is more fluctuated than actual production.
4. NEA has been running at a loss except one year during the study period.
5. NEA has been paying a large amount of interest on the long-term loan.
6. Power leakage is significantly high.

7. NEA has not a practice of segregation of cost rather it puts all expenditures under a single roof of operation and maintenance cost which has created difficulties.
8. NEA fails to maintain its periodic performance report systematically
9. There is no separate responsibility center for costing and it lacks dynamic and effective cost controlling system.

Recommendation

1. A public private partnership in generation and distribution could be an appropriate model to ensure greater transparency about power purchase agreement.
2. NEA should re-structure its capital structure and should emphasis the internal financing to avoid the burden of high interest of long term loan.
3. NEA should develop an effective system of measures like rules, regulation and penalty
4. NEA should stress on efficient utilize and application of assets and capital to maintain its sound liquidity, structure turnover and profitability position.
5. Electricity generation projects should be selected on the basis of low cost and high profitability.
6. NEA should develop the culture of maintaining periodic performance report of its activities by evaluating its strength and weakness. The budgeted targets and actual achievement should be frequently reviewed through performance reports and unfavorable gap should be minimized to the greater extent

2.2.8 Dahal (2001) has submitted his research work on the topic of "Profit planning and control of NEA". The main objective of this study is to check the profit planning system in public utilities sector. The major findings of this study are as below: -

Findings

1. NEA is suffering from the high fixed cost because of paying a huge amount of interest in every year.
2. NEA prepares various functional budgets to implement profit-planning system in some extent.
3. NEA should reduce the number of unnecessary employees like in daily wages, labour and contracted personnel.

4. There is a high rate of power losses in NEA because sales are below than production
5. There is a lack of systematic classification of overhead expenses so it has created difficulties to analyze its overheads.
6. Profitability ratio, turnover ratio is not in satisfactory position but acid test ratio seems in better position.
7. According to the variance analyze of profit plan in NEA, sales variance is satisfactory level.
8. Goals and objectives are not clear-cut and not communicated to lower level staff.

2.2.9 Luitel (2004) had submitted his research work on the topic of "Profit planning and control of NEA". The main objective of this study is to check the implementation perspective of profit planning with respect of NEA. By using the descriptive and analytical research methodology he had concluded the following finding and recommendation.

Finding

1. NEA is neither set the break-even point nor accepts BEP levels.
2. More often, NEA is suffering from loss since the establishing year. NEA accepts variance analysis but not in a systematic way.
3. There is not separate costing department as well as there is lack of dynamic and effective cost control program i.e. no precise destination has been made regarding the variability of cost as variables, fixed, controllable or uncontrollable and direct or indirect etc.
4. NEA has not prepared plans and program for agriculture sectors in respect of consumption of electricity. It only set the power loss target but does not make effective action plan to reduce such loss.
5. The financial health of NEA is very poor which is founded by various ratios. It is going to backward in year by year.
6. Depreciation on fixed assets is provided by straight-line method. Other new methods are not used.

Recommendation

1. NEA should introduce the programs and policies to reduce the power losses.
2. Cost control program should be established in effective manner.
3. NEA should reduce the number of unnecessary employees like in daily wages, labour and contracted personnel.
4. NEA should stress on efficient utilize and application of assets and capital to maintain its sound liquidity, structure turnover and profitability position
5. Government should not interference to NEA. Government may give only guideline.

2.2.10 Timilsina (2000) has submitted his research work on the topic of "Profit planning and control of NEA. The main objectives of his research work are as below:

-

- To examine the practice and effectiveness of profit planning in NEA
- To analysis the variances of various functional budgets
- To assess the managerial performance with respect to profit planning

The researcher had concluded the some findings, which are as follows: -

1. Achievement of NEA for actual sales is more variable than budgeted but actual production is less variable than planned production.
2. There is a high rate of power losses in NEA because sales is fare below than production.
3. The authority is running in losses
4. There is lack of dynamic and effective cost control program as well as there is no separate costing department.
5. Goals and objectives are not clear and lower level of staff is not communicated about their goals and objectives.
6. NEA has large number of customers in various sectors; to serve such large customers it requires effective system of revenue collection so that revenue does not tie up in account receivable. The account receivable is unproductive therefore the collection system should treat equally to all the customers and should not be influenced by political pressure. Revenue accounting should be given adequate important like expenditures accounting by budget center chief and responsible personnel should be appointed to handle this section.

7. Cost -volume-profit relationship should be considered while developing the sales plan and pricing strategy

2.2.11 Gorkhapatra Daily News Paper: -As an article, which is published in "Gorkhapatra national daily news paper" at January 20 /2009, has been pinpointed the following findings: -

- 1) NEA is failed to produce the minimum energy, which is demanded by its customers.
- 2) Only few months in raining season it is able to produce sufficient energy but most of the days it fails to fulfil the minimum demand
- 3) All electricity projects are based on the run of the river basis so proper management of generated power is essential tool to fulfil its demand
- 4) In FY 2066/67 the total no of customers were 1277447 but in FY 2069/70 the no of customers reached 1524610 and upto pouch end 2069/70 the no of customers have reached 16 lakh. Similarly total highest capacity of NEA in FY 2069/70 is 689.38MW where as the total highest demand of the same year is more than 800 MW SO it is clear that NEA fails to generate sufficient power to fulfil its demand.

2.2.12 Kantipur National Daily Newspaper: -A study prepared by an international auditing institutions which is published in Kantipur daily newspaper at 30 march 2006 has concluded the core reasons which are driving NEA towards the road of climbing loss are as below: -

- 1) Total loss is the one-fourth of total capital employed and which is in increasing trend.
- 2) Accounting statement is unsystematic
- 3) Electricity loss and leakage is about 24.83%.
- 4) There is no accounting record of the number of about 800 vehicles of NEA.
- 5) Electricity purchase price from private sector and India is very high.

2.2.13 Hydropower in Nepal, issues and concept of development
(A book written by Mr. Arjun prasad Shrestha)

Shrestha has noted the following finding and suggestions: -

- 1) Major achievement in the economic development of Nepal could be realized through proper utilization of the vast water resources. But nearly a 100% dependency on overseas professions and failure to gradually develop our own manpower prevents realization of this goal.
- 2) An alternative strategy for the hydropower development in Nepal would be to open the doors for privatization, where there would be a chance for development through competition and decreases of burden of government.
- 3) He suggested to demonstrate the assessment of condition that have been made through out the history of development of hydropower in Nepal which helps to correct the mistake which had done previously in coming new projects.
- 4) High investment requirement for the development of hydropower and lack of financial resources are the major constraints at present.

2.2.14 A Report Published on Bidyut Patrika

(Written by Nani Kaji Thapa and Narayan Prasad Baskota)

By using ratio analysis as a tool of analysis, writers have concluded the following findings and suggestions: -

1. Economic activities can not be imagined and can not move ahead a single inch without energy. But energy crisis is the burning issues all over the world. Electricity is the major component of energy and water resources is one of the major sources to produce electricity. Nepal is the second richest country in respect of water resources. From economic and technical point of view 42000MW electricity can be produced in our country.
2. While observation has been made on return on equity of NEA for nine years of study periods from 1998 to 2006, it was positive for 1st five years of the study period and found negative in the year 2003 and onwards.
3. In the process of observation of the result the equity multiplier has been increased from the year 2003 which indicates that the portion of equity on total assets has been decreased, that is why one can expect in increase of return on equity.
4. It is found that interest expenses have been increased suddenly from RS 1395.5 million in the year 2002 to RS 2973.4 million in the year 2003. Therefore one of the reasons for negative return on equity because of high interest cost. Similarly it is supported by percent of operating expenses to

sales, it has been decreased on those years. Thus it is beneficial to NEA to raise funds from domestic sources rather than foreign sources to save high interest cost.

5. It is found that receivable had been decreased gradually from the year 2002, which indicates that NEA's receivable has not been managed properly. It is also supported by average collection period, which is 75 days in the year 2001 and suddenly increased to 88 days in the year 2002 and it is jumped to 112days in the year 2003,so receivable is not managed effectively.

2.3 Finding Research Gap

All the research studies mentioned above are concerned with controlling and post evaluation perspective of budgeting in NEA. All these dissertations have pinpointed there is no satisfactory achievement in respect of profit planning in NEA and have recommended for effective implementation of profit planning. But this study is far different than previous studies in the following ways: -

1. In this research work, a newly published data of FY 2068/69 and 2069/70 have been used to give the fresh condition of NEA in respect of managerial budgeting.
2. This study is mostly concerned with planning perspective of managerial budgeting rather than controlling.

All the above studies are mainly focused on sales and production aspect of NEA but in this study other aspect of budgeting like capital expenditure budget, expenses budget and budgeted profit and losses are also explained and evaluated.

CHAPTER: III

RESEARCH METHODOLOGY

3.1 Introduction:

Research Methodology is the way to solve systematically about research problems. The basis objective of this research is to highlight and interpret the current practice of managerial budgeting and its effectiveness in NEA. The research methodology is followed to achieve the basis objective and goals of this research work, the descriptive and analytical research methodology have been performed.

Following are the major contents of research methodology followed in this dissertation.

3.2 Research Design

Research design is the plan structure and strategy to obtain answer to research question through investigation and analysis. The present work is mainly related with quantitative plans and account of NEA. This study is so designed by following the analytical and descriptive research design to give clear picture of budgeting in NEA by utilizing different methods. The available information from primary and secondary sources are examined, explained and evaluated to give clear picture of managerial budgeting in NEA.

3.3 The Population and Sample

The research work is related with budgeting aspects of NEA, which is, belong to public enterprises. So the total number of public enterprises in Nepal is the population of this study. Due to various constraints of mine like resources, time etc. I have randomly selected only one representative of public enterprises i.e. NEA so NEA is the sample of this research study.

3.4 Period covered

Budgeting has two time dimensions i.e. long range and short range. For long-range purpose I have analyzed five years trend with respect to budgeting in NEA and for the

purpose of short-range one-year trend is analyzed. The study covers the time period from the FY 2065/66 to 2069/70.

3.5 Nature and sources of data

Information is the lifeblood of any research. To gather the information data collection is the major task. The study is mainly based on secondary data; primary data are also used whenever necessary.

Primary data are collected by interview of some of the house owners, consumers, personnel of NEA, supplementary questionnaire and telephone call etc.

Similarly the secondary data have been collected from the published documents like; publication of ministry of finance, publication of national planning commission, central bureau of statistical, annual reports of NEA, published documents of NEA and official accounting and the budgeting records of NEA etc.

Supplementary questionnaire is presented in appendix 8.

3.6 Tool Used

Collected data are managed and analyzed in proper tables and formats. Interpretation and explanations are made whenever necessary. To analyze collected data financial and statistical tools like variance analysis, mean, correlation coefficient, regression line equation, time series analysis, percentage, ratio analysis, graphs, diagram etc have been used as per required. The regression line equation has been used to show the relationship between budgeted and actual results. Similarly the correlation coefficient has also been calculated to show the degree of relationship between budgeted and actual results. The significant of the value of correlation coefficient has been tested by using probable error method.

3.7 Research Variables

The research variables of this study is mainly related with the accounting statement of NEA, sales, electricity generation and purchases, profit and losses, total assets, total capital employed, capital expenditures and cash flows etc.

CHAPTER: IV

DATA PRESENTATION AND ANALYSIS

4.1 Introduction:

The basic objective of this study is to analyze the current practice of budgeting and its effectiveness in NEA. So this chapter tries to describe how NEA prepares the various budgets and in what degree it is able to meet budgeted targeted. Here the effort has been done to analyze the various functional and financial budgets and their actual achievement with respect to NEA. The study has focused on both long-term and short-term budgets. Normally five year's figures have been analyzed in detail. An effort has been done to point out how NEA prepares various budgets and the reasons of deviation between budgeted and actual result. This chapter has been divided into two parts: -

- a) Planning in NEA.
- b) Evaluation of managerial budget of NEA.

4.2 Planning in NEA

In simple term planning is deciding in advance about what to do, when to do something and who is going to do the function. Planning establishes the standard for controlling all activities. It is a process of selecting and developing the best course of action. It is the primary essential function of management. Here the effort has been done to describe how NEA plans about its various functions.

4.2.1 Sales Budget in NEA

The sales budget is the foundation for planning in business organization. It is an important part of profit planning and controlling upon which other functional budgets are developed. Nepal Electricity Authority also has the practice of formulating sales budgets for forth coming years. It also forecasts demand for long term, which is known as long term sales planning. While developing long-term sales planning it considers future market potential, population changes, rules and regulation of government, pricing strategic and development of new product etc. But the long-term budgets are only concerned with top-level staff. They do not publish the long-term

budgets. First of all, NEA prepares strategic or long-range sales planning and then it prepares tactical sales planning.

