

**BUDGETING PRACTICES IN PUBLIC MANUFACTURING
ENTERPRISES**

(With Reference to Nepal Electricity Authority)

A Thesis

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DECLARATION

I, hereby, declare that the work reported in this thesis entitled “*Budgeting Practices In Public Manufacturing Enterprises (With Reference To Nepal Electricity Authority)*” submitted to office of the Dean, Faculty of Management, Tribhuvan University, is my original work done for the partial fulfillment of the requirement for the Masters of Business Studies (MBS) under the supervision of Prof. Dr. Kamal Deep Dhakal & Romakant Bhattarai of Shanker Dev Campus, Putalisadak, Kathmandu.

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ABBREVIATIONS

A/C	Account
BEP	Break Even Point
C. V.	Coefficient of Variation
COGS	Cost of Goods Sold
CV	Coefficient of Variation
CVP	Cost Volume Profit
EBIT	Earning Before Interest and Tax
F	Favorable
F.C.	Fixed Cost
FY	Fiscal Year
GWH	Giga Watt per Hour
MBA	Masters' of Business Administration
MBS	Masters' of Business Studies
MOS	Margin of Safety
NEA	Nepal Electricity Authority
NP	Net Profit
P/V	Profit Volume
PPC	Profit Planning & Control
SD	Standard Deviation
SDC	Shankar Dev Campus
T. U.	Tribhuvan University
U	Unfavorable
V.C.	Variable Costs

CHAPTER – I

INTRODUCTION

1.1 Background of the Study

Public enterprise is an institution operating a services of an economic or social character on behalf of the government, but as an independent legal entity largely autonomous in its management, through responsibility to the public through government and parliament and subject to some direction by the government, equipped on the other hand with independent and separate funds of its own and the legal and commercial attributors of commercial enterprises. Public enterprises autonomous body, which is owned and managed by government and which provide goods and services for price. The ownership with the government should be 51% or more to take an entity PE.

Thus, public enterprises are those institutions where government owns majorities of the shares i.e. more than 51% but are largely autonomous in management being responsible to the public for fulfilling at least minimum physical facilities. They play the major roles in achieving the multiple objective of social and economic development envisioned in national policy.

Profit is the ultimate goal of every business house. They involve in business for making profit. Profit can not be achieved easily. It should be managed well with better managerial skills so profit is the planned and controlled output of management. By element profit is the difference the planning of revenue (i.e. increase in revenue) and planning of cost (i.e. increase the efficiency of cost.)

Thus, profit can be achieved only after proper planning which can be planned by using proper and tool, thus comprehensive budgeting, managerial budgeting and simply budgeting can be used as such tool. "A profit plan or budget is the formal expression of the enterprises plans and ejectives stated in financial

terms for a specific future period of time". Budgeting or profit planning includes.

- Development and application of broad and long range objectives for the enterprises.
- Specification of goods.
- Development of strategic long range profit plans in broad terms.
- Specification of tactical short range profit plans detailed by assigned responsibilities (division, department, and project).
- Developing a system of periodic reports, detailed by assigned responsibilities.
- Control System.
- Follow up procedures.

Every public enterprise has to follow the rule of budget prescribed by government because it is under the control of government. The same rules are applied to the government offices and public enterprises. Yearly budgets of that period were made without a proper plan and without any aim of profit. Budgets were prepared only for the name of budget. Productions were just to fulfill the demands. The capacity and market situation were not known.

1.2 Statement of the Problems

Any enterprises need profit to survive and complete in the market. The success or failure of an enterprise is measured on the basis of per unit profit or surplus or productivity improvement. Many PEs have not prepared both long range and short range plans regularly and also the objectives of short range plans have no relation with the long range planning control.

In context of Nepal, NEA functioning in public utility sector it is the basic infrastructures for the development of the nation without it no industrialization of the economy can be imagined. In this context, NEA has great role than other

public enterprise as all manufacturing, nonmanufacturing industries and government, depend upon information supplied by it. It is not facing marketing competition and is enjoying almost monopoly over the distribution of services. So this organization is a large scale public enterprise of the country.

Most of the public enterprises of Nepal are in a big crisis. Some of them are liquidated. some are privatized and some PEs are in the process of privatization the first privatization policy was introduced in united kingdom during 1980s and in Nepal it gained momentum after the restoration of multiparty democracy in1990.

NEA is a fully government-owned and government controlled organization. Government is looking toward to privatization of this organization and primary studies are being undertaken. However this organization has been victimized in different political movements. The major problems facing by NEA are as follows.

- Lack of proper execution of plan
- Operating expenses is in increasing trend as compared to increase in its activities.
- Lack of adequate infrastructures.
- Political interference.

Thus this research attempts to show the budgeting practice in enterprises to fulfill these above mentioned problems and its effectiveness in solving these problems. Besides above mentioned problem this research has tried to answer the following started research problems.

- What are the major problems and issues relating to development and implementation of profit plan?
- To what extent is the process of budgeting being followed by NEA in developing and implementing profit plans?

- What is the situation of budgeted and actual activities?
- Whether the financial performance is sound or not?
- What step should be taken to improve budgeting system and profitability in this Organization?

1.3 Objectives of the Study

The main objective of this research is to study the budgeting i.e. profit planning practices and its overall effectiveness in manufacturing concernment special focus to NEA. However the other objectives have also been set by this research are as follows.

- To analysis the various budget activities adopted by NEA.
- To assess the financial performance of NEA by using BEP analysis and ratio analysis.
- To forecast future sales and profit trend of NEA.
- To examine the practice and effectiveness of profit planning in NEA.

1.4 Significance of the Study

An effective budgeting system is vital to the success and survival of a business, whether it is public or private without a fully coordinated budgeting system, management can not know the direction business is taking out. Organizations that do not plan are likely to wonder aimlessly and ultimately succumb to the swirl of current events.

- Accomplishment of objectives in every organization very much depends upon the arability and application of resources. Definitely all organization face the problem of resource scarcity these scare resource should be utilized property to achieve the unlimited objectives of organizations. Thus budgeting is one of the important tools of

management that uses the limited resources in coordinated and integrated manner to best achieve the multiple objectives of enterprises.

- Budgeting is the statement of organizations plan in financial form, thus it guides the organization's activities. It sets the target on realistic basis and directs cell the organization's resources to achieve these targets on stipulated time and at budgeted cost. Thus without budgeting no organization can achieve ultimate success, Thus we can not underestimate the important of budgeting i.e. profit planning in organization since it considerably contributes to improve the profitability as well as overall financial performance of an enterprises.
- From government point of view, budgeting is the most important tool to strengthen the economy of public enterprises and national treasury by the sources of revenue and controlling its activities. In the under developed countries like Nepal, profit planning helps in growth of GDP by improving the financial position of enterprises but still, many organization in Nepal do not prepare budget and those organization preparing budget do not use proper and scientific methods thus has further deteriorated the conditions of Nepalese organization.
- Many developed countries organization achieved great success by applying budgeting as management tool this real truth also shows the need of budgeting in our public enterprises.
- Most of the public enterprises prepare their budget randomly and they do not use profit planning concept. Due to this most of the public enterprises are incurring heavy losses. Thus by realizing the important of budgeting to improve the efficiency and effectiveness, to ensure their competitive capacity at present cut throat competition, this study has focused on the budgeting practices of public enterprises.
- Profit planning is the heart of management and profit is very important indicator that does not occur without proper planning, So every

organization has to manage its profit for these various functional budgets are essential, which ensures planning of activities and control over them.

1.5 Limitations of the Study

Following factors have limited the scope of this study.

- This study covers the performance of NEA only five years from the fiscal year 2065/66 to 2069/70, thus conclusion search ceased after studying is not the effect of overall performance of NEA.
- It does not include other areas of NEA except financial and accounting aspect of NEA.
- This analysis is totally based upon the secondary data provided by the management of NEA since these data is not for the research purpose, definitely it limits the research.
- This study covers budgeting system and its effect on comprehensive profit planning of NEA.

1.6 Organization of the Study

This research study will be divided into five separate chapters.

Chapter – I: Introduction

The first chapter introduces background of study, statement of problem, objective of the study, significance of the study, limitations of the study and organization of the study.

Chapter – II: Conceptual Framework & Review of Literature

The second chapter includes pilot studies and textual concepts with regard to conceptual framework on Budgeting, Profit Planning along with the review of major books, journal, research work and previous theses.

Chapter – III: Research Methodology

The third chapter includes research design, population & sample, sources and types of data, data processing technique and method & tools of data analysis.

Chapter – IV: Presentation & Analysis of Data

The fourth chapter deals with the presentation and analysis of data. It analyzed the data and interprets the results using different accounting and statistical tools, table, chart and graphs. It also includes major findings of the study.

Chapter – V: Summary, Conclusion & Recommendation

This chapter contains Summary, Conclusions and Recommendation. This chapter briefly represents the summary of the whole study and the conclusions and the recommendations for the effective and smooth running of the concerned commercial banks under the study.

Besides these, bibliography and annexure are presented at the end of the thesis. Similarly acknowledgements, table of contents, list of tables, list of figures, abbreviations are included in the front part of the thesis report.

CHAPTER – II

CONCEPTUAL FRAMEWORK AND REVIEW OF LITERATURE

The purpose of reviewing of literature is to develop some expertise in one's area, to see what new contribution has made and to receive some ideas for developing a research design. Thus, previous studies cannot be ignoring as they provide the foundation of the present study. This chapter highlights the literature that is available in concerned subject as to my knowledge, research work, and relevant study on this topic, review of journals and articles and review of thesis work performed previously.

2.1 Conceptual Framework

2.1.1 Budgeting (Profit Planning) & Control

2.1.1.1 Profit

Profit is the primary measure of business in any economy. Profit means a peculiar gain, excess of return over the outlays. It is reward of business. Profit is obtained by subtracting total cost from total revenue. Profit do not just happen, profit are managed. There are several interpretations of the term "Profit". An economist may say that profit is the reward for entrepreneurship, for risk taking. A labor leader might say that, it is a measure which can be used to examine the efficiency of labor because profit is produced by the labors and it provides a base for negotiation a wage increase. An investor will view it is a gauge of the return on his or her money. The accountant will define it simply as the excess firm revenue over the expenses of producing revenue in a given fiscal year (Lynch and Williamson, 1999).

Profit may be considered for making innovation, a reward for accepting risks and uncertainty and the result of imperfection in the market structure. Profit as the residual payment that is left to the producer's income after all other payment has been met.

The surplus of current income over past cost is profit. Management thinks profit as

- A tangible expression of the goals it has set for the firm.
- A measure of the performance toward the achievement of its goals.
- A measure of maintaining the health, growth and continuity of the company. (Lynch and Williamson, 1999).

The accounting concept of company profit is a concept of net business income. The sales transaction of a period are regarded as bringing new assets into the business and a profit results if there are in excess of the assets leaving the business in the same period. Profit is thus the surplus income that remains after paying expenses and providing for that part of capital that has been consumed in producing revenue.

It is quit clear that there is not exact definition of profit. Whether the definition may be, profits are residual income left the payment of the cost factor of production. The success of business depends largely of management is reflected upon the volume of profit/surplus of business. Profit is the ultimate measure of its effectiveness, and in a capitalist society, there is no future for private enterprise which always incurs losses. "The survival measure of how well a business performs economically. Profit is a signal for the allocation of resources and yardstick for judging managerial efficiency" (Lynch and Williamson, 1999).

Finally, it can be concluded that profit is the excess of revenue over the costs of doing business. Without obtaining sufficient profit, no firm can operate for long-term period.

2.1.1.2 Planning

Planning is the future oriented activity, which is the first essence of management, also all other functions are performed within the framework of planning. It is the sole concept of any business organization. Without the proper and efficient planning, no firm can accomplish its predetermined goals and objectives. Hence it is the life blood of any organization, which makes them efficiently run toward competent environment.