Normally it prepares short-term budget for one year time period. It prepares short range sales plan on the basis of types of consumers, suggestion of branch office's staffs. It prepares sales budgets depends upon past performance and achievement as well as future load forecasted. Since it can sell as many units of electricity as it produce, it can not ignore the production capacity of NEA. In the fiscal year 2069/70 the no of customers availing electricity service of NEA reached 1524610 which is an increase of 9.07% of previous year. Among them 95.66% are domestic customers accounting for 40.66% of total revenue earned. Industrial customers though representing only 1.67% of total customers having significant contribution accounting to 38.8% of total revenue of energy sales and 35.93% of total revenue earned. Energy demand was grew by 11.31% comparison to previous year 2068/69. Peak demand of the fiscal year 2069/70 recorded pouch was 721.73MW But could not be translated into sales due to limited supply of energy. Normally production budget depends on sales budget but in NEA sales budget is prepared after analyzing the production capacity because it fails to provide sufficient power demanded by its customers. It's sales budget directly or indirectly influenced by political pressure. It has divided its customers into 12 different categories. Domestic, Non-commercial, Commercial and industrial customers have covered huge portion of sales of NEA. It has imposed different tariff rate based on different categories and different voltage level. Generally budgeted tariff rate are high in low voltage level and low in high voltage level. In case of category expensive budgeted tariff rates are imposed in temporary supply, noncommercial, commercial, domestic, industrial, street light and transport respectively. Budgeted tariff rate is very cheap in community sales, irrigation and bluck supply to India. The budgeted tariff rate in temporary supply is the highest of all categories which is 13.55Rs per unit in the fiscal year 2069/70 and lowest tariff rate of all is community sales which is 3.5 RS per unit in the fiscal year 2069/70. The budgeted sales of previous five years are shown as below: -

Table No. 1
The Budgeted Sales of NEA

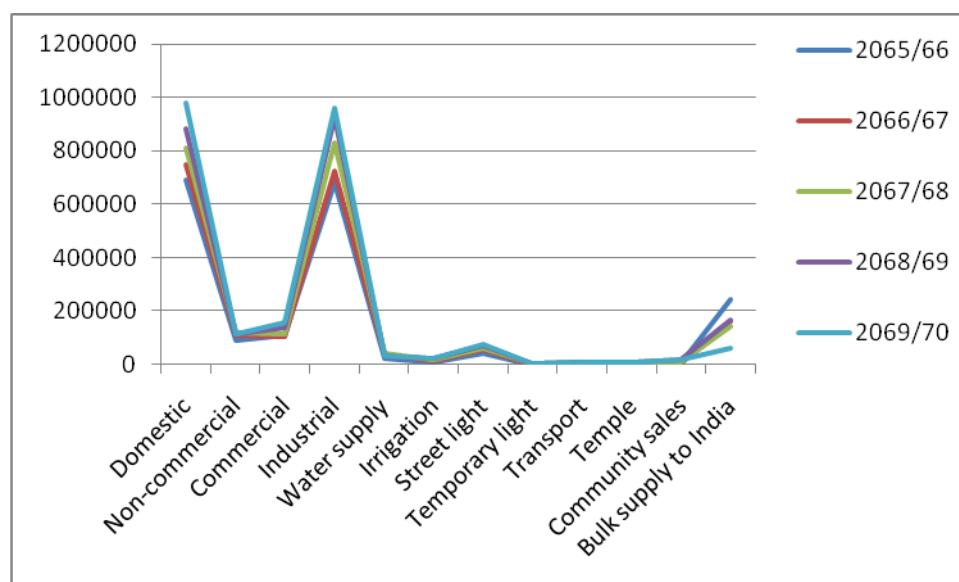
In units

Types of Customers/Year	2065/66	2066/67	2067/68	2068/69	2069/70
Domestic	689400	750000	815000	884392	978013
Non-commercial	92430	112000	115000	110500	109809
Commercial	110000	107000	111700	133400	156268
Industrial	677900	725000	832000	925600	959790
Water supply	25194	40000	40000	27700	32320
Irrigation	7956	13000	14000	19300	21488
Street light	43000	60000	58500	70300	75620
Temporary light	290	350	530	800	1400
Transport	7200	7000	6000	6600	7141
Temple	2980	4500	5200	5400	5194
Community sales	5000	6000	7500	13350	14004
Bulk supply to India	245272	164000	140000	165000	60000
Total Sales	1906622	1988850	2145430	2362342	2421047

Sources: -A year in review of NEA 2013

The above budgeted figures of sales can be shown in line diagram as below:

Figure No. 3
Budgeted Sales Chart Line of NEA



According to the above table-1 and figure-3 it is clear that domestic and industrial categories customers have covered main portion of budgeted sales of NEA. Budgeted

sales of domestic category customers have been in increasing trend in all years of study periods. The highest budgeted sales units are 978013 units in the fiscal year 2069/70. Similarly the budgeted sale of industrial customers is also in increasing trend in all years of study periods. The highest budgeted sales relating to this category is 959790 units in the FY2069/70. The share of budgeted domestic and industrial customers is approximately 40% of total budgeted sales in all years of study period. Similarly budgeted sales relating to all others category customers are also in increasing trend but sales relating to commercial is increasing upto budgeted year 2066/67 and starts to decline after that. Bulk supply to India is in decreasing trend. Comparing all, the least budgeted sales is relating to temporary light category customers the highest budgeted sales relating to this category is 1400 units in the FY 2094/70.

At last, it is clear that NEA prepares sales budget depending upon production capacity, past performance, demand forecasted, political pressure as well as types of customers. Budgeting department takes helps from other department whenever necessary while preparing sales budget.

4.2.2 Production Budget in NEA

The second step of formulating profit planning is production plan, which is prepared after preparing sales planning. In case of manufacturing concern the sales plan is translated into production plan but in the case of utility concern the production plan goes in the long run and according to the availability of utility. It also estimates its demand for long run as well as short run but long term production plan is only related to top level staff.

NEA production budget refers to power generation and purchase budget.

NEA prepares its production budget for a fiscal year in short term and estimate the future load forecast. Production budget is prepared by production department taking helps from other department as well as external experts. Its production budget is directly or indirectly influenced by government decision relating to energy development. While preparing production budget past performance is taken as a basic element. Now a day it fails to generate sufficient power, as its consumers demanded. Foreign aid also influences its production budget. Its short-term production budget include the hydropower generation from multi fuel, purchase from internal as well as

external as sales budget, only one method of incremental method of budgeting has been used but other new method of budgeting are not in practice. The budgeted production of NEA relating to previous five years is displayed in table no 2.

Table No. 2
The Production Budget of NEA

In units

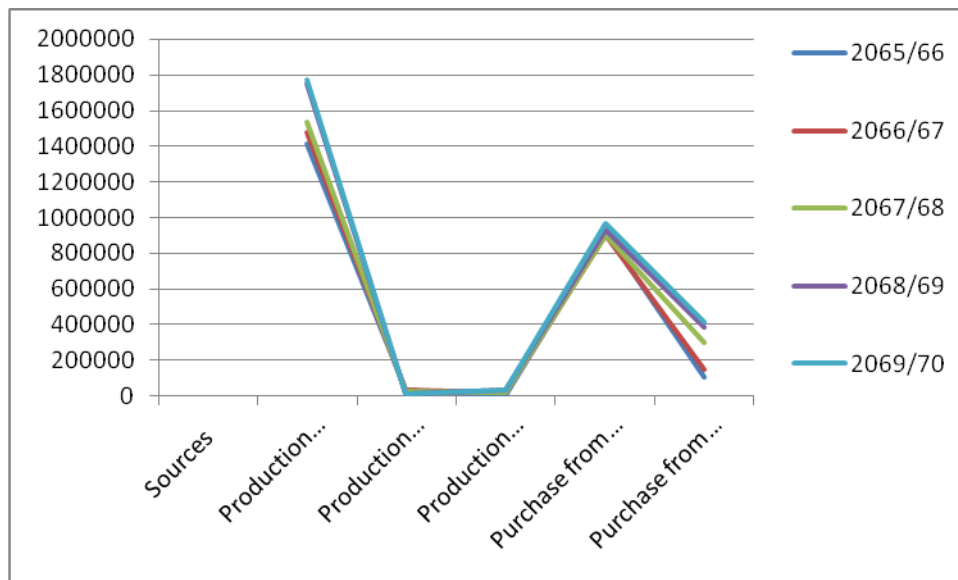
Sources \ Year	2065/66	2066/67	2067/68	2068/69	2069/70
Production from big electricity project	1412008	1476600	1533900	1748600	1772608
Production from small project	31270	31936	26000	9000	10000
Production from diesel power	5500	15500	20000	27000	28500
Purchase from internal sources	914940	899770	904900	930000	965000
Purchase from external sources	106000	142000	300000	380000	415000
Total	2469718	2565806	2784800	3094600	3191108

Sources: -A year in review of NEA 2013

The second step of formulating profit planning is production plan, which is prepared after preparing sales planning. In case of manufacturing concern the sales plan is translated into production plan but in the case of utility concern the production plan goes in the long run and according to the availability of utility. It also estimates its demand for long run as well as short run but long term production plan is only related to top level staff. NEA production budget refers to power generation and purchase budget. NEA prepares its production budget for a fiscal year in short term and estimate the future load forecast. Production department taking helps from other department as well as external experts prepares production budget. Its production budget is directly or indirectly influenced by government decision relating to energy development. While preparing production budget past performance is taken as a basic element. Now a days it fails to generate sufficient power as its consumers demanded. Foreign aid also influence its production budget. Its short term production budget include the hydropower generation from multi fuel, purchase from internal as well as external.

The above figures of budgeted production can be shown in line chart as figure -4: -

Figure No. 4
Budgeted Production Chart Line of NEA



According to the table-2 and figure-4 it is clear that power generated from big water electricity projects have covered the huge portion of production budget of NEA which is in increasing trend in all years of study period. The maximum production from this category is 1772608 units in the budgeted year 2069/70. Similarly the lowest budgeted production units in the FY2065/66 i.e. 1412008 units. The second largest sources of production budget are internal purchase, which is also in increasing trend. But in year 2065/66 it was decreased as comparing to previous budgeted year after that it is in increasing all years of study period. Power generation from small hydropower project is in fluctuation trend where as power generation from diesel plant is in increasing trend. Purchase from India is also in increasing trend, which indicates NEA is failed to generate sufficient power. NEA has a practice of incremental budgeting in respect of production budget. Sometime it aids or deducts some percentage to previous year's budgeted figures to come next year's budgeted figures. NEA has not introduce new techniques of budgeting to plan production.

4.2.3 Operation and Maintenance Budget of NEA

Normally manufacturing company prepares separate overhead budget including manufacturing overhead, administrative overhead and selling and distribution overhead budget. But NEA does not prepare separate overhead budget. It prepares only "operation and maintenance budget" in a combined form, which includes the following expenses: -

- Staff cost

- Stores and services
- Power purchase
- Repair and maintenance
- Administrative expense
- Interest
- Royalty
- Depreciation
- Provision for expenses
- Bad debt written off
- Fuel
- Communication charges
- Business charges and cost
- Bank charges and commission
- Institutional development cost

It is found that NEA's operation and maintenance budget is not in a classified and systematic way, which has created difficulty to analyze its overhead budget. Expenditures are not segregated into manufacturing, administrative and selling overhead. Normally it has developed a formula to plan about expenditure, which is as follow:-

Step 1: Calculate Revision Budgeted Figures

Revision Budgeted Figures = Actual expenses for 8 month + Forecasted expenses for coming 4 months

Where, $\text{Forecasted Expenses for 4 Months} = \frac{\text{Actual expenses for 8 months}}{2}$

Step2: Then NEA adds not more than 10% of previous year's actual figure to revision budgeted figures to come next year's budgeted figures.

The last five years budgeted figures of NEA in respect of operation and maintenance expenses are as below: -

Table No. 3

Budgeted Operation and Maintenance Expenses of NEA

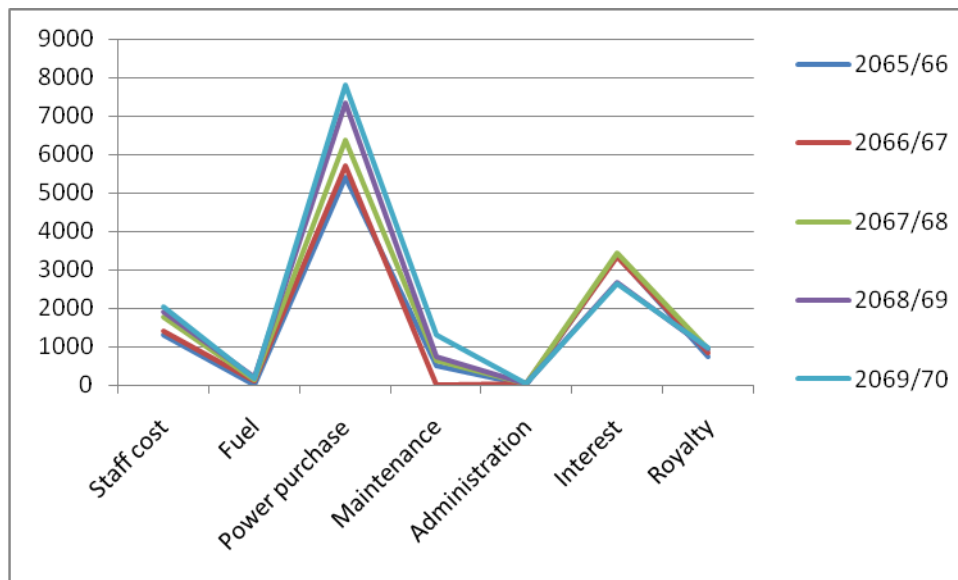
In million

Items of cost	2065/66		2066/67		2067/68		2068/69		2069/70	
	% of total budgeted amount		% of total budgeted amount		% of total budgeted amount		% of total budgeted amount		% of total budgeted amount	
Staff cost	1306.24	11.4	1389.9	11.7	1762.32	13.2	1904.9	13.5	2041.60	13.5
	6		1		5		5			
Fuel	25.764	0.2	104.86	0.91	155.277	1.11	218.06	1.5	187.064	1.2
Power purchase	5396.37	47.2	5706.1	47.9	6362.2	47.8	7329.6	53.0	7809.47	52.0
			3				4			
Maintenance	538.52	4.7	583.0	4.9	625.22	4.71	753.94	5.4	1317.66	8.7
Administration	39.976	0.31	46.75	0.4	42.41	0.31	45.77	0.3	47.79	0.31
Interest	3387.0	29.6	3326.7	27.9	3425.07	25.8	2660.0	19.1	2649.3	17.0
			2							
Royalty	750.0	6.6	844.31	7.1	933.17	7.0	937.12	6.7	985.42	6.5
							5			
Total	11443.8	100	11902.	100	13305.6	100	13849.	100	15038.3	100
	7		1		8		50		1	

Sources: Operation and maintenance budget book of NEA

According to the above budgeted table of NEA in respect of operation and maintenance cost, it is clear that these cost are in increasing trend. Among them power purchase has covered significantly high portion of its budgeted figures. In all years of study period this expenses has covered approximately 50% of budgeted expenditures. Similarly the second largest cost covering item is interest which has covered in average 24% of total budgeted expenditures in all years of study period. The third largest cost item is staff cost that has covered approximately 13% of total budgeted expenditure. Similarly lowest cost covering item is fuel which is used in production and its portion in total budgeted expenditure is approximately 1.5%. This budget figure of NEA can be further analyzed by using line chart-5 as below:

Figure No. 5
Budgeted Overhead Chart Line of NEA



As already described, all budgeted operation and maintenance cost are in increasing trend in year by year which is shown in chart. The chart line of power purchase is highest of all. Similarly the chart lines of interest, staff cost, maintenance, royalty, fuel and administration expenses are also in increasing trend. Like in other functional budgeting, NEA respects the suggestions of staff external experts. It also analyzes the past trend of expenses relating to this head. Normally, it does not prepares and publish long term expenditure budget. NEA uses only incremental method of budgeting to plan its expenditures but other new method of budgeting is not used.

4.2.4 Capital Expenditure Budget

Capital expenditure budget is concerned with investment decision, which yield return over a period of time in future. It is the process of planning and controlling the long-term as well as short terms expenditures for expansion and contraction of investment in operation of fixed assets. It enables the management to plan amount of resources that should be invested in capital additions. The major issue of capital budgeting is controlling actual expenditure that should be consistent with the planned. The necessary fund should be available whenever the expenditures are incurred.

NEA prepares short term as well as long term capital expenditure plan but long term plan is not published which is related to top level staff only. NEA prepares Short term capital budget for one year and publishes yearly. Its capital expenditure budget includes fixed assets like: plant and machinery, building, furniture and fixture, office equipment and others .NEA estimates its cash requirement by preparing this budget which helps to prepares cash budget. Capital expenditure plan of NEA of previous five years is shown below:

Table No. 4
Budgeted Capital expenditure of NEA

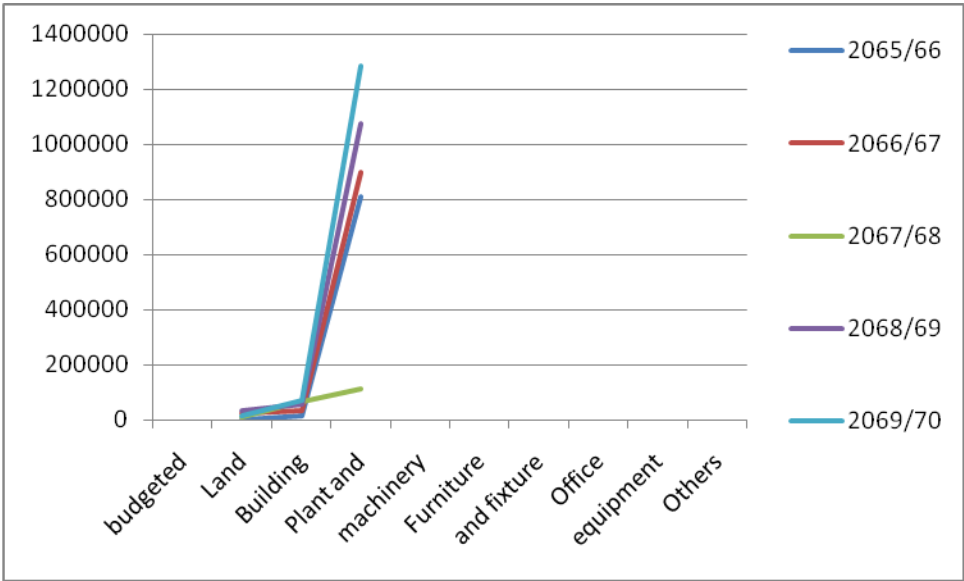
In million

% of total budgeted amount	2065/66		2066/67		2067/68		2068/69		2069/70	
	Budgeted amount	% of total budgeted amount	Budgeted amount	% of total budgeted amount	Budgeted amount	% of total budgeted amount	Budgeted amount	% of total budgeted amount	Budgeted amount	% of total budgeted amount
Land	1100	0.11	23530	2.32	10350	0.83	34600	2.8	14350	1.0
Building	13509	1.45	33955	3.3	66251	5.33	56461	4.7	69969	4.9
Plant and machinery	810584	87	896207	88	110212	89	1074999	89	1284635	90
Furniture and fixture	3879	0.41	4454	0.43	5883	0.47	5700	0.47	6133	0.42
Office equipment	14085	1.5	15124	1.5	16102	1.29	21918	1.8	30174	2.1
Others	86784	9.33	41272	4.6	32247	2.54	6900	0.57	21061	1.47
Total	929941	100	1014572	100	1241045	100	1200578	100	1426322	100

Sources: Capital expenditure budget of NEA

The above budgeted figure shows that plant and machinery covers the largest amount of total budgeted amount in respect of capital expenditure which represents approximately 89% of total budgeted amount in all years of the study periods. It has a practice to add a certain percentage of amount to previous year's actual figure to arrive the next year's budgeted figures. The budgeted amount relating to building is in increasing trend except in the budgeted year 2068/69. The budgeted amount relating to office equipment is in increasing trend. The others items of capital budgeting are in fluctuating trend. The above budgeted figure can be shown in the graphical chart-6 as below:

Figure No. 6
Budgeted Capital Expenditure Chart Line of NEA



As shown in above chart, the chart line of plant and machinery is highest of all, which is approximately equal to the line of total capital expenditure budget. The others line are occupying very small portion of chart. So it is clear that plant and machinery is the major item of capital expenditure budget.

As other budget, NEA collects necessary information from different staff and experts. It always prepares its capital expenditure budget depending upon government's plan, policy and political pressure. Comparing other items of capital nature assets plant and machinery is frequently required. Therefore it has a practice of segregating huge amount of resources relating to this item. More or less this budget also depend upon the past performance and future requirement. While preparing long term budget it analyze in depth about related issues where as it adds a certain percentage of amount to previous year's actual expenditure in respect of short range capital expenditure budget. Normally, NEA estimates the future benefit accruing from the investment proposal while taking decision about capital expenditure. It follows these two criteria for the purpose of capital expenditure decision: -

1. Accounting profit estimation
2. Cash flows estimation

Higher accounting profit and cash flow is regarded as positive aspect of any capital assets. Only traditional system of budgeting is used to plan capital budgeting new techniques of budgeting are not in used.

4.2.5 Cash Budget

Cash budget is the plan of cash flows in such a way to control cash. It helps to utilize excess cash in any organization. It shows the planned cash inflows, outflows, opening and closing balance of cash. It is not an expense budget. The basic objective of it is to plan the cash flow and to determine the future borrowing and investment.

NEA also prepares short-term cash budget in a systematic way with the helps of other functional budgets such as: sales, production, material purchase, operation and maintenance and capital expenditure budget. It estimates the probable cash receipts and payment with the help of other functional budgets and estimated the future cash deficits or surplus.

The three years budgeted cash budget is shown below. According to the cash budget of NEA it is found that the major sources of cash inflow of NEA are sales of electricity, income from other sources, interest income and grant from government as well as foreign government. Similarly the major heading of cash outflows are operation overhead release, interest payment of long term as well as short term loan, purchase of electricity, capital expenditure and investment in government approved project. The budgeted cash outflow is greater than budgeted cash inflow in all years of study period which is not good condition of NEA. Therefore NEA always need to borrow cash to fulfil its requirement. It has a practice to keep minimum balance of RS 600000 thousand in every year.

Table No. 5
Cash Budget of NEA

In thousand

Particular	2067/68	2068/69	2069/70
Receipt:-			
Opening balance	1252500	874837	1006742
Electricity sales:-			
Internal	12235300	13488000	14739700
External	...		
Other income	693000	718000	688000
Dividend	49700	126000	364600
Received from employee insurance premium	...	...	....
Debenture issue	...	...	...

Short term loan issue	...	...	...
Received from government:-			
(a) Government office	...	...	250000
(b) From street light	250000	250000	250000
(c) Development budget	....	...	...
(1) Nepal's government sources	1110000	746700	1047800
(2) Foreign sources	5250000	6008000	5072662
(d) From reconstruction of destroyed structure	50000	...	...
Total receipt	20890500	22211537	26989504
Payment:-	...		
Operation overhead release	3178300	3631494	4288321
Interest on long term loan	1343000	1200000	720000
Purchase of electricity	5160000	5822000	8522794
Royalty payment	741000	600000	969383
Tax payment	9000	...	...
Capital expenditure release	1118000	1080520	1306265
Reconstruction of destroyed structure	50000	...	...
Investment on government approved project:-	...	...	....
(a) From NEA sources	1972800	3000000	2453400
(b) Budget reduction by government	....		1000000
(c) From Nepal government sources	1110000	746700	2047800
(d) From foreign	5250000	6008000	5072662
Payment of installment of principal of long term loan	635000	500000	500000
Payment of installment of principal of short term loan	600000	700000	507500
Burrowing fund release	30000	30000	10000
Net purchase budget release	190000	150000	250000
Contingency fund	150000	150000	300000
Employee insurance premium release	....	....	72500
Pension investment	50000	50000	50000
Total payment	21587100	23668714	28070625

Surplus(Deficit)	(696600)	(1457177)	(1081121)
Minimum cash balance	(600000)	(600000)	(600000)
Net cash surplus(deficit)	(1296600)	(2057177)	(1681121)

Source: -Cash budget of NEA

4.2.6 Projected Profit and Loss Account

NEA prepares budgeted profit and loss account after preparing all other functional budgets. Budgeted profit and loss account indicates the possible future profit and loss, which also indicates the final conclusion of operation of an accounting period. Which shows the final achievement of the operation of an accounting period. NEA as a public enterprise is required surplus for its survival and growth as well as to make investment in public utility sectors. But as shown in below table, NEA has estimated budgeted loss in all years of study periods. Because of huge power losses and low tariff rate NEA is always planned to get loss rather than profit. According to table no-6, The main sources of income is electricity sales, which is in increasing trend. Similarly the main expenses of NEA are power purchasing, interest expenses, employee expenses, maintenance and administration expenses etc. Most of the expenses of NEA are in increasing trend in year by year. NEA has followed the method of incremental budgeting in respect of profit and loss. In every budgeted FY, NEA plans to get loss in stead of income. All items of profit and loss account are in increasing trend. Normally NEA adds certain percentage of amount to previous year's actual figures to arrive next year's budgeted figures.

The basic inputs of projected income and loss account are others functional budgets such as sales, purchase, operation and maintenance budgets etc.