Planning is the continuous process, selecting and developing the course of action to accomplish an objective. It is the basis from which future management actions spring. "Planning is the process of developing organizational objectives and selecting a future course of action to accomplish them (Welsch, Gordon and Hilton, 2000).

- Establishing enterprise objectives.
- 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.

To plan is to look ahead and chalk out future course of operations. It is the determination of a course of action to achieve a desired result (Kulkarni, 1985). Planning is a method or technique of looking ahead a constructive reviewing of future needs so that present actions can be adjusted in view of the established goals. Planning is done for the specified period i.e. planning covers a period. As per period covered by planning it is divided into two types:

1. Strategic Long-Range Planning

Long range planning covers the time horizon of 5 to 10 years. It is a top management function in which organization's purpose, mission and overall objectives and policies are developed to position the organization advantageously in its operating environment. It is an important for present competitive and industrial age; long range planning is closely concerned with the concept of the corporation as a long institution.

The main purpose of long range planning are;

- To implement capital plan.
- To keep enterprise in strong position.
- To be alert toward new techniques.
- For focusing long-term opportunities.

2. Tactical Short-Range planning

Generally short term planning is used for short period. It is for the period of one year. The short term planning is selected to conform to fiscal quarter or year. Because of the practical need for comforting plans to accounting periods and some what arbitrary limitations of the long range it is usually based on the prevailing benefits that the degree of uncertainty over long period makes planning of questionable value. Short term planning is used by management for short period

The main purpose of tactical planning are;

- To acquire and facilitate resource, personnel, and raw material.
- To control cost through planned acquisition and avoid higher cost purchasing.
- To create new opportunities through assessing the environment and evaluating resources.
- To avoid problems related to red tape.

2.1.1.3 Control

Control refers to measurement and correction of performance to achieve the goals of a new venture. It is based on feedback.

- **Financial Control:-** Entrepreneurs must ensure proper allocation and utilization of financial resources. This is needed to control costs and minimize wastage.
- **Production Control:-** Entrepreneurs must achieve proper combination of inputs for production. Quality control should be ensured. Supervision should be effective. Efficiency should be improved.
- **Management Control:** Entrepreneurs must ensure management control in the new venture. They should make key decision themselves (Fago, 2003).

2.1.2 Profit Planning (Budgeting)

Profit planning is the heart of management. Without proper planning of profit it will not just happen. So every enterprise should systematically plan for profits in proper way. Various function budgets are the basic tools for proper planning of profit and control over them, profit planning in fact is a managerial techniques and profit plan is such written plan, in which all aspects of business operations with respect to a definite future period are included. It is a formal statement of policy, plan, objective and goal established by the top management in respect of some future period. It is a predetermined detailed plan of action developed and distributed as an audit to current operations and as a partial basis for the subsequent evaluation of performance. Thus, we can say that profit planning is a total which may be used by the management in planning the future course of action and controlling the actual performance (Gupta, 1992).

When the management plans for profit for a certain period of time, it is called profit plan. Profit plan is define as, An estimation and predetermination of

revenue and expressed that estimates how much income will be generated and how it would be spent in order to meet investment and profit requirements. In the case of institutional operations it presents a plan for spending income in a manner that does not result in loss. It represents an overall plan of operations, covers a definite period of time and formulates the planning decisions of management.

Profit planning is a detailed plan of action during a period of one year or less. Profit planning helps a firm's financial manager to regulate flow of funds which is primary concern, Pandey. Fremgen says that, "Profit plan is a short financial plan. It is an action plan to guide managers in achieving the objectives of a firm. A profit plan is a comprehensive and coordinate plan resource of an enterprise for some specific period in future.

Since profit plan is flexible and depends upon the size of the firm, so that the formats and rules regarding profit plan also varies according to the nature of business organization. Profit plan is prepared within the environment of relevant variables and strengths and weaknesses. Organizational broad objectives are defined and there specified in particular goals. Basic strategy and communicated to the line and staff managers.

Generally two types of profit plans are generated, for long term objectives strategic plans and short term objectives tactical plans are developed. The type of Profit plan depended upon the nature of business entity.

In summary profit planning means the developing of objectives, goals, and moving and organization efficiently to achieve the objectives and goals.

2.1.3 Profit Planning (Budgeting) and Control

Making profit not easy because "Profit do not just happen profit are managed"
To earn profit proper planning for profit should prepared so that loss may not

be incurred in future. Profit planning is a tool for managing organizational objectives to achieve the targeted goal.

Profit plan (or budget) is a short term financial plan. It is an action plan to guide managers in achieving objectives of a firm. A profit plan (or budget) is a comprehensive and coordinated plan expressed in financial terms for the operations and resources of an enterprise for some specific period in future (Pandey, 1999). The basic elements of a profit planning are:

- It is a comprehensive and coordinated plans
- It is expressed in financial terms.
- It is a plan for the firms operations and resources and
- It is a future plan for a specified period.

The term comprehensive profit planning and control is defined as a systematic and formalized approach for performing significant phase of the management planning and control functions. Specifically it involves The development and application of broad and long range objectives for the enterprise.

- The specification of enterprises goals.
- A long range profit plan developed in broad terms.
- A short range profit plan detailed by assigned responsibilities (division, products, time, projects)
- A system of periodic performance reports detailed by assigned responsibilities and follow up procedures.

Profit planning and control functions of management rests upon some fundamental viewsthat is the conviction that a management can plan and control the long range destiny of the manufacturing enterprises by making a continuation stream of well conceived decisions. The thrust of the comprehensive profit planning and control concept goes to the very heart of management that is the decision making process specially for long range

success. The stream of managerial decision must generate plans and actions to provide the essential inflows that are necessary to support the planned outflows of the enterprises so that realistic profits and return on investment are earned. Continuing generation of profits by managerial manipulation of inflows and outflows provides the substance of profit planning and control. The planning horizon for budgeting may vary from one day to many years, depending on the budget objectives and the uncertainties.

According to the period covered by the plan, planning can be broadly divided into two parts. The first is long-term plan which covers the time horizon of two years or more aimed at determining the overall direction of the organization. The second is short term plan which covers the time span of one year or less than one year is used mainly to determine the allocation of resources among conception activities and to service long term plan in view of more recent development. This plan often takes form of budgeting. Profit planning or budgeting is a forward planning and involves, the preparation in advance of the quantities as well as financial statements to indicate the intention of the management in respect of the various aspects of the business. Profit planning or budgeting in fact, is a managerial technique and a business budget as such is a written plan, in which all aspects of business operations with respect to definite future period are included. It is a formed statement of policy, plan, objectives and goal established by the top management in respect of some future period. It Acts as a business barometer as it is complete programme of activities of the business for the period covered. According to Gordon and Shilling law "Profit planning is a predetermined detailed plan of action developed and distributed as a guide to correct operations and as a partial basis for the subsequent evaluation of performance" Thus we can say that budget is a tool which may be used by the management in planning the future course of actions and in controlling the actual performance (Gupta, 1997).

For profit planning and control, effective communication means development of well defined objectives, specification of goals, development of profit plans and reporting and follows up activities related to performance evaluation for each responsibility centre. Communication for effective planning and control requires same understanding of responsibilities and goods in both in the executives and subordinates.

2.1.4 Planning Vs Forecasting

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

Forecasting is the pre-requisite for planning; a forecast is not a plant. It is statements of expected future conditions about a particular subject based on one or more assumption. Management may change the forecast. It is only, an input of a comprehensive plan. Decisions that are based on the forecast, other inputs of a comprehensive plan. Decision that are based on the forecast, other inputs and management judgments about such related item as sales volume, price, sale efforts production and financing. A forecasting is conditional but planning is not conditional. Forecasts are the statement of expected future conditions definitive statements of what actually happen are potently impossible. Expectation depends upon the assumptions made. If the assumptions are plausible the forecast has a better chance of being useful (Gupta, 1992).

Forecasting is the pre-requisite of planning. Forecasts are the statements of expected future conditions. It is an attempt to find the most provable course of events or at best a range of probabilities. Therefore, a forecasting is not a plan;

rather it is a statement and or a quantified assessment of future condition about a particular subject based on one or more explicit assumptions. A forecast should always state the assumption, which it is based. A forecast should be viewed as only one input into development of plan (Dangol & Prajapati, 2001).

2.1.5 Budgeting: As a Tool of Profit Planning

The concept of comprehensive budget covers all the financial and operational activities of the firm in the forth coming period. comprehensive view rather than the narrow, traditional view of budget as a clearly derived set of quantitative schedules prepared by an accountant following the stereotyped reposting formats used in external financial statements used in external financial statements. In the past years, there has also been a tendency to view the budget primary as a mathematical model for an organization developed by computer programmes. These view completely overlook the three most relevant aspect of the PPC concept (a) PPC requires major planning decision by management (b) PPC entails pervasive management control activities, and (c) PPC recognizes may critical behavioral implication thought the organization (Welsch, Gordon and Hilton, 2000).

A budget is an organized statement of expected income and expenditure for a definite future period, made modern to assist in controlling expenditure and providing a criterion for judging performance dunning the period. It is looked upon solely as profit planning mechanism or a technique of operating cost control. budget is both a mechanism for profit planning and a technique of operating cost control. Budget is an expression of a firms plan in financial form for a period of time in future; it is an estimate of future needs calculated for a definite period. It anticipates income for a given period and costs as well as expenses of obtaining this income are set or limited with the idea of earning a desired profit or as an aid in controlling losses.

The system of business budgets, as prevalent in USA has been described as a pre-determined detailed plan of action developed and distributed as a guide to current operation and as a partial basis for subsequent evaluation of performance. Budgetary Control is system of controlling cost which includes the preparation of budgets, coordinating the departments and establishing the responsibilities, comparing actual performance with the budgeted and acting upon results to achieve maximum profitability (Munankarmi, 2003).

Thus it can be said that comprehensive planning and control is the recent origin in the field of management but budgeting is the traditional view of accounting and presenting financial statement which may not includes all management function: Planning organizing, directing leading decision making coordinating reporting as the basic foundations for effective management budget is concerned with policy making while budgeting control results from the implementation of policy. The common objectives of budgeting control is to formulate policies aimed at objective established after the consideration of the possible course of events in the future and to provide a means for the constant companion of actual progress towards this goals against the preconceived result and also provide a standard of the performance.

In the post budget constituted a financial document, it is now concerned with devising a coordinated program of operation, providing an effective means of communication among managerial personnel for the purpose of evaluating proposed plan of action for the direction of diverse activities toward the accomplishment of predetermined goals and obtaining all request approval. Thus there is an increasing trend towards extending the frontiers of business budgets to include planning coordinating and controlling of the entire operations of a business. This has transformed budgets and budgetary control intovaluable tool of purposeful management (Munankarmi, 2003).

2.1.6 Role of Budgeting: Profit Planning and Control

An effective budgeting system is vital to the success and survival of business firm. Without fully coordinated budgeting system management can not know the direction business is talking out. Organizations that do not plan are likely to wonder aimlessly and ultimately succumb to the swirl of current events. Thus the benefits of budgeting or profit planning and control are as follows (Welsch, Gordon and Hilton, 2000).

- Basic policies developed as the pre-requisites of profit planning and control show direction to the business.
- It provides definite goals and objectives the serve as a benchmarks for evaluating subsequent performance. It completes and motivates management to make an early and timely study of the problems. It generates sense of caution and case adequate study among managers before they make decisions. Managers at different levels have to participate in the development of the profit plan. This provides an excellent training ground for the managers to know the process of planning in debt
- Profit planning and control coordinates the activities of the entire organization by integrating the plans and objectives of the various park. By doing so it ensures that the plans and objectives of that park are consistent with the broad goals of the entire organization. It aids in obtaining bank credit, banks commonly require a projection of future operations and cash flow to support large loans. It provides a valuable means of controlling income and expenditure of a business, as it is plan for spending. It provides a tool through which managerial policies and goals are periodically evaluated, tested and established as guidelines for the entire organization (Bajracharya et. al, 2004).
- It provides a norms, basis or yardstick for measuring performance of departments and individual working in organizations. Individual

managers can evaluate their own decisions and achievements and take suitable steps to improve their performance. Well-organized profit planning and control program enable the management to maintain a level of profits, which will ensure the existence of the business and the fulfillment of management responsibilities.

2.1.7 Objectives of Budgeting: Profit Planning and Control

A comprehensive profit planning and controlling is a systematic and formalized approach for stating and communicating the firm's expectation and accomplishing management in such a way to maximize the use of profit plan to achieve the maximum benefit from the resource available to an organization over a particular span of time. It serves as a tool of management control. The maximum objective of profit planning and control is to help in systematic planning and in controlling the operations of the enterprises. In fact it is a best means of communication and an important tool in the hands of management the purpose of budgeting and profit planning and control may be summarized as follows (Maheshwari, 2000).

- To state the firm's expectation (goal) in clearly, formal terms to avoid confusion and facilitate their attainability.
- To communicate expectation to all concerned with the management to the firm so that they are understood, supported and implemented. To provide a detail plan of action for reducing uncertainty and for its proper direction of individual and group efforts to achieve goals.
- To coordinate the activities and efforts in such a way that the use of resource is maximized.
- To provide a means of measuring and controlling the performance of individual and units to supply information based on which the corrective action can be taken.

2.1.8 Limitation of Budgeting: Profit Planning and Control

Profit planning and control is an important tool for management: However each tool suffers from some limitation and its use is useful within these limits. The limitation of profit planning and control are as under (Bajracharya et. al, 2004).

a. Based on Estimates:- Profit planning is not an exact science. Its effectiveness depends upon precision of estimates the success of profit planning and control depends to a large degree on the accuracy with which the basic estimates will be made. Using correct and standard statistical methods can make the accurate estimates.

b. Danger of Rigidity:- Profit planning and control is an estimation and quantitative expression of all relevant data. So there can be tendency to attach some sort of rigidity or finality to them. Rigidity makes profit planning and control useless. For usefulness, the profit planning and control must be flexible. Various techniques must be tried, improved or discarded and replaced with others. In other words a profit planning and control program must be dynamic in every sense of the word.

c. Execution is Not Automatic:- A skillfully prepared profit planning and control will not itself improve the management of an enterprises, unless it is properly implemented. For the success of profit planning and control it is essential that all the related persons inside the enterprises should understand it. Thus for the effectiveness of profit planning and control all the fundamental elements of its should be applied.

d. Costly Affairs:- The installation of a profit planning and control system is an elaborated process involving to much time and cost. Normally it is so costly that small organization can not afford it. Even for large concern it is suggested that there should be some correlation between the cost of operating a budgeting system and benefits derived from it.

e. Not a Substitute for Management:- Profit planning and control is a management tool but not a substitute for the management. It is wrong to think that the introduction of profit planning and control is alone sufficient to ensure success and to guarantee future profit.

2.1.9 Fundamentals of Profit Planning and Control

Introduction of profit planning and control function is not only sufficient for the effective management of organization. Some fundamental aspects of budgeting should be prevalent for successful operation of budgeting to profit planning and control which are.

a. Managerial Involvement and Commitment:- Managerial involvement provides managerial support, confidence participation and performance orientation. For effective implementation of profit plan and control all levels of management especially top management must (1) understand the nature and characteristics of profit planning and control, (2) be convinced that this particular approach to managing is to devote the effort required to make it operative. (3) support the program in all its planning process as performance commitments.

b. Organizational Adaptation:- Profit planning and control program must rest upon sound organizational structure for the enterprises and a clear-cut designation of lines of authorities and responsibilities. The purpose of organizational structure and the assignment of authority is to establish a framework within which enterprises objectives may be attained in a coordinated and effective way on a continuing basis. To increase management and operation efficiency particularly all enterprises except perhaps the very smallest ones should be structurally disaggregated into organizational sub units. The manager of each sub unit should be assigned specific authority and responsibility for the operational activities of that sub unit.

c. Responsibility Accounting:- In order to set-up profit planning and control on a sound basis there must be a responsibility accounting system is one tailored first and foremost to the organizational responsibilities. Within this primary accounting structure, Secondary classification of costs, revenues and other financial data that are relevant may be utilized in accordance with the needs of the enterprises.

d. Full Communication:- For profit planning and control effective communication means development of well defected objectives, specification of goals, development of profit plan and reporting and follow up activities related to performance evaluation for each responsibility centre. Communication for effective planning and control requires same understanding of responsibilities and goods in both the executive and sub ordinates.

e. Realistic Expedition:- Profit planning and control must be based on realistic approach or estimation. Management must be use realistic assumption and must not take irrational optimism or unnecessary conservatism.

f. Flexible Application:- Profit planning and control technique should be flexible, so that its style can be changed according to the changes in management environment of enterprises.

2.1.10 Types of Budgets

Budgets can be classified for different point of view, generally it can be classified as follows.

2.1.10.1 Classification According to Time Factor

On the basis of time factor, budgets are broadly classified into two types.

a. Long-term Budgets:- They are concerned with planning the operations of the firm over a period of five to ten years.

b. Short-term Budget:- Short-term Budgets are prepared for one to five years of period.

2.1.10.2 On the basis of Functions

Functional budgets number depends on the size and nature of the business. Generally the functional budgets of a business are as follows.

a. Sales Budget:- The sales plan is the foundation of periodic planning in the firm because practically all other enterprise planning is built on it. The primary source of cash is sales, the need of capital addition, the plan of expenses the manpower requirement. Production level and other important operational aspects depend on the volume of sales. A comprehensive sales plan includes two separate but related plans the strategic and tactical sales plan. A comprehensive sales plan incorporates such management decisions as objectives goals strategies and premises. Long term/strategic and short term/tactical plans must be developed in harmony with comprehensive profit plan. The primary purpose of sales plan are as follows.

- To reduce uncertainty about future revenues.
- To incorporate management judgments and decisions into the planning process.
- To provide necessary information for developing other elements of comprehensive profit plan.
- To facilities managements control of sales activities.

b. Strategic and Tactical Sales Plan

A comprehensive sales plan includes both strategic long-term and tactical short-term sales plan. Both sales plans must be prepared in comprehensive profit plan. The usual case is a five or ten year strategic sales plan and one year tactical sales plan. Many sales and product decisions commit a large amount of resources involving a life span of many years. Sometimes it may be helpful to

view the development of the long-range and short-range sales plan as separate activities. However, they must be integrated because the short-range sales plan dovetail with the strategic long-range plan in all major respects.

1. Strategic Sales Plan

Strategic sales plan is also known as long-range sales plan. It covers 5 to 10 years. A company may schedule completion of the strategic long-term sales plan as one of the first steps in the overall planning process. Long-term sales plans usually involve in depth analyses of future market potentials, which may be built up from a basic foundation such as population changes, state of the economy, industry projections and finally company objectives. Long-term managerial strategies would affect such areas as long-term pricing policy, development of new products and innovations of present products, new directions in marketing efforts, expansion or changes in distribution channels, and cost patterns. The influence of managerial strategy decisions is explicitly brought to bear on the long-term sales plan primarily on a judgmental basis.

2. Tactical Sales plan

Tactical sales plan is also called short-range sales plan. It is prepared for one year or less than one year. Short-range sales plan or tactical sales plan is prepared to plan sales for twelve-months, into the future detailing the plan initially by quarters and by months for first quarter. At the end of each month or quarter throughout the year, the sales plan is restudied and revised by adding a period in the future and by dropping the period just ended. Thus, tactical sales plan are usually subject to review and revision on a quarterly basis. The short-term sales plan includes a detail plan for each major product and for groupings of minor products.

A Short-range sales plan should include considerable detail. To establish policy about detail in the short-range sales plan, the main question is use of the results. First, the major consideration is to provide detail by responsibility for planning

and control purposes. Second, the short-range sales plan must provide detail needed for completing the profit plan components by other functional managers. Third, the amount of detail also depends on the type of industry, size of the firm, availability of resources and use of the results by management (Welsch, Gordon and Hilton, 2000).

c. Production Budget:- Production budget is the initial step in budgeting of manufacturing operations. The production budget is an estimation of planned quantity of goods to be manufactured during the budget period. When the sales plan is completed the next step in building the profit plan is to develop a production plan. The production plan involves determining the number of units of each product that must be manufactured to meet planned sales and maintain the planned inventory levels of finished goods. Planning production requirements necessitates another decision about input that is the management decision about inventory levels of finished goods that are to be planned (Welsch, Gordon and Hilton, 2000).

Production plan is based on estimated sales. Production must be planned follow sufficient time to manufacture the products before the estimated date of sales. It is prepared in the basis of

- Sales budget
- plant capacity
- opening inventory of finished goods and
- policy of the management. Production budget is divided into monthly budget for the purpose of production planning,

In production planning the following factors are determined

- economic batch quality
- delivery schedules
- seasonal conditions

- optimum utilization of plant capacity
- optimum utilization of labor with out much overtime and idle time
- reduction of bottlenecks such as shortage of man, material, etc
- work in progress.

d. Purchase Budget:- Materials that are essential for production must be purchased in each period in sufficient quantities to meet production needs and to conform to the company's ending inventory policy. Purchase budget specifies the quantities and timing of each raw material needed. The purchase budget specifies the estimated quantities to be purchased and the estimated cost for each raw material and the required delivery dates. It is calculated.

Planned Purchase = Unit Planned Material Consumption + Desired ending inventory of raw material - Beginning inventory of raw materials.

The purchase budget specifies the estimated quantities to be purchased and the estimated cost for each raw material and the required delivery dates. The material and part budget provides the purchasing manager with the data responsibility for preparing a detail plan of purchase. It is direct responsibility of purchasing manager to be knowledgeable about the market for items that must be purchased, and to plan the unit cost for use in the purchased and amount to purchase materials. The purchase budget is directly concerned with the timing of actual receipt of raw material rather than with the timing of usage or purchase orders. The purchase manager orderly maintains the time of purchase materials and inventory requirement by material.

e. Labour Budget:- Labour budget defines both the direct and indirect labour cost. Direct labour cost estimates the total direct labour cost by product time and responsibility. Different approaches such as time and motion studies, standard cost, direct estimates by supervisions and statistical estimates by staff group can be used to estimate the cost of direct labour.

Planning labour cost involves major complex problem areas.

- Personal needs,
- Recruitment,
- Training,
- Job description and evaluation
- Performance measurement,
- Union negotiations, and
- Wage and salary administration.

A comprehensive profit-planning program would incorporate appropriate approaches application to each problem, but it direct careful consideration to them and aids in placing them in perspective. Effective planning of long and short labour cost will benefit both the company and it's complies.

f. Expenses or Overhead Budget:- Expenses budget plays a significant role in profit planning and control because it helps to maintain expenses at a reasonable level in respect of the accomplishment of the objectives. There are three broad categories of expenses (a) manufacturing overhead (b) distribution expenses and (c) general administrative expenses for which separate sub-budgets are prepared.