Table No. 6
Projected Profit and Loss Account of NEA

In thousand

Particular	2067/68	2068/69	2069/70
Internal electricity sales	13535139	14648122	15860944
External electricity sales	725200	990000	360000
Total sales	14260339	15638122	16220944
Discount on sales	(319500)	(322500)	(330000)
Net sales	13940839	15315622	15890944
Other income	646512	728000	902600
Total income	14587351	16043622	16793544
Employee expenses	1871326	2038519	2253572
Fuel expenses in production	160225	230182	195745
Maintenance and administrative expenses	1271274	1582793	2237958
Electricity purchase	6362200	7329644	7809470
Royalty payment	933173	937125	985420
Depreciation	1900000	1900000	1950000
Deferred expenses written off	350000	150000	150000
Other provision	300000	300000	300000
Total operation expenses	13148198	14468263	15882165
Capital overhead expenses	(60000)	(60000)	(60000)
Net operation expenses	13088198	14408263	15822165
Operational profit(loss)	1499153	1635359	971379
Last year's income(expense) adjustment	(50000)	(50000)	(50000)
Interest expenses	(3425076)	(2660000)	(2649300)
Profit(loss) in foreign exchange	(50000)	(50000)	(50000)
Profit(loss) before tax	(1801938)	(1124641)	(1777921)

Sources: -Budget book of NEA

4.2.7 Projected Balance Sheet

Balance sheet is the statement, which indicates the financial position of any organization by showing strength and weakness. It shows the assets and liabilities of an organization. It shows the overall financial position of an organization. Projected balance sheet is prepared to complete the profit plan and actual balance sheet is prepared at the end of the accounting period. But NEA does not prepare the projected balance sheet as it thinks it is not necessary to prepare the projected balance sheet.

Part B

4.3 Evaluation of Managerial Budgeting of NEA

For the purpose of evaluation variance analysis between budgeted and actual result of all budgets head have been done. The effort has been done to evaluate in what degree NEA is able to accomplish its objective and goals. Some statistical tools like mean, correlation coefficient between budgeted and actual result, coefficient of variation and regression line equation have been used and calculated to check the variation between budgeted and actual results with respect to managerial budgeting. The effort has been done to pinpoint the favorable as well as unfavorable variances and the reasons for the reported variances.

4.3.1 Sales Budget and Its Achievement

The actual and budgeted sales of NEA are shown in below table. After analyzing the budgeted and actual sales of NEA it is found that there is positive relation between budgeted and actual sales of NEA which proof that the targeted sales has been made on realistic basic. The percentage of achievement has ranged from 93% to 97% in years under study periods. Among them the lowest achievement is in the fiscal year 2065/66-i.e.93%. Similarly the highest achievement is 97% in the budgeted year 2069/70.In overall the sales achievement of NEA seems satisfactory at all under the study period.

Table No. 7
The Targeted and Actual Sales of NEA

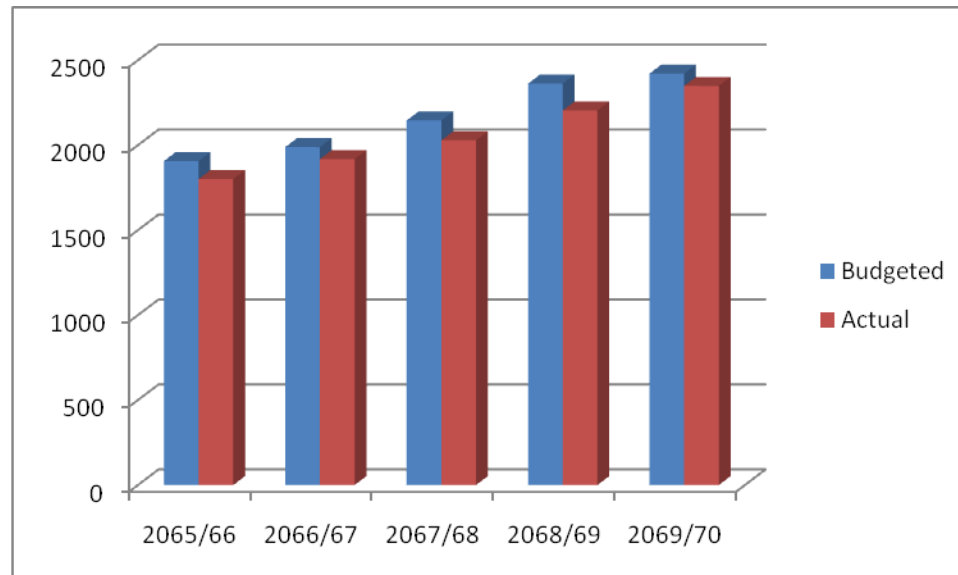
In Gia watt hour

Years	Budgeted	Actual	% of achievement against budgeted
2065/66	1906.62	1800.81	94%
2066/67	1988.85	1918.35	96%
2067/68	2145.48	2028.51	94%
2068/69	2362.34	2204.2	93%
2069/70	2421.048	2348.906	97%
Total	10824.33	10300.78	

Sources: A year in review of NEA 2013

The above result of NEA with respect of sales can be shown in bar diagram as below: -

Figure No. 7
Bar Diagram of Budgeted and Actual Sales of NEA



As shown in bar diagram the area of budgeted and actual sales is approximately equal in all years of study period

The relation between targeted and actual sales can be shown by using statistical tool such as mean, standard deviation, coefficient of variation and correlation coefficient etc. For this purpose budgeted and actual sales are denoted by 'X' and 'Y' respectively. The detail calculation has been done in appendix-1, The summarized results are as below: -

Finding	Targeted sales	Actual sales
Mean	2164.87	2060.15
Standard deviation (σ)	201.33	196.2
Coefficient of variance (C.V)	9.3%	9.5%
Correlation coefficient(r) =0.987		

Sources: -A year in review of NEA 2013

The above result shows that actual sales are more variable than budgeted sales because the CV of actual sales is more than budgeted sales. Therefore it is clear that the budgeted sales is more consistent and uniform than actual sales. The performance of NEA seems to be better in respect of sales activity. Similarly the coefficient of correlation is another statistical tool which is used to analyze the relationship between budgeted sales and actual sales. To find the correlation between budgeted and actual sales, Karl Pearson's coefficient of correlation is calculated in appendix-1. For this purpose the targeted sales and actual sales are assumed to be X and Y respectively. In this regard the targeted sales is assumed to be independent and the actual sales assumed to be dependent variables. According to appendix-1 the correlation coefficient between them is 0.987. So there is higher degree of positive correlation between targeted and actual sales. It means when the budgeted sales increase then the actual sale is also increase and vice versa. The significant of r is tested by calculating probable error. It is found that value of r is greater than 6PE, so the value or r is significant at all. It can be said that actual sales will go on the same direction which that of budgeted sales.

A regression line can also be fitted to show the degree of relationship between budgeted and actual sales and to forecast the possible future sales, which gives the planned sales for next year. For this purpose the achievement is assumed to be dependent upon budgeted sales and the budgeted sales is assumed to be independent. Budgeted sales and actual sales is denoted by X and Y respectively. The regression line of actual sales on budgeted sales is as below: -

Y on X is

$$Y - \bar{Y} = r \frac{\sigma_Y}{\sigma_X} (X - \bar{X})$$

$$\text{Or, } Y - 2060.15 = 0.987 \times \frac{196.2}{201.33} (X - 2164.87)$$

$$\text{Or, } y = 0.9618(x - 2164.87) + 2060.15$$

$$\text{Or, } y = 0.9618x - 2082.28 + 2060.15$$

$$\text{Or, } y = 0.9618x - 22.13$$

Where, a = 0.9618

And regression coefficient b = 22.13

According to this regression equation it shows that the actual sales is in increasing trend. The value of a i.e. 0.9618 represents the change in the value of dependent variable 'Y' when the value of independent variables 'X' changes by one unit after deducting 22.13.

With the help of regression line the expected actual sales can be forecasted.

Here the budgeted sales of NEA for budgeted year 2069/70 is 2720.69 GWH then the expected sales achievement for the fiscal year 2069/670 can be calculated as below: -

$$Y = 0.9618 \times 2720.69 - 22.13$$

$$\text{Or, } Y = 2594.62$$

If the relationship between budgeted and actual sales remain same as previous years then the actual sales for the FY 2069/70 will be 2594.62 GWH.

Findings

- a) There is perfect and positive correlation between targeted and actual sales achievement.
- b) Though there is no vast difference between targeted and actual sales of NEA, it is unsuccessful to sell the electricity as commercial demand.
- c) The regression equation shows that there is positive relationship between budgeted and actual sales.

4.3.2 Production Budget and Its Achievement

The budgeted and actual production of NEA can be shown as below: -

Table No. 8
Budgeted and Actual Production of NEA
In GWH

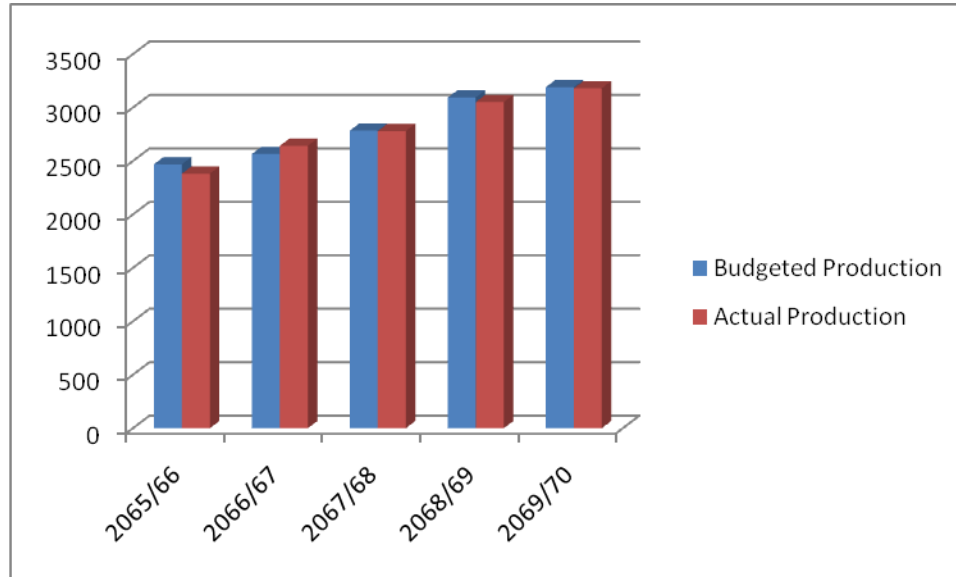
Years	Budgeted Production	Actual Production	% of Achievement
2065/66	2469.718	2381.497	96%
2066/67	2565.806	2642.275	103%
2067/68	2784.8	2780.92	99%
2068/69	3094.6	3051.82	98%
2069/70	3191.108	3180.66	99%

Sources: A year in review of NEA 2013

As the data available from NEA the above table is constructed. It shows that the actual production is satisfactory in all years of the study period. In the FY 2065/66 the actual production is more than budgeted production. According to the above table the production budget of NEA has been made on realistic ground. The targeted and actual production can be shown in a bar diagram as below: -

Figure No. 8

Bar Diagram of Budgeted and Actual Production of NEA



As shown in bar diagram it is clear that the actual and budgeted production of NEA are approximately equal. In the FY 2065/66 the diagram of actual production is higher than budgeted production. Therefore it is clear that control over production activities of NEA is satisfactory.

To find out nature of variability between budgeted and actual production, some statistical tools need to be calculated. For this purpose the budgeted and actual production are denoted by 'X' and 'Y' respectively. The detail calculation has been done in appendix-2, The summarized results are as below: -

Finding	Targeted Production	Actual Production
Mean	2821.2	2807.43
Standard deviation (σ)	280.73	285.8
Coefficient of variance (C.V)	9.9%	10.18%
Correlation coefficient(r) =0.98		

Sources: -A year in review of NEA 2013

The above analysis shows that the coefficient of variation of actual production is more than budgeted production. It indicates budgeted production is less variable than actual productions it is clear that actual production is of the nature of more variability than budgeted production. Similarly, there is higher degree of positive correlation between budgeted and actual production. The value of correlation coefficient is tested by calculating PE. Here the value of correlation coefficient(r) is greater than 6PE. So the value of r is significant at all, it means when the budgeted production increase then the actual production is also increase.