An expense planning does not mean the reduction of expenses but rather focus on better utilization of limited resources. Expenses planning and control should focus on the relationship between expenditures and the benefits derived for those expenditures. The desired benefits should be viewed as goals and sufficient resources must be planned to support the operating activities essential for their accomplishment. The knowledge of cost behavior is important in planning expenses. Cost behavior is the response of a cost to different volume of output. There are three distinct categories of expenses which are viewed in relation to change in output.

g. Manufacturing Overhead Budget:- Manufacturing overhead is that part of total production cost, not directly identifiable (traceable to) specific products or jobs. It consists of (a) indirect material (b) indirect labour (c) all other miscellaneous factory expenses such as taxes, insurance, depreciation, supplies utilities and repairs. Manufacturing expenses include many dissimilar expenses which can cause problem in the allocation of these cost to products.

Two types of responsibility centers: production and services are common in most manufacturing firms. Production department work directly on the products manufactured, service departments do not work on the Production directly but rather furnish services to the production department and to other service departments. For budgeting purposes, manufacturing overhead involves the following two problems; Controlling of manufacturing or factory overhead & Allocation of manufacturing or factory overhead to product manufactured.

h. Selling and Distribution Expenses Budget: Distribution expenses include all costs related to selling distribution and delivery of products to customers. In many companies, this cost is significant percentage of total expenses. The top marketing executive has the overall responsibility for developing the distribution expenses plans or budgets. Following the principle of participation, the manager of each responsibility centre should be assigned direct responsibility for that department's distribution expenses plan. Thus the promotion manager should be responsible for developing the promotion plans, and the field sales manager should be responsible for developing both their marketing plans and their distribution expenses budgets. Fundamentally, the top executive has the direct responsibility for planning the optimum economic balance between (1) sales budget (2) the advertising budget (3) distribution expense budget. Therefore profit planning and control views sales advertising and distribution expense as the one basic problem rather than as three separate problems. Distribution expenses include two major types. (1) home-office

expenses and (2) field expenses, from the planning and controlling point of view, these expenses must be planned by responsibility centre. In some case this might be by sales district, in other case by products.

i. Administrative Expenses Budget:- Administrative expenses include those expenses other than manufacturing and distribution. They are incurred in the responsibility centers that provide supervision of an service to all functions of the enterprise, rather than in the performance of any one function. Because a large portion of administrative expenses are fixed rather than variable, the notion persists that they cannot be controlled.

Control administration in any company, except very small ones, is carried on in several special responsibility centers, such as central administration, the controllers department the treasures department the personnel department and central staff. Thus the overall administrative expenses budget includes several departmental budgets. The manager of each these responsibility centers should be assigned the primary responsibility for planning and controlling operations, including the requisite expenses that are subject to control. It is advisable to base budgeted manufacturing expenses on specific plans and programs past experiences, adjusted for anticipated changes in management policy and general economic conditions, is helpful because most administrative expenses are fixed and analysis of the historical record with often provide sound basis for budgeting them.

j. Cash Budget:- Two kinds of resources flow through many business cash and non-cash assets. Cash budgeting in an effective way to plan and control the cash flows, asses cash needs and effectively use excess cash. The primary objective of preparing cash budget is to plan the liquidity position of the company as a basis for determining future borrowing and future investments. A cash budget shows the planned cash inflows, outflows and ending position by interim periods for a specific time span. The primary purposes of the cash budget are as follows.

- To give the probable cash position at the end of each period as a result of planned operations.
- To identify cash excesses or shortages by time periods.
- To establish the need for financing or the availability of idle cash for investment.
- To coordinate cash with total working capital, sales revenue, expenses, investment & liabilities.
- To establish a sound basis for continues monitoring of the cash position.

k. Capital Expenditure Budget:- Capital budgeting involves the entire process of planning and controlling the expenditures for expansion and contraction of investment in operating (fixed) assets with returns that are expected to extend beyond one year. A capital expenditure is the use of funds to obtain operations assets that will help: Earn future revenues Reduce future costs.

"The investment decision of a firm are often referred to as capital budgeting. A capital budgeting decision may be defined as the firm's decision to invest its current funds most efficiently in long term assets in anticipation of an expected flow of benefits over a series of years" (Pandey, 1999).

Capital budgeting is the making of long term planning decisions for investment and their financial capital budgeting then consists in planning the development of available capital for the purpose of maximizing the long term profitability of the firm. A capital expenditure is the use of funds to obtain operational assets that will help earn future revenue or reduce future costs.

Thus capital budgeting is the process of planning and controlling the strategic and tactical expenditures for expansion and contraction of investments in operating assets. Capital expenditure includes such fixed assets as property, plant, equipment, and patents. Typically, capital expenditure projects involve large amount of cash. Capital expenditure involves two major planning and

controlling phase a) Investment b) Expenses. Capital expenditure budget is the formal plan for the expenditure of money to purchase fixed assets. It is an internal corporate document that lists the allocated investment projects for a given fiscal period. Capital budgeting involves the generating of investment proposals, the evaluation of cash flow, the selection of project based on acceptance criterion and finally continual evaluation of investment project after their acceptance (Dangol & Prajapati, 2001).

Thus, capital budgeting involves the following steps.

- Consideration of investment proposal including alternatives.
- Application of profit, cash flows and analysis of cost benefit of the project.
- Estimation of available funds and utilization of funds.
- Maximization of profit with the utilization of available funds.

The top executive working with other members of executive management has the primary responsibility for the capital additions budget. However, the primary responsibility for the projects and other proposals should include divisional departmental managers.

There are three stages of capital budgeting proposal generation, analysis and implementation. The important steps involved in capital budgeting process are a) Project generation b) Project evaluation c) Project selection and d) Project execution. The process for planning and controlling capital expenditure as suggested by Welsh, Hilward Gordan are as follows.

- Identify and generate capital additions project and other needs.
- Develop and refine capital additions proposal.
- Analyze & evaluate all capital additions proposals and alternative.
- Make capital expenditure decisions to accept the best alternative and the assignment of project designation to select the alternative.

- Develop the capital expenditure budget.
- Establish control of capital expenditure during the budget year by using periodic and special performance report by responsibility centers.
- Conduct post completion audit and follow-up evaluation of the actual results from capital expenditure in periods after completion.

I. Capital Expenditure Decision:- The crucial capital expenditure decisions are the choices of management from the completing capital expenditure alternatives such decisions most focus on two over rising problems.

- Investment Decision:- Selecting the best alternatives based on their economic worth to the competitive investment world.
- Financing Decisions: - Determination the amounts and source of funds needed pay for the selected alternatives. This cash constraint may necessarily limit the project cash proposals that can be initiated.

Numerous methods are available for measuring economic value or investment worth of the contemplated proposals. Some common and widely used methods are listed under:

A) Discounted cash flow method

- Net present value (NPV)
- Internal rate of return (IRR)
- Profitability index (PI)

B) Traditional/ simple method

- Payback period (PBP)
- Average rate of return (ARR)

m. Master Budget:- A complete set of financial plan for a business from is often called the master budget. The master budget consists of many functional budgets including a sells budget, a production budget, a purchase budget, an expense budget, and equipment purchase budget and cash budget. Once all of these budget are completed the master budget for the entire firm is prepared. When all budget have been prepared, the budgeted profit and loss account and balancesheet provide the over all picture of the planned performance for the budget period.

2.1.10.3 On the basis of Flexibility

a. Fixed Budget:- It is a budget in which targets are rigidly fixed. Such budgets are usually prepared for one to three month's in advance of fiscal year to which they are applicable.

b. Flexible Budget:- The budget which can be easily adjusted to any required level of activity is the flexible budget. It is designed to change in accordance with the changes in the level of activities. The concept of flexible budget is the complementary to the tactical profit plan. A flexible budget calculates budgeted revenues and budgeted costs based on the actual output level in the budget period. A flexible budget is calculated at the end of the period when the actual output is known, unlike a static budget is each developed at the start of the budget period based on the planned output' level for the period. A flexible budget estimates expenses at different trends of future operation. A flexible budget is not based on only one level of activity. It is detailed plan for controlling over head cost a plan that is valid in the firm's relevant rage of activity.

2.2 Review of Previous Studies

2.2.1 Review of Books

Munakarmi (2003) in the book '*Management Accounting*' CVP analysis provides only an overview of the profit planning process. It provides management with a comprehensive overview of the effects on revenue and cost of all kind of short-run financial changes. It is related to profit, sales volume and cost. The study of the interrelationship of sales costs and net income is usually called cost volume profit analysis. CVP analysis examines the response of profit to change in volume. It relies on linear cost analysis and on linear revenue assumptions. To gain understanding of CVP analysis, the common examples of a firm which produces only single product will be used. The analysis will be expanded to cover firms with several products by multiple divisions. CVP analysis consists essentially in examining the relationship between changes in volume and changes in profit. The scope of CVP analysis ranges from the determination of the optimal output level of a single product department to the determination of the optimal mix of large multi product firm. C-V-P analysis is concerned with examining the relationship between changes in volume and changes in total revenue and costs in the short term. Drury has compared the economist's and accountant's models of CVP behavior. The major differences are that the total cost and total revenue functions are curvilinear in the economist's model, whereas the accountant's model assumes linear relationships. However, we have noted that the accountant's model was intended to predict CVP behavior only within the relevant range, where a firm is likely to be operating on constant returns to sale. A comparison of the two models suggested that, within the relevant production range, the total costs and revenue functions are similar.

Fago, G. (2003) in the book *'Profit Planning & Control'* Profit planning and control is an important approach, mainly in profit oriented enterprises. Profit is merely a tool of management. It is not an end of management or substitute of management. It facilitates the managers to accomplish managerial goals in a systematic way.

Gautam & Bhattarai (2004) in their book *'Budgeting: Profit Planning & Control'* an application of the concept of expenses variability in cost-volume-profit analysis. It involves a study of interrelationship between the following factors.

- Price of Products
- Volume of level of activity
- Per unit Variable cost
- Total fixed costs.
- Mix of Products

CVP analysis applies the variable costing approach to analyze the built in relationship between cost volume and profit. It analyses the short term tactical relationship between cost, volume and profit. It assumes the under constant underlying condition, CVP analysis can be used for the analysis of break even volume, break even analysis and contribution margin analysis-profit planning. These assumptions of constant underlying conditions and the short term relationship however have been criticized by many authors.

Bajracharya, Ojha, Goet & Sharma (2005) in their book *Managerial Accounting: Nepalese Perspective'* Comprehensive profit plan and control is a new term in the literature of business. Though it is a new term, it is not a new concept in management. The other terms, which can be used in same context, are comprehensive budgeting, managerial budgeting and simply budgeting. The profit planning and control can be defined as a process or technique of management that enhances the efficiency of management.

Ojha & Gautam (2008), in their book '*Budgeting: Profit Planning & Control Profit planning and control*' define profit planning and control represents the overall plans of operations, providing guidelines to management and acting as single light for the management. It enables the management to correct to policy. Profit planning and control covers a definite period of time and formulates the planning decisions of the management. It contains the three main budgets.

Operational Budgets: Budgeted related with revenue and expenses, such as sales budget, production budget, purchases budget etc.

Financial Budget: Budget related with financial statement, such as balance sheet, income statement etc.

Appropriation Budget: Budgeted related with advertising and publicity expenditure, research etc.

2.2.2 Review of Journal/Articles

Kandasami (2009) has published an article on the topic '*Responsibilities & Stages Involve in Budgeting*' Budgets are prepared by managers and other staff who are responsible for the activity concerned. Finance staffs are technical resources that the budgeting process is completed professionally. Budgeting requires those responsible to have good interpersonal skill. It is important to be able to listen carefully and negotiation when planning and monitoring a budget. Budgets are usually managed in three stages. (The Journal of Business & Industrial Management, 2009, Vol – 16).

- **Planning** - setting the objectives and deciding what this will mean in terms of income and expenditure, within the overall parameters of the organisation.
- **Monitoring** - measuring how well the actual income and expenditure equates to the planned amounts. Regular statements identify the

differences between budgeted and 'actual' figures. Any corrective action is taken on the basis of these statements.