A regression line can also be fitted to show the degree of relation between budgeted and actual production as well as to forecast the possible future production for the next year. The achievement is assumed to be dependent upon budgeted production and the budgeted production is independent. The regression line of actual production to budgeted production is as follow: -

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

$$\text{Or, } Y - 2807.43 = 0.98 \times \frac{285.8}{280.33} (X - 2821.21)$$

$$\text{Or, } y = 0.99(x - 2821.21) + 2807.43$$

$$\text{Or, } y = 0.99x - 2814.7 + 2807.43$$

$$\text{Or, } y = 0.9618x - 7.27$$

Where,

$$a = 0.99$$

And regression coefficient $b = -7.27$

According to this regression equation, it shows that there is a positive relationship between planned and actual production. It shows that after deducting a certain amount i.e. 7.27GWH the actual production will be increase by 0.99 while budgeted production is increased by one unit. Similarly the actual production for next year can be calculated by using this regression line. Here, the budgeted

production for the FY 2069/70 is 3527.4 GWH then the expected actual production for the FY 2065/66 if all things are same as before will be: -

$$Y=0.99 \times 3527.4 - 7.27$$

$$=3484 \text{GWH}$$

4.3.3 Operation and Maintenance Overhead Budget and Its Achievement

As already describe, NEA does not prepare separate overhead budget. It has a practice to accumulate its expenditures in operation and maintenance book but not in a classified and systematic way which has created a serious problem to analyze its expenditures. The budgeted and actual expenses relating to this head are as below: -

Table No. 9
Budgeted and Actual Operation and Maintenance Overhead

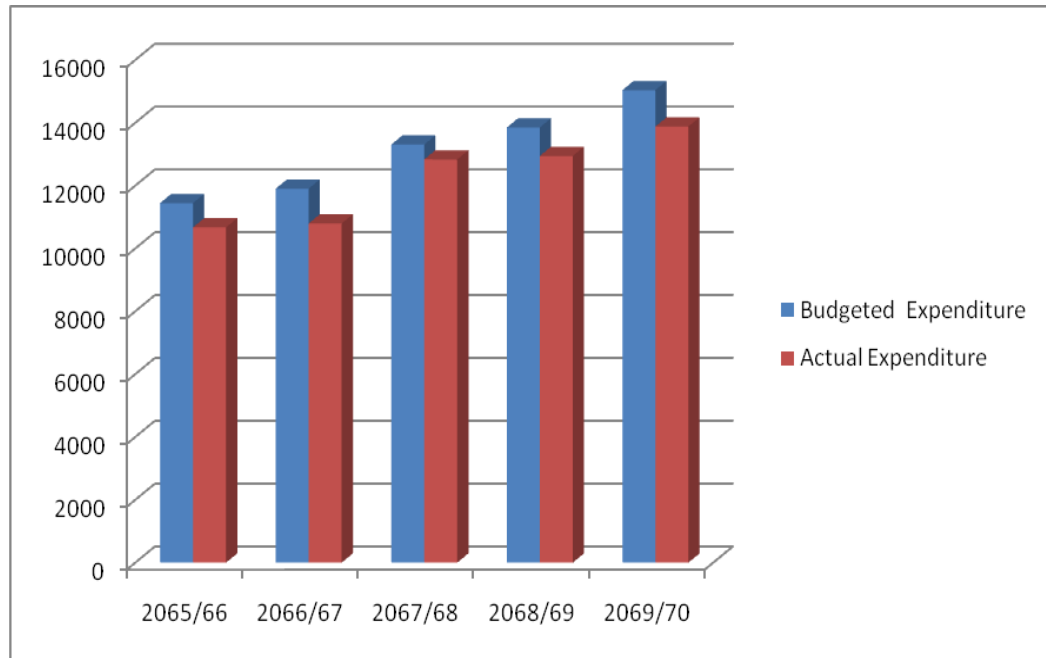
In million

Years	Budgeted Expenditure	Actual Expenditure	Variance Budgeted-Actual	Decision
2065/66	11443.876	10672.55	771.326	Favorable
2066/67	11902.011	10795.18	1106.831	Favorable
2067/68	13305.68	12833.74	471.94	Favorable
2068/69	13849.50	12944.86	904.64	Favorable
2069/70	15038.31	13879.55	1158.76	Favorable

Source:-Operation and maintenance book of NEA

As shown in above table it is clear that there is positive relationship between budgeted and actual expenses, It means when the budgeted figures increases then the actual figures have also increased. It has found that the total overhead of NEA is under the limit of budgets. So the control over overhead seems satisfactory. The relation between budgeted and actual overhead can be shown in the following bar diagram

Figure No. 9
Bar Diagram of Budgeted and Actual Overhead of NEA



As shown in above bar diagram the actual overhead of NEA seems under control because the area of actual expenditure is smaller than budgeted area in all years of study period. To know the relationship between budgeted and actual overhead some statistical tool can be used. For this purpose the budgeted and actual overhead are denoted by X and Y respectively. The detailed calculation has been shown in appendix -3. The summarized results are as below: -

Finding	Targeted Overhead	Actual Overhead
Mean	13107.28	12225.17
Standard deviation (σ)	1306.8	1271.17
Coefficient of variance (C.V)	9.96%	10.39%
Correlation coefficient(r)=0.98		
Probable error=0.11		

Sources: -A year in review of NEA 2013

According to the above information it is clear that the actual repair and maintenance expenses is more variable than budgeted. It means budgeted expenses are more consistent and uniform than actual. Similarly the correlation coefficient between budgeted and actual repair and maintenance expenses is higher degree of positive correlation and the significant of correlation coefficient is tested by using probable error. Here the value of r is greater than $6PE$ i.e. $0.98 > 6 \times 0.10$. So the value of r is significant at all. It means if the budgeted expenses increases then the actual expenses also increases. At last it is clear that NEA control over repair and maintenance expenses is satisfactory.

4.3.4 Capital Expenditure AND ITS Achievement

NEA prepares short term as well as long term capital expenditure plan but long term plan is not published which is related to top level staff only. NEA prepares Short term capital budget for one year and publishes yearly. Its capital expenditure budget includes fixed assets like: plant and machinery, building, furniture and fixture, office equipment and others .NEA estimates its cash requirement by preparing this budget which helps to prepares cash budget. Capital expenditure plan and actual achievement of NEA of previous five years is shown below:

Table No. 10
Budgeted and Actual Capital Expenditure of NEA

In million

Years	Budgeted capital expenditure	Actual capital expenditure	Variance Budgeted-Actual	% of achievement
2065/66	929.941	572.091	357.85	61%
2066/67	1014.572	762.704	251.868	75%
2067/68	1241.045	631.973	609.072	51%
2068/69	1200.578	879.707	320.871	73%
2069/70	1426.322	1102.305	324.017	77%
Total	5812.458	3948.78	1863.678	67%

Source: -Repair and maintenance book of NEA 2013

As shown in above table NEA's control over capital expenditure seems satisfactory. Capital expenditure is under the limit of budget in all years of study period. NEA usage 51% of budgeted figures in the FY 2065/66 Similarly 61%, 75%, 73% and 77% in FY years 2066/67, 2067/68, 2068/69 and 2069/70 respectively. But in the other point of view NEA fails to use maximum resources in respect of capital expenditure. It means it is unable to expand its capacity by installing new electricity projects and purchasing new powerful machinery because capital expenditure is required to expand capacity by installing modern machinery and developing new project. Since in average only 67% of budgeted amount is used, it is clear that NEA could not get the target point in respect of capital budgeting. Therefore in overall NEA is moderately successful in respect of capital budgeting.

The relationship between budgeted and actual capital expenditure can be shown by using some statistical tool. For this purpose the budgeted and actual capital expenditure are denoted by X and Y respectively. The detailed calculation is shown in appendix -4. The summarized results are as below: -

Finding	Targeted Capital Expenditure	Actual Capital Expenditure
Mean	1162.49	789.756
Standard deviation (σ)	175.12	188.9
Coefficient of variance (C.V.)	15.06%	23.9%
Correlation coefficient(r)=0.92		
Probable error=0.046		

Sources: -A year in review of NEA 2013

As shown in above the c.v. Of actual capital expenditure is more than budgeted, so the actual expenditure is more variable than budgeted capital expenditure. It means the budgeted capital expenditure is more consistent and uniform than actual capital expenditure. Similarly there is higher degree of positive correlation between budgeted and actual capital expenditures. The significant of value of correlation coefficient is tested by using probable error. Here the value of r is

greater than 6PE i.e. $0.92 > 6 \times 0.046$. So the value of r is significant at all. If the budgeted figures increase then the actual capital expenditure is also increases.

4.3.5 Cash Budget and Its Achievement

As earlier described, major sources of cash inflows of NEA are sales of electricity, income from other sources, interest income and received from government. Since the actual cash surplus (deficit) is not published by NEA, the effectiveness of this budget has been checked by using budgeted and revised cash surplus (deficit). Where revised cash surplus (deficit) means eight month's actual figures plus four months forecasted figures. Here the four months forecasted figures can be calculated as follows: -

$$\text{Actual of eight months figures} + \frac{\text{Actual of eight months figures}}{2}$$

The budgeted and revised cash surpluses (deficit) are shown as below: -

Table No. 11
Budgeted and Actual Cash Surplus of NEA

In million

Years	Budgeted Cash Surplus (deficit)	Actual Cash Surplus (deficit)
2065/66	66.82	33.99
2066/67	(994.296)	652.500
2067/68	(1306.6)	274.837
2068/69	(2057.177)	406.742
2069/70	(1681.121)	2750.485

Sources: - Cash budget book of NEA

As shown in above table, only the FY 2065/66 NEA has targeted to make surplus 66.82 million and able to make the surplus amounting RS 33.99 million. After that NEA has estimated cash deficit in all years of the study period. But according to the revised cash surplus (deficit) it has been able to make surplus in all years of the study period. There may be various reasons to make surplus against deficit. Firstly it is able to collect bad debt as well as account receivable more than its

expectation. But it is unable to invest in electricity generation project as its expectations because NEA has made surplus against deficit. The relation between budgeted and revised budgeted figure cash surplus (deficit) can be interpreted by using some statistical tools. For this purposes the budgeted and revised figures are denoted by x and Y respectively. The detail calculation has been done in appendix-5, The summarized results are as below: -

Finding	Targeted Cash Surplus (deficit)	Revised Cash Surplus (deficit)
Mean	-1194.47	328.62
Standard deviation (σ)	724.51	201.77
Coefficient of variance (C.V)	60%	61%
Correlation coefficient(r)=-0.46		
Probable error=0.23		

Sources: - Cash budget book of NEA

As shown in above CV of revised cash surplus (deficit) is more than budgeted, so revised cash surplus (deficit) is more variable than budgeted. The correlation coefficient between budgeted and revised cash surplus (deficit) is negative and the value of correlation coefficient is insignificant at all because the value of r is smaller than 6PE i.e. $0.46 < 60.23$.So when the budgeted cash surplus (deficit) increase then revised cash surplus (deficit) decreases and vice versa. Therefore the relation between budgeted and revised cash surplus (deficit) is very very unreable. It is clear that NEA control over cash is not satisfactory at all. So NEA requires the great effort to make its cash position strong.

4.3.6 Budgeted and Actual Profit and Loss Account

NEA prepares budgeted profit and loss account after preparing all other functional budgets. Budgeted profit and loss account indicates the possible future profit and loss, which also indicates the final conclusion of operation of an accounting period. Which shows the final achievement of the operation of an accounting period. NEA as a public enterprise is required surplus for its survival and growth

as well as to make investment in public utility sectors. But as shown in below table, NEA has estimated budgeted loss in all years of study periods. The budgeted and actual profit and loss of five years is shown below:

Table No. 12
Budgeted and Actual Profit and Loss of NEA

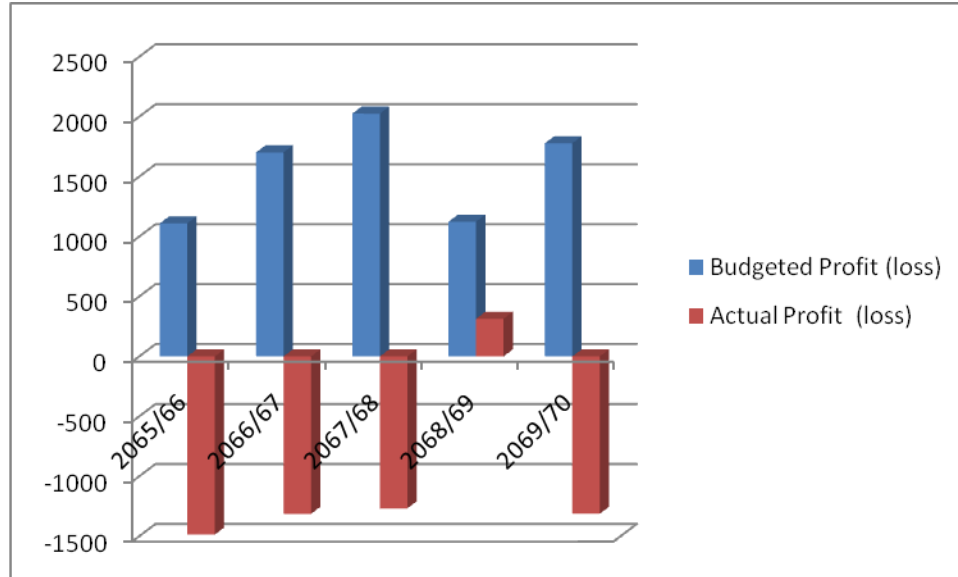
In million

Years	Budgeted Profit (loss)	Actual Profit (loss)
2065/66	1110.483	(1486.1)
2066/67	1702.138	(1312.8)
2067/68	2025.923	(1267.8)
2068/69	1124.641	314.19
2069/70	1777.921	(1312.16)

Sources: -A Year in Review of NEA 2013

As shown in above table, NEA plans to get profit in every year but it fails to get profit in reality. NEA suffers from losses expect FY 2068/69 and which is in increasing trend. The relationship between targeted and actual profit (loss) can be shown in bar diagram as below: -

Figure No. 10
Bar Diagram of Budgeted and Actual Profit (Loss)



As shown in bar diagram the actual profit of NEA is negative except one FY i.e. 2068/69. In maximum years the budgeted and actual profit is in opposite direction. The relationship between budgeted and actual profit can be interpreted by using some statistical tools, for this purpose the budgeted and actual profit (loss) is denoted by X and Y respectively. The detail calculation has been done in appendix-6, the summarized results are as below:

Finding	Targeted Profit (loss)	Actual Profit (loss)
Mean	1548.22	-1012.93
Standard deviation (σ)	367.37	667.76
Coefficient of variance (C.V)	23.72%	65.92%
Correlation coefficient(r)=-0.48		
Probable error=0.22		

Sources: - Cash budget book of NEA

As finding above, NEA plans to get profit in every year but it has been failed to earn profit except the FY 2068/69. The loss of NEA is in increasing trend. Similarly the CV of actual profit (loss) is fare more than budgeted profit (loss). So it is clear that actual profit (loss) is more variable than budgeted where as budgeted profit (loss) is more consistent than actual. The correlation coefficient between actual and budgeted profit (loss) is -0.48 and the significant of correlation coefficient is tested by using probable error but value of r is less than 6 PE. It means there is negative degree of relationship between actual and budgeted profit and value of r is insignificant at all i.e. if the budgeted profit increase then the actual profit decreases and vice versa. So the correlation between actual and budgeted profit is very-very unreliable. NEA requires the great effort to make the relation reliable.

4.3.7 Balance Sheet

Balance sheet is the statement, which indicates the financial strength and weakness of any organization. The balance sheet of NEA has been shown in appendix-7. For the purpose of analyzing the balance sheet the financial ratio is taken as a tool. According to the balance sheet of NEA higher percentage long-term liabilities is covered by secured long-term loan. Similarly the assets side of balance sheet shows that fixed assets has covered the highest percentage of total assets. The account receivable and creditors are in increasing trend a .The sundry creditor is a very very more than sundry debtor. The necessary figures for calculating various ratios are shown in appendix-8

The position of balance sheet has been pinpointed depending upon the following ratios: -

- (a) Liquidity ratio
- (b) Financial leverage ratio
- (c) Activity ratio

The liquidity ratio is used to judge firms ability to meet short-term obligation, in which involves the relationship between current assets and current liabilities. The liquidity ratio of NEA is not satisfactory because current ratio of NEA has not met the standard i.e.2: 1 in all years of study period. Similarly the acid test ratio of NEA has also not meet the standard i.e. 1:1 in all years of study period. Therefore it is clear that the liquidity position of NEA is very-very weakness.

Similarly the debt to total assets ratio of NEA for FY 2066/67, 2067/68, 2068/69 and 2069/70 are 0.79, 0.77, 0.75 and .77 respectively. The higher the debt to total assets ratio, there will be the greater risk and vice-versa .So the FY years 2069/67 this ratio is better than other years. But in overall this ratio is not satisfactory at all because this ratio is greater than 0.75 in all years of study period. Which leads the NEA towards risk.

From the point of view of activity ratio, the performance of NEA is not fully satisfactory. The fixed assets turnover ratio and total assets turnover ratio of NEA very small in all years of study periods. According to the above table of ratios the highest ratio relating to net fixed and total assets are 29% and 16% respectively which shows that NEA is fails to utilize its assets in properly manner. As shown in above table the highest fixed assets turnover ratio is 0.29 in the FY 2069/67 but it is not enough or satisfactory ratio. Similarly the highest total assets turnover ratio of NEA is 0.16 times in FY 2066/67 and it is constant in others years i.e. 0.15 times. So it has been failed to generate adequate sales by proper utilization of total assets.

4.3.8 Major Findings

Based on the analysis and interpretation of data following major findings have been obtained:

1. There is no practice of participation management program because rules and regulations are ascertained and decision are taken by only the top level executive and which is not communicated to lower level staff properly.
2. Actual cash surplus (Deficit) is more fluctuation than budgeted.
3. There is negative degree of correlation between planned and actual cash surplus (Deficit). The value of correlation coefficient is insignificant.
4. There is no separate responsibility center for costing.
5. There is no practice of segregating overhead into manufacturing, administrative and selling and distribution.
6. NEA prepares its all-functional budgets depending upon past data and uses only one method of budgeting i.e. incremental method.
7. Actual operation and maintenance expenses are more variables than budgeted.
8. There is higher degree of positive correlation between actual and budgeted operation and maintenance expenses.
9. NEA prepares two types of managerial budgeting i.e. long range and short-range budgets but the long-range budgets are not published which is related to top level staff only.
10. Tariff rate is expensive in temporary supply, domestic uses, industrial, commercial, non-commercial category customers and cheap in water supply, irrigation, community sales and bulk supply to India.
11. There is vast gap between actual sales and production which indicates NEA is suffering from huge power losses.
12. No of the staff are high but work porformation are not satisfactory.
13. Actual and targeted sales and production are in increasing trend in units. So such trend is considered as favorable for the enterprise

CHAPTER: V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary:

Theoretically the term managerial budgeting is known as a formal statement of plan, policy, objectives and goal established by the management in respect of future period of time. The three functions of management are planning, implementations and controlling but the budgeting is used for assisting the management in the function of planning and controlling. So, managerial budgeting is a systematic and formalized approach for performing significant phases of the management planning and control system. In every organization management is the key element which governs every and overall aspect of the organization for the purpose of overall efficiency. Since budgeting is directly related to planning and controlling function of management budgeting is very important in every organization.

In developing countries like Nepal where private sector is not strong and in sound position to provide public utilities to the people, the government should play a great role to provide such services establishing public enterprises like electricity authority. So, public enterprises are those organizations, which are established under the ownership of government more than 50%.

It is accepted that the Nepal is the second richest country in respect of water resources. But Nepalese people are in the condition of shadow under light: so, proper utilization and management of available water resources is essential for the overall development of Nepal. In this regard, NEA is an institution for the development of power sector. It has a challenge to operate and improvement key business process, maximize revenue and profitability. Managerial budgeting is one of the most important tools to succeed over its objectives. This research study is tried to examine whether NEA is applying budgeting or not and by how much.

This study has mainly focussed on the practice of managerial budgeting in publish utility sector with fully reference to NEA. The study has tried to analyze the planning and controlling aspect of NEA. The five years data from 2065/066 to 2069/070 has been analyzed and examined. Similarly the primary and secondary data are used some statistical tool like Mean, Standard deviation, Regression equation, Co efficient of variances are used to analyze the data. This study has been organized in five chapters consisting of introduction, Review of Literature, Research methodology, Data presentation & analysis and summary, conclusion and recommendation.

5.2 Conclusion

This study concludes the following points after detail analysis of current practice of managerial budgeting in Nepal Electricity Authority.

1. NEA prepares two types of managerial budgeting i.e. long range and short-range budgets but the long-range budgets are not published which is related to top level staff only.
2. The sales and production achievement are satisfactory and there is higher degree of positive correlation between budgeted and actual with respect to sales and production. But NEA's sales achievement has never touched and succeeded the planned sales during the study period. Similarly the production achievement is also than budgeted production except the FY 2065/66. However, all the sales and production achievements are very-very near to target.
3. NEA's both actual and targeted sales and production are in increasing trend in units during the study period. So such trend is considered as favorable for the enterprise.
4. NEA has vast gap between actual sales and production. It indicates NEA is suffering from huge power losses.
5. Tariff rate is expensive in temporary supply, domestic uses, industrial, commercial, non-commercial category customers and cheap in water supply, irrigation, community sales and bulk supply to India.

6. Power loss in NEA is about one fourth of its total capacity which is about 15% more than the normal acceptance.
7. The share of domestic category sales has the highest portion among all categories.
8. Export and import relation of Nepal is only with India.
9. Only short-term capital budget is prepared and published where as long term is also prepared but not published.
10. It is found that there is no practice of participation management program because rules and regulations are ascertained and decision are taken by only the top level executive and which is not communicated to lower level staff properly.
11. There is not separate responsibility center for costing and there is no practice of segregating overhead into manufacturing, administrative and selling and distribution. It has created a serious problem to NEA.
12. NEA fails to maintain periodic performance report to analyze its strength and weakness in depth.
13. NEA has followed only one method of budgeting i.e. increasing method.
14. Increase in expenses like purchase price of electricity, repair and maintenance expenses, interest, and royalty. It is suffering from loss, which is in increasing trend. Therefore it has negative degree of correlation between budgeted and actual profit (loss).
15. Actual sales and actual production are more fluctuation than budgeted.
16. Actual operation and maintenance expenses are more variables than budgeted. Similarly there is higher degree of positive correlation between actual and budgeted operation and maintenance expenses.
17. Actual capital expenditure is more variable than budgeted. NEA can not utilize as much resources as it planned to use as capital expenditures.
18. Actual cash surplus (Deficit) is more fluctuation than budgeted. Similarly there is negative degree of correlation between planned and actual cash surplus (Deficit). It has created a serious problem to NEA. The value of correlation coefficient is insignificant at all.

19. Position of balance sheet is also not satisfactory. The liquidity ratios can not meet the standard. Similarly others ratios are not satisfactory.
20. NEA prepares its all-functional budgets depending upon past data and uses only one method of budgeting i.e. incremental method. The new methods of budgeting like zero-based budgeting are not in practice.

5.3 Recommendation

Based on the research studies on the topic of "Managerial Budgeting Practice in NEA" the following suggestions are recommended to improve the poor situation of NEA.

1. Participation of lower level management should be encouraged and there should be proper communication to all levels of management about both the tactical and strategic plans. So, there should be proper communication and co-ordination.
2. NEA should make realistic forecasts and targets in every activity. Sales forecasting should be made after analyzing all variables that affect the sales of NEA. It should consider the demand determination such as family income, price of electricity, cost of alternative power and reliability of NEA service. And there should be effective management in generation and distribution of electricity to meet the targeted sales.
3. Power leakage and loss of electricity should be properly controlled. For this purpose meter reading and joining system, transmission and distribution line should be modernized. Good incentives and motivational factors should be given to the technicians and staff, awareness about loss and leakage reduction should be launched economically and punishable measures also can be introduced to reduce the losses, which may increase the profit.
4. Domestic, industrial, commercial and non-commercial customers are to be taken as a positive indicator to increase in sales revenue. NEA should make effort to supply more electricity to the high revenue and high profit generating category customers such as domestic, industrial, commercial and non-commercial. The tariff rate of water supply, irrigation, transport,

temple, street light and bulk supply to India should be revised in such a way by which NEA can cover its operating cost.

5. NEA is suggested to reduce the volume of power purchases and to replace the power purchase by its capacity utilization. Proper planning and managing the generated power should stop load shedding.
6. NEA should try to minimize the loss by launching cost control program for this it can be over alternative fund in the place of huge loans.
7. NEA should take the effort of presenting and publishing the long-range capital budget. It should restructure its capital structure and emphasize the internal financing to decrease the high interest of long term loan.
8. A systematic and well-classified overhead budget should introduce by NEA. All expenses should be classified into manufacturing, administration and selling and distribution overhead.
9. NEA should minimize the investment in unnecessary plant and high cost assets. For this it should develop capital budgeting technique. It should stress on efficient utilization of available fixed assets.
10. It should maintain its periodic performance report systematically.
11. NEA should be well familiar about its strength and weakness. It should grab the possible opportunities in time.
12. There should be coordination and cooperation between management and workers and the workers should be motivated to implement the budgeting successfully.
13. There should be established a practice of corrective action by management to remedy adverse situations.
14. The appropriate meetings are required to held for review the previous budget and discuss about future budgets.
15. Competent and result oriented employees should be appointed in the budgeting department.
16. Authority as well as responsibility should be delegated equally towards the sub ordinates that are responsible to implement budgets.

17. NEA should try to maximize the sales volume relating to industrial and commercial sectors.
18. NEA is suggested to use internal financing rather than long-term loan to reduce burden of his interest.
19. The long-term objectives should be clearly formulated so as to make a clear distinction between profit of social motive.
20. NEA should have in- depth analysis of its internal and external environment in order to define and adopt the SWOT analysis.
21. Sales and production budgets should be made on the realistic ground because normally other functional budgets depend upon them
22. MBO technique should be followed in order to maintain co ordination, cooperation and self-motivating among department and employees.
23. Finally, NEA should practice of the approach of budgeting as scientific and systematically as possible. It should make its budgets after analyzing relevant variables, factors, environment, internal strength and weakness as well as external opportunities and threats.

NEA being public enterprises should learn and follow some ideas from private companies, which help to improve its weakness relating to budgeting also.