- **Reviewing** - evaluating through a general review how closely objectives have been achieved and identifying new parameters for the following period. This takes place towards the end of the budget cycle. It is also an opportunity to see if the budget process itself could be improved.

Deborah & Williams (2010) has published an article on the topic '*Advantages of Using Budgeting*' a budget can be defined as a financial plan of an entity relating to a period of time. Its involve setting objectives to be achieved and the co-ordination of people and their organization aspirations. The financial budget is a way of quantifying resources needed to achieve the objectives. Budgets for an organization or project are used to; (Journal of Business Research, 2010, Vol – 13)

- To help implement objectives
- To calculate the estimate income and expenditure
- To co-ordinate activities
- To communicate plans
- To motivate staff by setting clear targets
- To monitor and evaluate actual performance

Pascoal & William (2011) has published an article on the topic '*Effective budgeting*' because of the growing complexity of business and business problems and because of the movement toward decentralization in large enterprises, increased attention is being given to better planning and control techniques. Consequently, the use of sound budgeting techniques is becoming more prevalent. In addition, corporate restructuring has resulted in a trend toward placing the responsibility for budgeting at higher levels in the organization. In earlier days it was customary to find the budget function buried deeply in the accounting operation; today it is not uncommon to have the budget function report to levels of management above the controller.

Although it is still useful for the budget director to report to the corporate controller, the trend toward reporting to a higher level is a recognition of the need to have the budget function broadly based in all operating areas of the business.

Many companies use budget committees. The budget committee typically is composed of representatives from most operating areas. This composition promotes coordination. If properly administered, the budget committee can perform the very useful role of encompassing and reconciling the many diverse interests that make up a modern business. An effective budgeting system facilitates control. The budgeting system must fit the company's operational control needs.

Effective budgeting systems facilitate the value creation process. They are an invaluable component of a company's planning and control efforts. The system forces managers to plan and promotes coordination. The system supports responsibility accounting and reporting. The master budget, accompanied by detailed plans, documents the company's goals and objectives. Linking the master budget to the company's long-range and strategic planning enhances the overall planning effort. (Journal of International Accounting, 2009, Vol – IX).

John (2012) has published an article on the topic '*Budgeting & the Management Process*' a budget is defined as management's quantitative expression of plans for a forthcoming period. Budgets are prepared at various levels of an organization. The master budget is defined as the overall financial plan for the period, which reflects the organization's goals and objectives. The master budget includes operating and financial budgets. Operating budgets show the company's planned sales and operating expenses. Financial budgets reflect financing plans such as borrowing, leasing, and cash management. Budgeting, when done properly, can serve as a planning and controlling system. The company's goals and performance objectives are documented in financial terms. Once formulated, these plans are used throughout the year.

Monthly performance reports compare budgeted results with actual results. To control operations, management can examine the performance reports and take necessary corrective actions.

The role that effective budgeting plays in the management of a business is best understood when it is related to the fundamentals of management. The many existing definitions of business management can be expressed in terms of five major functions: planning, organizing, staffing, directing, and controlling. Management must first plan. The plan is executed by organizing, staffing, and directing operations. To control operations, management must institute appropriate techniques of observation and reporting to determine how actual results compare to plans. Budgeting is concerned primarily with the planning and controlling functions of management. (Journal of Financial Management Training & Consultancy for Development, 2012, Vol – XI)

2.2.3 Review of Previous Research Works

Lamichhane (2009) has submitted the research study on the topic '*Budget as a Tool of Profit Planning of Public Utility Enterprises: A case Study of NTC*'. These studies have mainly focused on the aspect of budgeting and examine the practice and effectiveness of profit plan in Nepal telecommunication.

His main objectives

- To examine the practices and effectiveness of profit planning in NTC.
- To observe the NTC's profit planning system on the basis of budgeting system.

His major findings

- Achievement of sales is not satisfactory with respect to targeted sales because actual sales are more variable than budgets sales.
- Sales budget prepared by NTC according to the nature of its customers.

- Actual production lines in NTC are more fluctuated than budgeted productive line due to government influenced.
- There is problem to analyze and control the cost due to overhead cost which is not classified systematically.
- From the analysis of profit plan in NTC there is no practice of cost segregation into fixed and variable and there is no systematic approach to record manufacturing costs.
- NTC has not practiced to prepare projected profit and loss account and balance sheet in advance.

Prajapati (2010) has conducted research on the topic '*Study of Profit Planning & Control of Dairy Development Corporation*'.

The main objectives

- To analyze the trend of profit and loss of DDC.
- To analyze the various functional budgets that is prepared by DDC.
- To evaluate the variance between budgeted and actual achievement of the enterprises.
- To examine the present profit planning premises adapted by DDC.

His Major findings

- Lack of planning and management, poor storage and lack of effective response have always contributed to poor performance of DDC.
- From the above research interpretation we came to know that DDC has planned only short - term plan i.e. plan for only one year it does not make long term plan for five years.
- DDC makes budget for its every product from milk to ice cream. But it does not make sales budget for sweets because of being new product.

- DDC prepares some functional budget like sales and purchase budget, expense budget etc. These all budgets are prepared on an annual basis. The annual amounts are not divided into the interim period.
- DDC has planned only short term or coming year plan.
- The boards of directors or top-level executive only are involved in planning and decision making but the middle and lower level employees are not encouraged on planning and decision making.

Mishra (2011) has carried out an investigation topic '*Profit Planning and Control in Manufacturing Company*' the basic objective of his research is to examine the present comprehensive profit planning system applied by Nepal Lever Limited. Overall objective is to guide and provide future direction and prospectus to the organization.

His specific objectives

- To examine the variance between the actual and the budgeted production.
- To measure the effectiveness of the organization in terms of capacity utilization.
- To analyze the financial performance of Nepal Lever Limited.
- To highlight the PPC system adapted by various departments of Nepal Lever Limited.
- To forecast future production and sales of Nepal Lever Limited and to recommend and suggest for improving the profit planning.

His major findings

- Specific goals and strategy for the organization are set up by the top-level executives and the management is totally governed by the Hindusthan Lever Limited.

- The organization is licensed to produce 10 varieties of product but it is only producing and products at present.
- The co. has no proper practice of segregation of costs into fixed, variable and controllable and uncontrollable costs. Even though F&L is produced at separate plant but it is not separately in record.
- Authorities and responsibilities are not clearly defined among various departmental working managers. Role conflict and lack of co-ordination among them is paramount.
- In term of capacity utilization only 36% of installed capacity is utilized by fair and lovely.
- Application of profit plan is not realistic. Everything is prepared on ad-hoc manner.
- Nepal Lever Limited faces a major problem in utilization of raw material. A major portion of raw material is imported from other countries; very less portion of Nepalese raw material is consumed by the organization.

Pokherel (2012) has conducted a research on '*Sales Planning in Nepalese Public Enterprise (A case study of Dairy Development Corporation)*' was submitted to office of the Dean, faculty of Management Tribhuvan University. The basic objective of his research is to raise the practice of sales planning system and it's effectiveness, applied by DDC.

His main Objectives

- To identify the sales planning process of DDC.
- To examine the formulation and implementing procedure of sales plan in DDC.
- To evaluate the variance between budgeted and actual sales of the DDC.
- To examine the effectiveness of sales plan in DDC.

- To suggest and recommend for improvement of the planning system in DDC.

His Major findings

- In Nepalese manufacturing PEs goal and objectives are written but not adequate and are not properly follow up the development of the enterprise.
- DDC has not been clearly defining its main objectives in annual goals or target for achieving the basic objectives. There is no defined such operational as expansion and contraction of product line, geographic areas, share of market growth of trends etc all the departmental goals and target are fixed in paper but not in action.
- DDC has not followed participatory management, even middle level of management are not participated in policy making. Only top level of management is directly involved in policy making.
- Like in other PEs in Nepal, there is only annual target is supplied by the top management for the major department. There is no details and formal guidelines to the lower level management or departmental manager for the purpose of developing profit plan which also seen is DDC.
- There is neck to neck competition between other emerging dairy product industries and DDC, in the valley and other parts of country as well. So for better sales, advertising should be effective DDC should invest on more advertising strategies.

Dhungel (2013) has conducted a research on the topic '*Budget as a Tool of Profit Planning: A case study of Nepal Telecommunication*'. Mr. Dhungel has pointed out the following objectives and major findings.

The main objectives

- To analyze the various functional budget of NTC.
- To obtain a true picture of profit planning diversification of NTC.
- To examine the usage of Cost Volume Profit analysis in budget preparation.
- To examine the practices and effectiveness of profit planning in NTC.

The major findings

- According to balance sheet of NTC, there is huge amount of cash and bank balance lying idle, this indicates some deficiency to analyze its liquid assets.
- NT's budget is not realistic to its sales and production achievement.
- Idle capacity of installed telephone lines is in increasing trend, which affects to generate revenue.
- Without considering CVP analysis, sales budget and pricing strategy were made.
- NT has maintained sound liquidity to pay the current debt and maintained well financial health.
- NT prepares program budget, however due to lack of adequate knowledge of PPC, it is facing some problems in profit planning system.

2.3 Research Gap

Research gap refers to the gap between previous research and this research. In review of literature, the researcher reviewed most of research work on budgeting practices related to Nepalese public enterprises but no one has specified what system of budgeting is required for effective Performance of public enterprises. Thus, this research will clearly specify the required budgeting system for manufacturing public enterprises as a whole and for NEA. Again the did not find the research work will related to NEA on current

political and economic scenario. Thus, this research work will fulfill the gap of not specifying any effective tool for public enterprises and conduction analysis on current affairs of NEA.

CHAPTER III

RESEARCH METHODOLOGY

Research methodology is the way to solve systematically about the research problem. Research methodology is a general plan of how the researcher is going about answering the research questions that has set. The research worked undertaken following a systematic way, which is called the research methodology. This chapter describes the research methodology or research strategy employed in this study. The major contents of research methodology are as follows.

3.1 Research Design

Research design is the plan, structure, and strategy of investigation conceived to obtain answers to research questions. Generally, research refers to definite procedures and techniques, which guide to study and propounds ways for research viability. Both analytical as well as descriptive design has been applied design for this study, this study is closely related with the various areas of sales, production and other related statement.

3.2 Populations and Sample

This research aims to studying budgeting practices of NEA. In now days, there are thirty-six public enterprises operating in Nepal so the all thirty-six public enterprises are population of the study out of them NEA is selected for the study purpose therefore the NEA is the sample of the study. Sample of the study is selected on the basis of judgmental sampling method.

3.3 Nature and Sources of Data

This study is based on secondary data. However, primary data and information have been obtained through informal discussions with the executives and other

related staffs of the NEA. The secondary data are collected from annual reports of NEA, balance sheet, profit and loss A/C, cost detail sheet, previous thesis and other relevant published and unpublished documents of NEA.

3.4 Research Variables

The research variables of this study is mainly sales, production, profit and loss, capacity utilization, manpower, capital expenditure, breakeven point, profit volume ratio, margin of safety, flexible budget and cash flows related to short term and long term periods of NEA.

3.5 Period Covered

The present study covers two times dimensions long range and short range. The time period of five years for the purpose of trend analysis for long planning and the time period of one year (current year) for the purpose of short range planning are taken. Data are collected from fiscal year 2065/066 to 2069/070 for analysis.

3.6 Data Analysis Tools

The collected data from various sources are managed to analyze and presented in proper tables, formats and graphs such as table and formats are interpreted and explained wherever necessary. To analyze the collected data financial and statistical tools are used. In statistical tools, mean, standard deviation, coefficient of variation, correlation coefficient, coefficient of determination, probable error of correlation, regression equation, time series analysis, graphs and diagrams are taken, whereas in financial tools ratio analysis, BEP analysis are used.