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APPENDIX: I

Questionnaire

Name:

Post:

Department:

NEA

1. When was the NEA established?
 - a) B.S.
 - b) A.D.

2. Whether NEA maintaining managerial budgeting or not?
 - a)
 - b)

3. What are the procedures of formulating managerial budgeting in NEA?
 - a)
 - b)
 - c)
 - d)

4. How NEA collects the necessary data for managerial budgeting?

5. What types of managerial budget is prepared by NEA?
 - a) short-term
 - b) Long-term
 - c) Both

6. What are the major problems faced by NEA in respect of managerial budgeting?
 - a)
 - b)
 - c)
 - d)

7. Is the strategic plan of NEA communicating to lower level?
 - a) Yes
 - b) No

8. What is the past trend of managerial budgeting of NEA?

9. What does NEA feel about power loss?

10. How many method of budgeting is used in NEA while preparing different budget?
And what are they?

- a)
- b)
- c)
- d)

11. Does NEA communicates the plan, policy and objective towards lower level of staff?

- a) Yes
- b) No

12. What are the major sources of cash inflows and outflows of NEA?

- a)
- b)
- c)
- d)

13. How does NEA prepare capital budget?

14. How does NEA forecast the future budgeting figure in respect of different budgets?

APPENDIX: II

In GWH

FY	Targeted Sales 'X'	Actual Sales 'Y'	$x - \bar{x}$	$y - \bar{y}$	$(x - \bar{x})^2$	$(y - \bar{y})^2$	$(x - \bar{x})(y - \bar{y})$
2065/66	1906.62	1800.8 1	-258.25	-259.33	66693.0	67252.04	66971.97
2066/67	1988.85	1918.3 5	-176.02	-141.8	30983.04	20107.24	24959.63
2067/68	2145.48	2028.5 1	-19.39	-31.64	375.97	1001.08	613.49
2068/69	2362.34	2204.2	197.47	144.05	38995.78	20750.4	28445.55
2069/70	2421.04	2348.0 48	256.17	288.75	65623.06	83376.56	73969.08
Total	$\Sigma X =$ 10824.3 3	$\Sigma Y =$ 10300.78	$\Sigma(x - \bar{x}) =$ 0	$\Sigma(y - \bar{y}) =$ 0	$\Sigma(x - \bar{x})^2 =$ 202670.9 3	$\Sigma(y - \bar{y})^2 =$ 192487.3 21	$\Sigma(x - \bar{x})(y - \bar{y}) =$ 194959.72

Here, Targeted sales is assumed as X

And budgeted sales is assumed as Y

Number of Years (n) = 5

(a) Calculation of Mean

$$\text{For Budgeted Sale } \bar{X} = \frac{\Sigma X}{n} = \frac{10824.33}{5} = 2164.87 \text{GWH}$$

$$\text{For Actual Sale } \bar{Y} = \frac{\Sigma Y}{n} = \frac{10300.78}{5} = 2060.15 \text{GWH}$$

(b) Calculation of Standard Deviation

$$\text{We have, Standard Deviation} = \sqrt{\frac{(\sum x - \bar{x})^2}{n}}$$

For Targeted Sales

$$\sigma X = \sqrt{\frac{(\sum x - \bar{x})^2}{n}}$$

$$\sigma X = \sqrt{\frac{20670.92}{5}} = 201.33 \text{GWH}$$

For Actual Sales

$$\sigma Y = \sqrt{\frac{(\sum Y - \bar{Y})^2}{n}} = \sqrt{\frac{192487.32}{5}} = 196.2 \text{GWH}$$

(C) Calculation of Coefficient of Variance (C.V)

For targeted sales

$$\text{C.V of X} = \frac{\sigma X}{\bar{X}} \times 100\% = \frac{201.33}{2164.87} = 9.3\%$$

For actual sales

$$\text{C.V of X} = \frac{\sigma Y}{\bar{Y}} \times 100\% = \frac{196.2}{2060.15} \times 100 = 9.5\%$$

(d) Calculation of Karl Pearson Correlation Coefficient (r)

$$\text{Correlation between X and Y (r}_{xy}\text{)} = \frac{\sum (X - \bar{X})(Y - \bar{Y})}{n\sigma X\sigma Y}$$

$$= \frac{194859.72}{5 \times 201.33 \times 196.2}$$

$$= 0.987$$

(e) **Calculation of probable error(P.E)**

$$\text{P.E.} = 0.6745 \times \frac{1-r^2}{\sqrt{n}}$$

$$= 0.6745 \times \frac{1-0.987^2}{\sqrt{5}}$$

$$= 0.008$$

Here $r > 6\text{P.E.}$

I.e. $0.987 > 6 \times 0.008$

$$= 0.987 > 0.048$$

APPENDIX: III

In GWH

FY	Budgeted Production 'X'	Actual Production 'Y'	$X - \bar{X}$	$Y - \bar{Y}$	$(X - \bar{X})^2$	$(Y - \bar{Y})^2$	$(X - \bar{X})(Y - \bar{Y})$
2065/66	2469.718	2381.497	-351.48	-425.94	123538.8	181424.8 9	149709.39
2066/67	2565.806	2642.275	-255.39	-165.16	65225.07	27277.82	42180.21
2067/68	2784.8	2780.92	-36.4	-26.51	1324.96	702.78	964.96
2068/69	3094.6	3051.82	273.4	244.39	74747.56	59726.47	66816.22
2069/70	3191.108	3180.66	359.46	373.23	129211.4 9	139300.6 3	134161.25
Total	$\Sigma X = 14106.02$	$\Sigma Y = 14037.17$	$\Sigma(X - \bar{X}) = 0$	$\Sigma(Y - \bar{Y}) = 0$	$\Sigma(X - \bar{X})^2 = 394047.9$	$\Sigma(Y - \bar{Y})^2 = 408432.58$	$\Sigma(X - \bar{X})(Y - \bar{Y}) = 393832.03$

Here, Targeted sales is assumed as X

And budgeted sales is assumed as Y

Number of Years (n) = 5

(a) Calculation of Mean

$$\text{For Targeted Production } \bar{X} = \frac{\Sigma X}{n} = \frac{14106.02}{5} = 2821.20 \text{GWH}$$

$$\text{For Actual Production } \bar{Y} = \frac{\Sigma Y}{n} = \frac{14037.17}{5} = 2807.43 \text{GWH}$$

(b) Calculation of Standard Deviation

$$\text{We have, Standard Deviation} = \sqrt{\frac{(\sum x - \bar{x})^2}{n}}$$

For Targeted Production

$$\sigma X = \sqrt{\frac{(\sum x - \bar{x})^2}{n}}$$

$$\sigma X = \sqrt{\frac{394047.9}{5}} = 280.73 \text{GWH}$$

For Actual Production

$$\sigma Y = \sqrt{\frac{(\sum Y - \bar{Y})^2}{n}} = \sqrt{\frac{408432.58}{5}} = 258.80 \text{GWH}$$

(c) Calculation of Coefficient of Variance (C.V)

For Targeted Production

$$\text{C.V of X} = \frac{\sigma X}{\bar{X}} \times 100\% = \frac{280.73}{28212} \times 100\% = 9.9\%$$

For Actual Production

$$\text{C.V of Y} = \frac{\sigma Y}{\bar{Y}} \times 100\% = \frac{285.8}{2807.43} \times 100\% = 10.18\%$$

(d) Calculation of Karl Pearson Correlation Coefficient (r)

$$\text{Correlation between X and Y (r}_{xy}) = \frac{\sum (X - \bar{X})(Y - \bar{Y})}{n\sigma X\sigma Y}$$

$$= \frac{393832.03}{5 \times 280.73 \times 285.8}$$

$$= 0.98$$

(e) **Calculation of Probable Error (P.E)**

$$\text{P.E.} = 0.6745 \times \frac{1-r^2}{\sqrt{n}}$$

$$= 0.6745 \times \frac{1-0.98^2}{\sqrt{5}}$$

$$= 0.011$$

Here $r > 6\text{P.E.}$

I.e. $0.98 > 6 \times 0.011$

$= 0.98 > 0.07$

APPENDIX: IV

In Million

Years	Budgeted overhead 'X'	Actual overhead 'Y'	$X - \bar{X}$	$Y - \bar{Y}$	$(X - \bar{X})^2$	$(Y - \bar{Y})^2$	$(X - \bar{X})(Y - \bar{Y})$
2065/66	11443.876	10672.55	-1663.9	-1552.62	2768869.37	2410628.8 6	2583544.15
2066/67	11902.011	10795.18	-1205.85	-1429.99	1454085.07 5	2044871.4	1724353.44
2067/68	13305.68	12833.74	197.81	608.57	39128.79	370357.44	120381.23
2068/69	13849.50	12944.86	741.63	719.69	550015.0	517953.69	533743.69
2069/70	15038.31	13879.55	1930.44	1654.38	3726598.59	2736973.1 8	3193681.32
Total	$\Sigma X = 65539.32$	$\Sigma Y = 61125.88$	$\Sigma(X - \bar{X}) = 0$	$\Sigma(Y - \bar{Y}) = 0$	$\Sigma(X - \bar{X})^2 = 8538696.87$	$\Sigma(Y - \bar{Y})^2 = 8080784.57$	$\Sigma(X - \bar{X})(Y - \bar{Y}) = 8155703.83$

Budgeted Overhead = X

Actual Overhead = Y

Number of Year (n) = 5

(a) Calculation of Mean

$$\text{For Targeted Overhead } \bar{X} = \frac{\Sigma X}{n} = \frac{65539.37}{5} = 13107.87 \text{ million}$$

$$\text{For Actual Overhead } \bar{Y} = \frac{\Sigma Y}{n} = \frac{61125.88}{5} = 12225.17 \text{ million}$$

(b) Calculation of Standard Deviation

$$\text{We have, Standard Deviation} = \sqrt{\frac{(\bar{x} - \bar{x})^2}{n}}$$

For targeted overhead

$$\sigma_x = \sqrt{\frac{(\bar{x} - \bar{x})^2}{n}} = \sqrt{\frac{858696.87}{5}} = 1306.8 \text{ Million}$$

For actual overhead

$$\sigma_x = \sqrt{\frac{(\bar{Y} - \bar{Y})^2}{n}} = \sqrt{\frac{8080784.57}{5}} = 1271.28 \text{ Million}$$

(C) Calculation of Coefficient of Variance (C.V)

For Targeted Overhead

$$\text{C.V of X} = \frac{\sigma_x}{\bar{X}} \times 100\% = \frac{1306.8}{13107.8} \times 100\% = 9.96\%$$

For Actual Overhead

$$\text{C.V of Y} = \frac{\sigma_y}{\bar{Y}} \times 100\% = \frac{1271.28}{12225.17} \times 100\% = 10.39\%$$

(d) Calculation of Karl Pearson correlation coefficient(r)

$$\text{Correlation between X and Y (r}_{xy}) = \frac{\sum(\bar{X} - \bar{X})(\bar{Y} - \bar{Y})}{n\sigma_X\sigma_Y}$$

$$= \frac{8155703.83}{5 \times 1306.8 \times 127.28}$$

$$= 0.98$$

(e) Calculation of probable error(P.E)

$$\text{P.E.} = 0.6745 \times \frac{1-r^2}{\sqrt{n}}$$

$$= 0.6745 \times \frac{1 - 0.98^2}{\sqrt{5}}$$

$$= 0.011$$

Here $r > 6P.E.$

I.e. $0.98 > 6 \times 0.011$

$$= 0.98 > 0.07$$

APPENDIX: V

In million

Years	Budgeted expenditure 'X'	Actual expenditure 'Y'	$x - \bar{x}$	$y - \bar{y}$	$(x - \bar{x})^2$	$(y - \bar{y})^2$	$(x - \bar{x})(y - \bar{y})$
2065/6 6	929.941	572.091	-232.51	-216.84	54060.9	47020.8	50417.46
2066/6 7	1014.572	762.704	-148.49	-27.05	22049.28	731.7	1016.05
2067/6 8	1241.045	631.973	78.55	-157.78	6170.49	24894.52	12393.61
2068/6 9	1200.578	879.707	38.08	89.957	1450.08	8091.72	3425.56
2069/7 0	1426.322	1102.305	263.83	312.55	69606.79	97689.06	82460.06
Total	$\Sigma X = 5812.45$ 8	$\Sigma Y = 3948.78$	$\Sigma(x - \bar{x})$ =0	$\Sigma(y - \bar{y})$ =0	$\Sigma(x - \bar{x})^2$ =153337. 54	$\Sigma(y - \bar{y})^2$ =178427. 8	$\Sigma(x - \bar{x})(y - \bar{y})$ =152713.28

Budgeted Capital Expenditure = X

Actual Capital Expenditure = Y

Number of Year (n) = 5

(a) Calculation of Mean

For targeted capital

$$\text{Expenditure } \bar{X} = \frac{\Sigma X}{n} = \frac{5812.458}{5} = 11.62.49 \text{ million}$$

For Actual Capital Expenditure

$$\bar{Y} = \frac{\Sigma Y}{n} = \frac{3948.78}{5} = 189.156 \text{ million}$$

(b) Calculation of Standard Deviation

$$\text{We have, Standard Deviation} = \sqrt{\frac{(X - \bar{X})^2}{n}}$$

For Targeted Capital Expenditure

$$\begin{aligned}\sigma_X &= \sqrt{\frac{(X - \bar{X})^2}{n}} \\ &= \sqrt{\frac{153337.54}{5}} = 175.12 \text{million}\end{aligned}$$

For actual capital expenditure

$$\sigma_X = \sqrt{\frac{(Y - \bar{Y})^2}{n}} = \sqrt{17842708} = 188.9 \text{million}$$

(C) Calculation of Coefficient of Variance (C.V)

For Targeted Overhead

$$\text{C.V of X} = \frac{\sigma_X}{\bar{Y}} \times 100\% = \frac{175.12}{1162.49} \times 100\% = 15.06\%$$

For Actual Overhead

$$\text{C.V of Y} = \frac{\sigma_Y}{\bar{Y}} \times 100\% = \frac{188.9}{189} \times 100\% = 23.9\%$$

(d) Calculation of Karl Pearson Correlation Coefficient (r)

$$\begin{aligned}\text{Correlation between X and Y (r}_{xy}\text{)} &= \frac{\sum(X - \bar{X})(Y - \bar{Y})}{n\sigma_X\sigma_Y} \\ &= \frac{152713.28}{5 \times 175.12 \times 188.9} \\ &= 0.92\end{aligned}$$

(c) **Calculation of Probable Error (P.E)**

$$\text{P.E.} = 0.6745 \times \frac{1-r^2}{\sqrt{n}}$$

$$\text{P.E.} = 0.6745 \times \frac{1-0.98^2}{\sqrt{5}}$$

$$= 0.6745 \times \frac{0-0.1536}{2.23}$$

$$= 0.046$$

APPENDIX: VI

In million

Years	Budgeted cash surplus (deficit) 'X'	Revised cash surplus (deficit) 'Y'	$X - \bar{X}$	$Y - \bar{Y}$	$(X - \bar{X})^2$	$(Y - \bar{Y})^2$	$(X - \bar{X})(Y - \bar{Y})$
2065/66	66.82	33.99	1261.29	-294.63	1590852. 46	86806.83	-371613.87
2066/67	(994.296)	652.500	200.17	323.88	40068.82	104898.2 4	64831.05
2067/68	(1306.6)	274.837	-112.13	-53.79	12573.13	2893.36	6031.47
2068/69	(2057.177)	406.742	-862.7	78.12	744251.2 9	6102.73	-67394.12
2069/70	(1681.121)	2750.485	-486.65	-53.57	236828.2 2	2869.85	26069.84
Total	$\Sigma X = -$ 5972.36	$\Sigma Y = 1643.$ 11	$\Sigma(X - \bar{X})$ =0	$\Sigma(Y - \bar{Y})$ =0	$\Sigma(X - \bar{X})^2$ =2624573 .9	$\Sigma(Y - \bar{Y})^2$ =203571. 01	$\Sigma(X - \bar{X})(Y - \bar{Y})$ = -342075.63

Budgeted Cash Surplus = X

Actual Cash Surplus = Y

Number of Year (n) = 5

(a) Calculation of Mean

For Targeted Cash Surplus (deficit)

$$\bar{X} = \frac{\Sigma X}{n} = \frac{-5972.36}{5} = -1194.47 \text{ million}$$

For Revised Cash Surplus (deficit)

$$\bar{Y} = \frac{\sum Y}{n} = \frac{1643.11}{5} = 328.62 \text{million}$$

(b) Calculation of Standard Deviation

$$\text{We have, Standard Deviation} = \sqrt{\frac{(x - \bar{x})^2}{n}}$$

For Targeted Cash Surplus (deficit)

$$\sigma X = \sqrt{\frac{(x - \bar{x})^2}{n}} = \sqrt{\frac{2624573.9}{5}} = 724.51 \text{million}$$

For revised cash surplus (deficit)

$$\sigma Y = \sqrt{\frac{(Y - \bar{Y})^2}{n}} = \sqrt{\frac{203571.01}{5}} = 201.77 \text{million}$$

(c) Calculation of Coefficient of Variance (C.V)

For Targeted Cash Surplus (deficit)

$$\text{C.V of X} = \frac{\sigma X}{\bar{X}} \times 100\% = \frac{724.51}{-1194.47} \times 100\% = 60.65\%$$

For Revised Cash Surplus (deficit)

$$\text{C.V of Y} = \frac{\sigma Y}{\bar{Y}} \times 100\% = \frac{201.77}{328.62} \times 100\% = 61\%$$

(d) Calculation of Karl Pearson Correlation Coefficient(r)

$$\text{Correlation between X and Y (r}_{xy}) = \frac{\sum(X - \bar{X})(Y - \bar{Y})}{n\sigma X\sigma Y}$$

$$= \frac{-342075.63}{5 \times 201.77 \times 724.51}$$

$$= -0.46$$

(e) **Calculation of Probable Error (P.E)**

$$\text{P.E.} = 0.6745 \times \frac{1-r^2}{\sqrt{n}}$$

$$= 0.6745 \times \frac{1-(-0.46)^2}{\sqrt{5}}$$

$$= 0.6745 \times \frac{1-0.78}{2.23}$$

$$= 0.23$$

$$6\text{PE} = 6 \times 0.23 = 1.38$$

Here $r < 6\text{PE}$

APPENDIX: VII

In Million

Years	Budgeted profit (loss) 'X'	Actual profit (loss) 'Y'	$X - \bar{X}$	$Y - \bar{Y}$	$(X - \bar{X})^2$	$(Y - \bar{Y})^2$	$(X - \bar{X})(Y - \bar{Y})$
2065/66	1110.483	(1486.1)	-437.74	-473.2	191616.3	223918.24	207138.56
2066/67	1702.138	(1312.8)	153.91	-299.9	23688.28	89940.01	-46154.61
2067/68	2025.923	(1267.8)	476.78	-254.9	227319.16	64974.01	-121531.22
2068/69	1124.641	314.19	-423.58	1327.09	179420.01	1761167.8 6	-562128.78
2069/70	1777.921	(1312.16)	229.7	-299.26	52762.09	89556.5	-68740.02
Total	$\Sigma X = 7741.10$	$\Sigma Y = -5064.67$	$\Sigma(X - \bar{X}) = 0$	$\Sigma(Y - \bar{Y}) = 0$	$\Sigma(X - \bar{X})^2 = 674805.84$	$\Sigma(Y - \bar{Y})^2 = 2229556.6$	$\Sigma(X - \bar{X})(Y - \bar{Y}) = -591416.07$

Budgeted Profit & Loss = X

Actual Profit & Loss = Y

Number of Year (n) = 5

(a) Calculation of Mean

For Targeted Profit (loss)

$$\bar{X} = \frac{\Sigma X}{n} = \frac{7741.40}{5} = 1548.22 \text{ million}$$

For Actual Profit (loss)

$$\bar{Y} = \frac{\Sigma Y}{n} = \frac{-5064.67}{5} = 1012.93 \text{ million}$$

(b) Calculation of Standard Deviation

$$\text{We have, Standard Deviation} = \sqrt{\frac{(\sum x - \bar{x})^2}{n}}$$

For targeted budgeted profit (loss)

$$\sigma X = \sqrt{\frac{(\sum X - \bar{X})^2}{n}} = \sqrt{\frac{674805.84}{5}} = 724.51 \text{ million}$$

For Actual Profit (loss)

$$\sigma X = \sqrt{\frac{(\sum Y - \bar{Y})^2}{n}} = \sqrt{\frac{2229556.6}{5}} = 667.7 \text{ million}$$

(c) Calculation of Coefficient of Variance (C.V)

For Targeted Profit (loss)

$$\text{C.V of X} = \frac{\sigma X}{\bar{X}} \times 100\% = \frac{368.37}{1548.22} \times 100\% = 23.72\%$$

For Actual Profit (loss)

$$\text{C.V of Y} = \frac{\sigma Y}{\bar{Y}} \times 100\% = \frac{667.76}{1012.93} \times 100\% = 65.92\%$$

(c) Calculation of Karl Pearson correlation coefficient(r)

$$\begin{aligned} \text{Correlation between X and Y (r}_{xy}) &= \frac{\sum (X - \bar{X})(Y - \bar{Y})}{n\sigma X\sigma Y} \\ &= \frac{-591416.07}{5 \times 367.37 \times 667.76} \\ &= -0.48 \end{aligned}$$

(d) Calculation of Probable Error (P.E)

$$\text{P.E.} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}}$$

$$= 0.6745 \times \frac{1 - (-0.48)^2}{\sqrt{5}}$$

$$= 0.6745 \times \frac{0.76}{2.23}$$

$$= 0.22$$

$$6PE = 6 \times 0.22 = 1.37$$

Here $r < 6PE$

APPENDIX: VIII

In million

Particulars	2066/67	2067/68	2068/69	2069/70
Current assets	8491.60	8995.3	10322.97	11391.4
Quick assets	5020.3	5346.6	6598.99	7597.54
Fixed assets	52166.56	51743.38	51781.76	52294.10
Total assets	77495.56	83550.08	92131.97	101218.35
Current liabilities	17466.39	19854.19	22812.13	26430.84
Total debt	61306.2	64888.7	69735.15	78379.89
Capital employed	73298.3	77738.8	69319.84	74787.51
Shareholder equity	15867.66	17567.78	21579.46	22300.11
Inventories	1372.7	1354.8	1498.45	1518.45
Cost of goods sold	7462.4	8332.7	9034.56	9929.85
Sales	12605.2	13331.9	14449.73	15405.03
Net profit (loss)	(1312.8)	(1267.8)	314.19	(1312.16)
Gross profit	5142.8	4999.2	5415.17	5475.18

The various ratios are as below: -

Particulars	2066/67	2067/68	2068/69	2069/70
Current ratio	0.48:1	0.45:1	0.45:1	0.43:1
Quick ratio	0.28:1	0.26:1	0.28:1	0.28:1
Debt to assets ratio	0.79:1	0.77:1	0.75:1	0.77:1
Debt to equity ratios	2.36	3.6	3.213	3.5
Fixed assets turnover ratio	0.24:1	0.25:1	0.27:1	0.29:1
Total assets turnover ratio	0.16	0.15	0.15	0.15
Inventory turnover ratio	5.43	6.15	6.02	6.53

$$(a) \text{ Current ratio} = \frac{\text{Current Asset}}{\text{Current Liability}}$$

2066/67	2067/68	2068/69	2069/70
<u>8491.6</u>	<u>8995.3</u>	<u>10322.97</u>	<u>11391.46</u>
<u>17466.39</u>	<u>19854.19</u>	<u>22812.13</u>	<u>56430.84</u>
0.48:1	0.45:1	0.45:1	0.43:1

$$(b) \text{ Quick ratios} = \frac{\text{Quick Asset}}{\text{Current Liability}}$$

2066/67	2067/68	2068/69	2069/70
<u>5020.3</u>	<u>5346.6</u>	<u>6598.99</u>	<u>7597.54</u>
<u>17466.39</u>	<u>19854.19</u>	<u>22812.13</u>	<u>26430.84</u>
0.28:1	0.26:1	0.28:1	0.28:1

$$(c) \text{ Fixed assets turnover ratios} = \frac{\text{Net sales}}{\text{Net fixed assets}}$$

2066/67	2067/68	2068/69	2069/70
<u>12605.2</u>	<u>13331.9</u>	<u>14449.74</u>	<u>15405.03</u>
<u>52166.56</u>	<u>51743.38</u>	<u>51781.76</u>	<u>52294.1</u>
0.24:1	0.25:1	0.27:1	0.29:1

$$(d) \text{ Total assets turnover ratios} = \frac{\text{Sales}}{\text{Total assets}}$$

2066/67	2067/68	2068/69	2069/70
<u>12605.2</u>	<u>13331.9</u>	<u>14449.74</u>	<u>15405.03</u>
<u>77495.56</u>	<u>82550.08</u>	<u>92131.97</u>	<u>101218.35</u>
0.16	0.15	0.15	0.15

$$(e) \text{ Inventory assets turnover ratios} = \frac{\text{Inventory}}{\text{Cost of goods sold}}$$

2066/67	2067/68	2068/69	2069/70
$\frac{7462.4}{1372.7}$	$\frac{8332.7}{1354.8}$	$\frac{9034.56}{1498.45}$	$\frac{9929.85}{1518.45}$
5.43	6.15	6.02	6.53

$$(f) \text{ Debt to total assets ratios} = \frac{\text{Total debt}}{\text{Total assets}}$$

2066/67	2067/68	2068/69	2069/70
$\frac{61306.2}{77495.56}$	$\frac{64888.7}{82550.08}$	$\frac{69736.15}{92131.97}$	$\frac{78379.89}{101218.35}$
0.79:1	0.77:1	0.75:1	0.77:1

$$(g) \text{ Debt to equity ratios} = \frac{\text{Total debt}}{\text{Shareholder equity}}$$

2066/67	2067/68	2068/69	2069/70
$\frac{61306.2}{25867.66}$	$\frac{64888.7}{17567.78}$	$\frac{69736.15}{21579.46}$	$\frac{78379.89}{22300.1}$
2.36	3.6	3.23	3.5