3.6.1 Statistical Tools

3.6.1.1 Arithmetic Mean or Average

The mean or average value is a single value within the range of the data that is used to represent all the values in the series. Since an average is somewhere within the range of the data, it is also called a measure of central value. It is calculated by;

$$\text{Mean } (\bar{X}) = \frac{\sum X}{N}$$

Where,

$$\begin{aligned}\bar{X} &= \text{Arithmetic Mean} \\ \sum X &= \text{Sum of values of all items, and,} \\ N &= \text{Number of items}\end{aligned}$$

3.6.1.2 Standard Deviation

The standard deviation is the measure that is most often used to describe variability in data distributions. It can be thought of as a rough measure of the average amount by which observations deviate on either side of the mean. Denoted by Greek letter's (read as sigma), standard deviation is extremely useful for judging the representatives of the mean. Standard deviation is calculated as;

$$\text{Standard Deviation } (\delta_x) = \sqrt{\frac{1}{n} \left[\sum X^2 - \frac{(\sum X)^2}{n} \right]}$$

Where,

$$\begin{aligned}\sigma &= \text{Standard deviation} \\ \sum X^2 &= \text{Sum of square of the variables} \\ (\sum X)^2 &= \text{Square of the sum of x variables} \\ n &= \text{Number of items}\end{aligned}$$

3.6.1.3 Regression Analysis

Regression analysis is a mathematical measure of the average relationship between two or more variables in terms of original units of data. There are two types of variables in regression analysis – dependent variable and independent variable, the variable whose value is influenced or is to be predicted is called dependent variable whereas the variable which influences the value or is used for predication is called independent variable. The dependent variable is also known as regressed or explained variable while the independent variable is called as regress or predictor or explanatory variable.

A line of regression is the line, which gives the best estimate to the value of one variable for any specified value of the other variable. Thus the line of regression is the line of best fit. The term best fit is interpreted in accordance with principle of Least Squares which consists in minimizing the sum of squares of the residuals or the errors of estimate, i.e. deviation between the given observed values of the variables and their corresponding estimate values as given by the line of best fit. If we have two variables X and Y, we shall have two regression lines, Minimizing the sum of squares of error parallel to y-axis gives the equation of the line of regression equation of Y to X and minimizing the sum of squares of the errors parallel to x-axis, gives the equation of the line of regression of X on Y.

Regression equation of Y on X is given by

$$\text{In } Y = a + bx \dots\dots\dots (i)$$

Where,

Y= Dependent variable

X= Independent variable

a = Intercept of the line

Regression Line of Y on X;

$$Y - \bar{Y} = r_{xy} \times \frac{\delta_Y}{\delta_X} (X - \bar{X})$$

Where,

Y= Dependent variable

X= Independent variable

\bar{X} = Average of X Variables

\bar{Y} = Average of Y Variables

r_{xy} = Correlation between X & Y Variables

δ_X = Standard Deviation of X Variables

δ_Y = Standard Deviation of Y Variables

3.6.1.4 Correlation Coefficient

Correlation is a statistical tool design to measure the degree of association between two or more variables. In other word if the changes in one variable affects the changes in other variable, then the variable are said to be co-related when it is used to measure the relationship between two variables, then it is called simple correlation. The coefficient of correlation measures the degree of relationship between two sets of figures. Among the various methods of finding out coefficient of correlation, Karl Pearson's method is applied in the study. The result of coefficient of correlation is always lying between +1 and -1. The formula for the calculation of coefficient of correlation between X and Y is given below.

$$\text{Correlation } (r_{xy}) = \frac{n \sum XY - \sum X \sum Y}{\sqrt{n \sum X^2 - (\sum X)^2 \times n \sum Y^2 - (\sum Y)^2}}$$

Where,

r_{xy} = Correlation between X & Y variables

$\sum XY$ = Sum of Multiply of Variables X & Y

$\sum X$ = Sum of Variables X

$\sum Y$ = Sum of Variables Y

$\sum X^2$ = Sum of Square of Variables X

$$\sum Y^2 = \text{Sum of Square of Variables Y}$$

3.6.1.5 Coefficient of Variation

The coefficient of variation is the ratio of standard deviation to the mean for a given sample used to measure spread. It can also be thought of as the measure of relative risk.

$$CV = \frac{\sigma}{\bar{X}} \times 100$$

Where,

CV = Coefficient of Variation

σ = Standard Deviation

\bar{X} = Arithmetic Mean

3.6.2 Accounting Tools

3.6.2.1 Percentage Change

To find out the changing positions of different amount this ratio is used. This ratio is calculated to measure the acceleration or retardation of any variables to the company is to take the suitable direction. It is calculated in following way.

$$\text{Annual percentage change} = \frac{\text{Amount of This Year} - \text{Amount of Last Year}}{\text{Amount of Last Year}}$$

3.6.2.2 Contribution Margin

The difference between production amount and variable cost is known as the contribution margin. In other words, fixed cost plus the amount of profit is equivalent to contribution margin. Contribution margin can be expressed by

$$\text{Contribution margin} = \text{production volume (Sales)} - \text{variable cost}$$

3.6.2.3 Profit Volume Ratio

It establishes a relationship between the contribution and production volume. The factors profit and volume are interconnected and dependent with each other. Profit depends upon contribution margin and production. It can be expressed by;

$$\text{Profit volume ratio} = \frac{\text{Contribution Margin}}{\text{Production or Sales}}$$

3.6.2.4 Break Even Point

The point which breaks the total costs and selling price evenly to show the level of output or production, at which there shall be neither profit nor loss, is regarded as break-even point. Through contribution margin approach, break-even point can be expressed by;

$$\text{Break even point in Rs.} = \frac{\text{Fixed Cost}}{\text{PV Ratio}}$$

3.6.2.5 Margin of Safety (MOS)

It is the difference between the actual sales revenue and the break even sales revenue. It can be expressed by;

$$\text{Margin of Safety} = \text{Actual Sales} - \text{Break Even Sales}$$

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Budgeting is used for development and acceptance of proper objectives and goals for an organization. Budgeting is a comprehensive and coordinated plan of an enterprise for some specific period in future. Planning is carried out to fulfill the responsibility of forward thinking and future operation of the organization. To meet the objectives, the researcher has tried to present and interpret the collected data in systematic manner and presented and tabulated in meaningful ways. For that purpose sales plan, cost, profit, contribution margin, Break-even analysis, income statement, sensitivity test etc. are done, which are the major variables of budgeting.

4.1 Sales Budget/Plan & Control of NEA

Sales planning are the necessary components of profit planning and control. It is the first plan or budget to be prepared. All other planning is based on it. Sales planning provide the basic management decision about marketing and help to develop comprehensive revenue plan. If the sales plan is not realistic, most of all other part of overall profit plan is also not realistic. Sales of the organization should manage in such a way by which it will increase continuously.

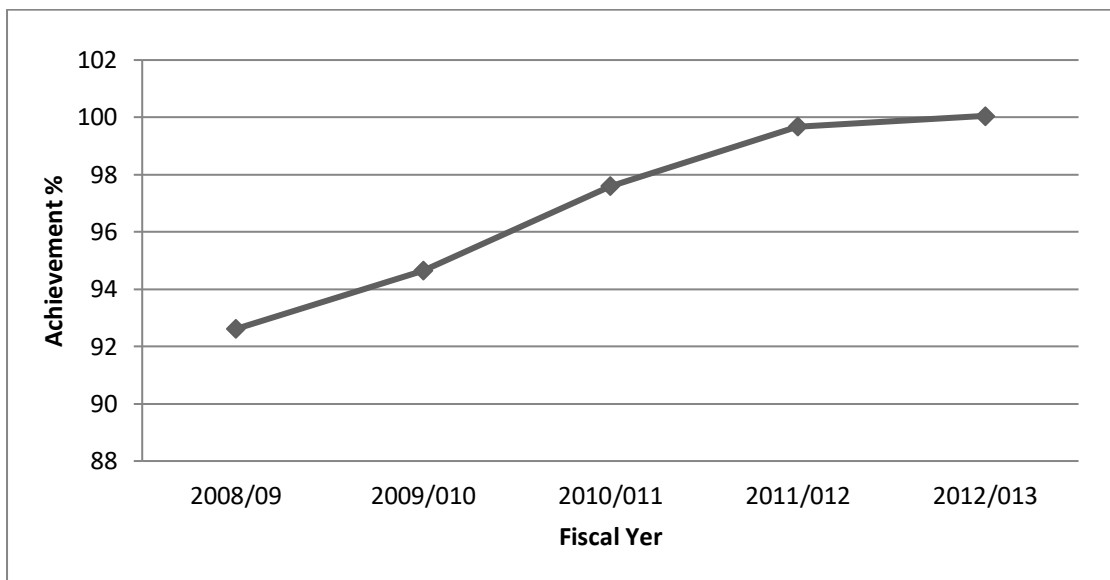
Nepal electricity Authority is the key player in Nepal's power sector. Electricity service is very essential to every people. NEA is not able to meet the demand of customers. Nepal Electricity Authority is suffering from loss since many years. Revenue of electricity authority is sales of electricity. Sales plan of electricity is very essential for its performance improvement. Sales plan is prepared by NEA according to the nature of customers. NEA has categorized its customer in various types and charges the price based on that category. Sales plan of NEA has been presented in table for five years from fiscal year 2008/09 to 2012/013.

Table: 4.1
Sales Plan of NEA

(Rs. In Million)			
Fiscal Year	Actual Sales	Budgeted Sales	Achievement %
2008/09	15041.39	16241.56	92.61
2009/010	14405.93	15220.87	94.65
2010/011	17164.60	17586.91	97.60
2011/012	17946.82	18003.8	99.68
2012/013	20088.64	20079.13	100.05

Source: Annual reports of NEA from the fiscal year 2008/09 to 2012/013

Figure: 4.1
Sales Plan Achievement of NEA (Rs)



From the analysis of table 4.1 & figure 4.1 data of NEA sales, it is clearly seen that the budgeted and actual sales practices of organization are less fluctuated. The sales figure have been met exactly in the fiscal year 2012/013. All fiscal yearly targets are achieved up to only 92% level still the achievement level have been increased to 100.05% in the year 2012/2013. The achievement level is increases each year during the study period. Actual sales and budgeted sales both are increases than previous year except the fiscal year 2009/010.

In overall analysis, it is shown that there is no systematic and scientific analysis in determining budget sales of NEA either we can say that there is some deficiencies in marketing aspects since the actual sales are low in comparison with standard. There is no matching in between budgeted and actual sales thus the sales analysis shows that there is no proper profit planning mechanism in determination sales plan. In conclusion it can say that NEA has not practicing proper profit planning system it's planning has no meaning since there is greater deviation in budgeted and actual sales.

Different statistical tools have been used i.e. calculating such as arithmetic mean, standard deviation coefficient of variation and correlation with a view to analyze the nature of variability in between budgeted and actual sales in different fiscal year.

Table: 4.2
Statistical Analysis of Sales Plan of NEA

(Rs. In Million)				
Description	Average	SD	CV %	Correlation
Budgeted	17426.45	1842.27	10.61	0.9922
Actual	16929.48	2291.49	13.54	
Achievement %	96.92	3.23	3.33	

Source: Appendix V

The budgeted and actual sales data have been tabulated in table 4.2 by using different statistical tools with a view to analyzing this sales figure. The Table 4.2 shows that the average budgeted and actual sales of NEA are Rs. 17426.45 & Rs. 16929.48 similarly, achievement of sales during the five year study period is 96.92%. From the analyzing it is seen that the sales figures are highly fluctuated between budgeted and actual sales, to analyze the deviation i.e. fluctuation between budgeted and actual sales standard deviation and coefficient of variation have been calculated. The average standard deviation of budgeted and actual sales are Rs.1842.27 & Rs.2291.49 similarly, the

coefficient of variation are 10.61% & 13.54% these figures shows high fluctuation in actual sales amount rather than budgeted sales figures.

In the above analysis the correlation coefficient have been calculated to measure the relationship between actual and budgeted sales. To be more effective sales there should be always positive correlation between budgeted and actual sales. In other words the sales achievement should increase with the increase in budget and vice-versa. The results of correlation coefficient satisfy the NEA performance there is positive correlation of 0.9922.

Table: 4.3

Sales Plan of NEA

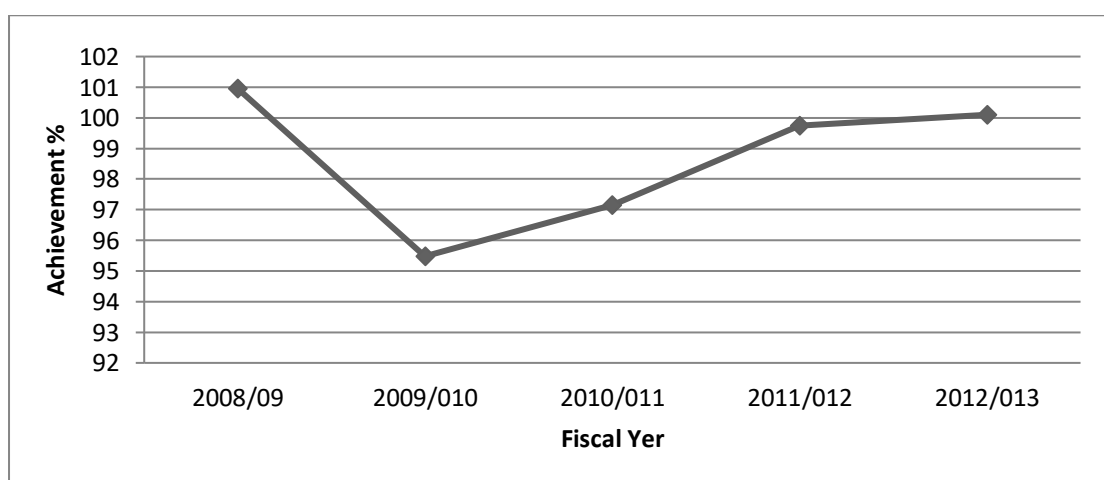
(Unit in GWH)

Fiscal Year	Actual Sales	Budgeted Sales	Achievement %
2008/09	2310.32	2288.51	100.95
2009/010	2204.59	2308.91	95.48
2010/011	2601.53	2677.83	97.15
2011/012	2727.62	2734.74	99.74
2012/013	3044.69	3041.93	100.09

Source: Annual reports of NEA from the fiscal year 2008/09 to 2012/013

Figure: 4.2

Sales Plan Achievement of NEA (Unit)



From the analysis of table 4.3 & figure 4.2 data of NEA sales unit, the sales figure have been met exactly in the fiscal year 2012/013 & 2008/09. All fiscal yearly targets are achieved up to 95% level still the achievement level have been increased to 100.09% in the year 2012/2013. The achievement level is increases each year then previous year except the fiscal year 2009/010. In overall analysis, it is shown that there is systematic and scientific analysis in determining budget sales unit of NEA. There is highly matching in between budgeted and actual sales thus the sales analysis shows that there is proper profit planning mechanism in determination sales plan. In conclusion it can say that NEA has practicing proper profit planning system it's planning has better since there is no greater deviation in budgeted and actual sales unit.

Different statistical tools have been used i.e. calculating such as arithmetic mean, standard deviation coefficient of variation and correlation with a view to analyze the nature of variability in between budgeted and actual sales unit in different fiscal year.

Table: 4.4
Statistical Analysis of Sales Plan of NEA

(Unit in GWH)				
Description	Average	SD	CV %	Correlation
Budgeted	2610.38	316.52	12.13	0.9878
Actual	2577.75	336.09	13.04	
Achievement %	98.68	2.28	2.31	

Source: Appendix VI

The budgeted and actual sales unit data have been tabulated in table 4.4 by using different statistical tools with a view to analyzing this sales unit figure. The Table 4.4 shows that the average budgeted and actual sales units of NEA are 2610.38 & 2577.75 similarly, achievement of sales unit during the five year study period is 98.68%. From the analyzing it is seen that the sales unit figures are less fluctuated between budgeted and actual sales, to analyze the deviation i.e. fluctuation between budgeted and actual sales unit standard deviation and

coefficient of variation have been calculated. The average standard deviation of budgeted and actual sales unit are 316.52 & Rs.336.09 similarly, the coefficient of variation are 12.13% & 13.04% these figures shows high fluctuation in budgeted sales unit rather than actual sales unit. The results of correlation coefficient satisfy the NEA performance there is positive correlation of 0.9978 between actual and budgeted sales unit of NEA. To be more effective sales there should be always positive correlation between budgeted and actual sales.

4.2 Production Budget/Plan of NEA

It is the second steps of profit planning and control. It is prepared after the preparation of sales budget. A production plan is an estimation of the quantity of goods to be manufactured to meet the planned sales and maintain the desired level of inventory during the planned period. It is based upon the capacity of plants sales requirement and inventory policy.

Table: 4.5

Production Plan of NEA

		'Unit in GWH'				
Items	Description	2008/09	2009/10	2010/11	2011/12	2012/13
NEA Hydro Generation	Budgeted	1791.68	1839.52	2108.65	2122.08	2357.43
	Actual	1793.14	1839.51	2104.52	2122.08	2357.43
	Achievement %	100.08	100.00	99.80	100.00	100.00
Thermal Generation	Budgeted	9.15	9.06	13.01	3.40	1.56
	Actual	9.17	9.06	13.12	3.40	1.56
	Achievement %	100.22	100.00	100.85	100.00	100.00
Purchases Energy	Budgeted	1371.46	1291.19	1571.63	1732.89	1819.82
	Actual	1383.64	1282.19	1590.11	1732.89	1819.82
	Achievement %	100.89	99.30	101.18	100.00	100.00
Total Energy Production	Budgeted	3172.29	3139.77	3693.29	3858.37	4178.81
	Actual	3185.95	3130.76	3707.74	3858.37	4178.81
	Achievement %	100.43	99.71	100.39	100.00	100.00

Source: Annual reports of NEA from the fiscal year 2008/09 to 2012/013

From the analysis of table 4.5 production figure of NEA, it is seen that in all fiscal year the budgeted production are near or equal to the actual production it means the target set by management have achieved.

In case of NAE hydro generation minimum achievement is 99.80% in the fiscal year 2010/11 and other fiscal year achievement is exactly 100% . In overall, the achievement rate is high in hydro generation. Similarly, in thermal generation, achievement is greater than 100% in each fiscal year and purchase energy achievement is also greater than 100% in each fiscal year except the fiscal year 2009/010. Except some fiscal year the achievement rate is satisfactory and there is no variability in actual and budgeted production.

Figure: 4.3

Production Plan Achievement of NEA (Unit)

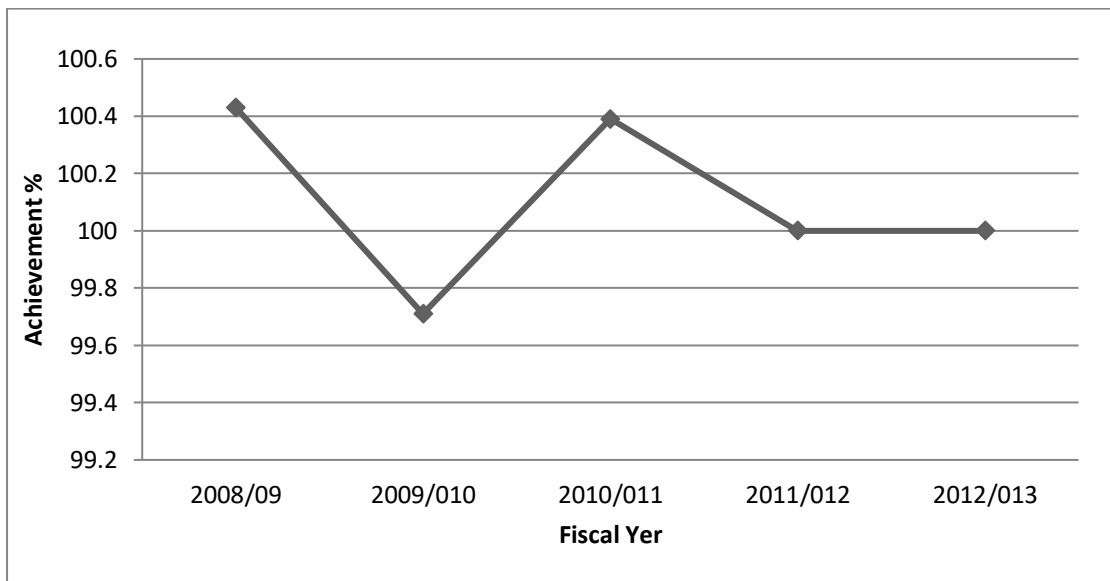


Figure 4.3 shows that the achievement rate of total energy production of NEA. The rate of achievement is more than 99% in each fiscal year during the study period. The highest achievement is 100.45% in the fiscal year 2008/09 and that of lowest is 99.71% in the fiscal year 2009/010. From the above analysis it is clear that there is very low deviation between actual and budgeted production and the production plan of NEA is more effective.

Table: 4.6

Statistical Analysis of Production Plan of NEA (In Unit)

Description	Average	SD	CV %	Correlation
Budgeted	3608.51	448.57	12.43	0.9997
Actual	3612.33	448.40	12.41	
Achievement %	100.11	0.30	0.30	

Source: Appendix VII

The achievement rate, budgeted and actual production unit data have been tabulated in table 4.6 by using different statistical tools with a view to analyzing this production unit figure. The Table 4.6 shows that the average budgeted and actual production units of NEA are 3608.51 & 3612.33 similarly, achievement of production unit during the five year study period is 100.11%. From the analyzing it is seen that the production unit figures are not fluctuated between budgeted and actual sales, to analyze the deviation i.e. fluctuation between budgeted and actual sales unit standard deviation and coefficient of variation have been calculated. The average standard deviation of budgeted and actual production unit are 448.57 & Rs.448.40 similarly, the coefficient of variation are 12.43% & 12.41% these figures shows high fluctuation in budgeted production unit rather than actual production unit. The results of correlation coefficient satisfy the NEA performance there is positive correlation of 0.9997 between actual and budgeted production unit of NEA.

4.3 Comparative Analysis of Actual Production & Sales

The actual production and sales of NEA and the relationship between actual production and sales are shown in the following table.

Table: 4.7

Actual Production & Sales

(Unit In GWH)

Fiscal Year	Actual Production	Actual Sales	Sales %
2008/09	3185.95	2310.32	72.52
2009/010	3130.76	2204.59	70.42
2010/011	3707.74	2601.53	70.16
2011/012	3858.37	2727.62	70.69
2012/013	4178.81	3044.69	72.86

Source: Annual reports of NEA from the fiscal year 2008/09 to 2012/013

Figure: 4.4

Actual Production & Sales of NEA (Unit)

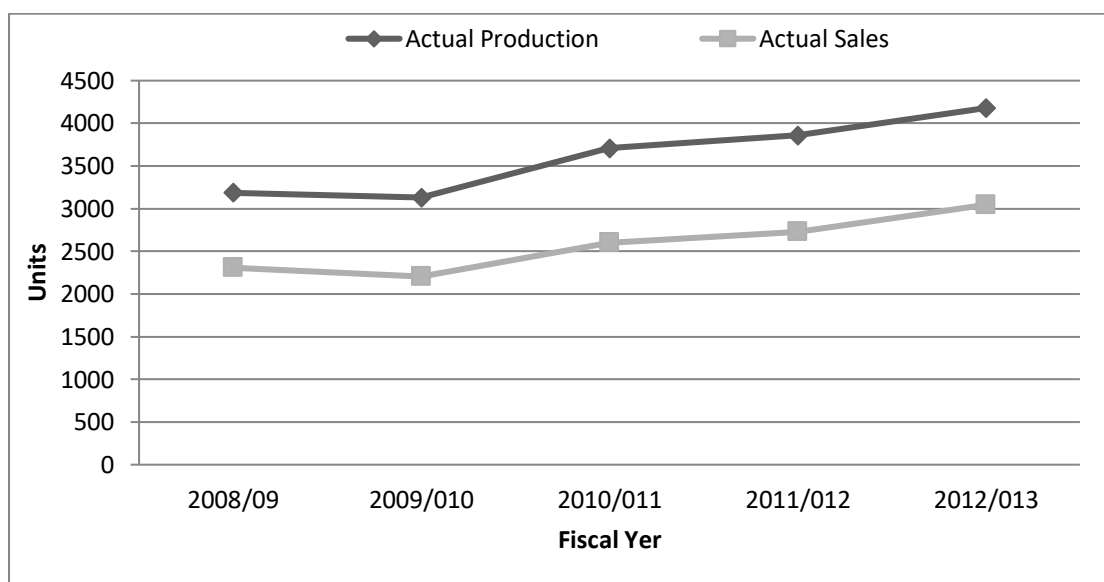


Table 4.7 & figure 4.4 shows that the actual production and sale unit of NEA. The actual production and sales both are increases each year than previous year except the fiscal year 2009/010. The actual production is 3185.95 unit in the fiscal year 2008/09 and decrease to 3130.76 unit in the 2009/010 after that it is increases to 4178.81 unit in the fiscal year 2012/013 similarly, the actual sales is 2310.32 unit in the fiscal year 2008/09 and decrease to 2204.59 unit in the fiscal year 2009/010 after that it is increases to 3044.69 unit in the fiscal year 2012/013.

Figure: 4.5

Proportion of Sales on total Production (Unit)

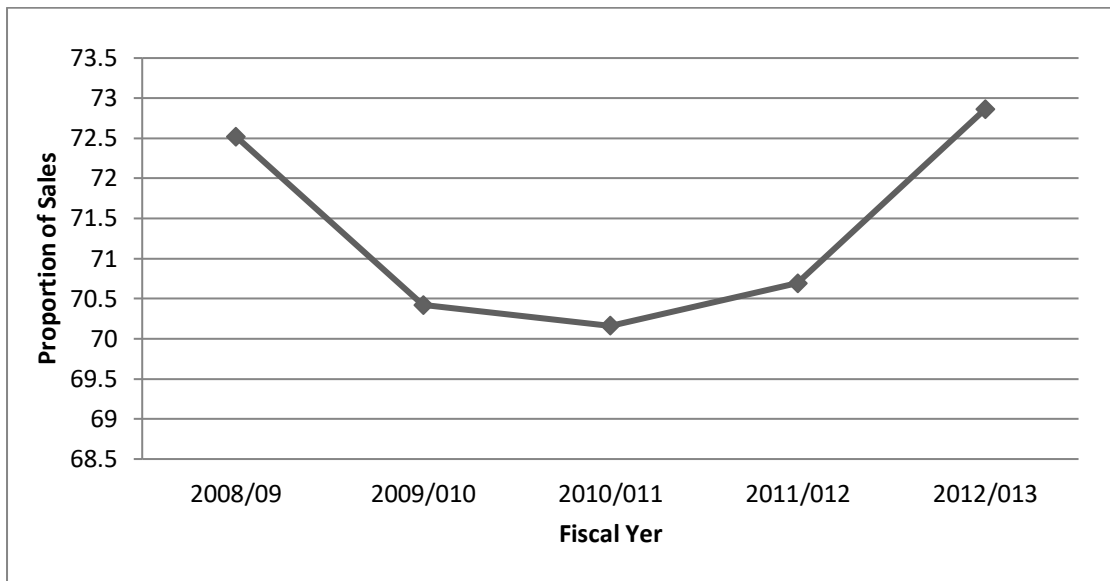


Figure 4.5 show that the proportion of sales on total production, the sales is more than 70% of total production in each fiscal year. The highest sale is 72.86% in the fiscal year 2012/013 and that of lowest is 70.16% in the fiscal year 2010/011. The sales proportion of NEA is not effective it decrease the sales revenue.

Table: 4.8

Statistical Analysis of Actual Production & Sales

(Unit in GWH)

Description	Average	SD	CV %	Correlation
Production	3612.33	448.40	12.41	0.9910
Sales	2577.75	336.09	13.04	
Sales %	71.33	1.26	1.77	

Source: Appendix VIII

The sales percentage, production and actual sales unit data have been tabulated in table 4.8 by using different statistical tools with a view to analyzing this figure. The Table 4.8 shows that the average production and sales units of NEA are 3612.33 & 2577.75 similarly proportion of sales on total production unit

during the five year study period is 71.33%. The standard deviation of production & sales unit are 448.40 & 336.09 unit similarly, the coefficient of variation are 12.41% & 13.04% these figures shows high fluctuation in sales unit rather than production unit. The results of correlation coefficient satisfy the NEA performance there is positive correlation of 0.9910 between production and sales unit of NEA. It shows that if production is increase the sale is also increase and vice-versa.

4.4 Cost of Sales Budget/Plan of NEA

Cost of sales is the caption commonly used on a manufacturer's or retailer's income statement instead of the caption cost of goods sold or cost of products sold. The cost of sales for a manufacturer is the cost of finished goods in its beginning inventory plus the cost of goods manufactured minus the cost of finished goods in ending inventory. The cost of sales for a retailer is the cost of merchandise in its beginning inventory plus the net cost of merchandise purchased minus the cost of merchandise in its ending inventory. The cost of sales does not include selling expenses or general and administrative expenses.

COGS is the costs that go into creating the products that a company sells; therefore, the only costs included in the measure are those that are directly tied to the production of the products. For example, the COGS for an automaker would include the material costs for the parts that go into making the car along with the labor costs used to put the car together. The cost of sending the cars to dealerships and the cost of the labor used to sell the car would be excluded. The exact costs included in the COGS calculation will differ from one type of business to another. The costs of goods attributed to a company's products are expensed as the company sells these goods. There are several ways to calculate COGS but one of the more basic ways is to start with the beginning inventory for the period and add the total amount of purchases made during the period then deducting the ending inventory.

Table: 4.9
Cost of Sales of NEA

		'Rs. in Million'					
Items	Description	2008/09	2009/10	2010/11	2011/12	2012/13	
Generation	Budgeted	1023.56	1121.82	1823.22	1045.26	1756.61	
	Actual	979.76	1119.71	1541.27	929.56	1147.69	
	Variance	Rs.	43.8	2.11	281.95	115.7	608.92
		Result	F	F	F	F	F
Power Purchases	Budgeted	6798.98	8423.09	9078.76	10956.81	11731.64	
	Actual	7437.04	7691.28	9746.57	10493.74	11948.41	
	Variance	Rs.	-638.06	731.81	-667.81	463.07	-216.77
		Result	U	F	U	F	U
Royalty	Budgeted	937.78	811.7	888.08	855.02	936.30	
	Actual	839.18	796.12	849.77	854.76	941.60	
	Variance	Rs.	98.6	15.58	38.31	0.26	-5.3
		Result	F	F	F	F	U
Transmission	Budgeted	345.98	318.84	345.16	381.91	459.38	
	Actual	274.85	328.16	337.73	345.96	421.38	
	Variance	Rs.	71.13	-9.32	7.43	35.95	38
		Result	F	U	F	F	F
Total Cost of Sale	Budgeted	9106.3	10675.45	12135.22	13239	14883.93	
	Actual	9530.83	9935.27	12475.34	12624.02	14459.08	
	Variance	Rs.	-424.53	740.18	-340.12	614.98	424.85
		Result	U	F	U	F	F

Source: Annual reports of NEA from the fiscal year 2008/09 to 2012/013

Table 4.9 show that the cost of sales plan of NEA, the cost of sales of NEA includes the generation cost, power purchases cost, royalty and transmission cost. NEA is practice to make plan for each item of cost.

The budgeted generation cost of NEA is increases each year than previous year except the fiscal year 2011/012 but the actual generation cost is fluctuation each year. There is low deviation between actual and budgeted generation cost

and the variances are favorable each year during the study period it means the actual cost is low than the budgeted cost.

The actual and budgeted power purchases costs are increases each year during the study period and the deviation is high. There is unfavorable variance between actual and budgeted power purchases cost in the fiscal year 2008/09, 2010/011 & 2012/013 it means the actual cost is high than the budgeted cost.

The actual royalty cost of NEA is increases each year than previous year except the fiscal year 2009/010 but the budgeted royalty cost is fluctuation each year. There is low deviation between actual and budgeted royalty cost and the variances are favorable each year except the fiscal year 2012/013 it means the actual cost is high than the budgeted cost in the fiscal year 2012/013 and in the other fiscal year the actual cost is low than budgeted cost.

The budgeted and actual transmission costs are very much related there is very low deviation between actual and budgeted transmission cost. The transmission cost variances are positive except the fiscal year 2009/010.

Figure: 4.6

Total Cost of Sales of NEA (Unit)

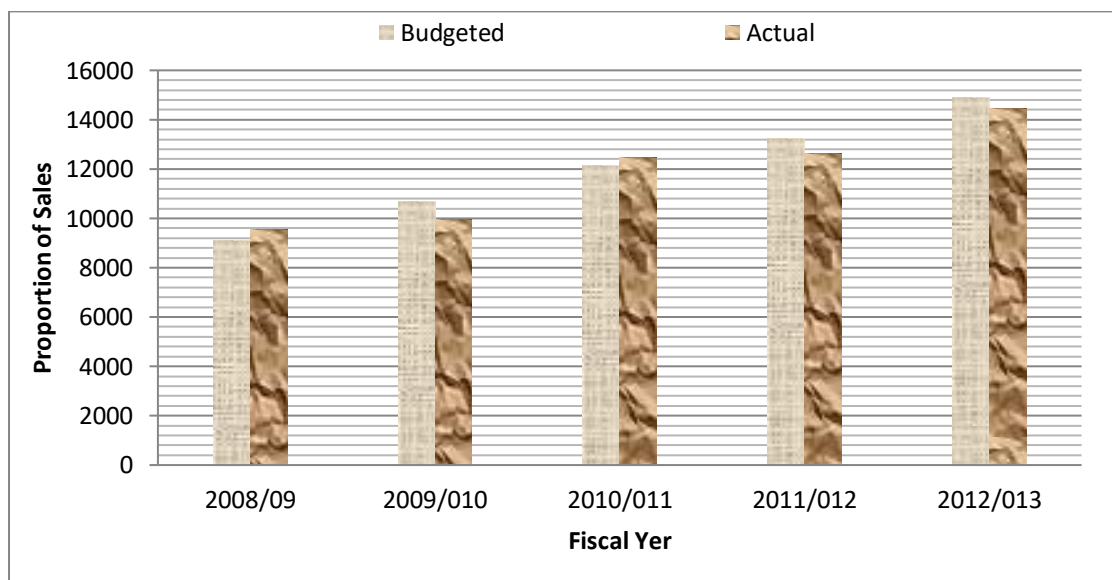


Figure 4.6 shows the budgeted and actual cost of sales of NEA, both budgeted and actual cost are increases each year during the study period. The budgeted cost is Rs. 9106.3 million in the fiscal year 2008/09 and increase to Rs. 14459.08 million in the fiscal year 2012/013 similarly the actual cost of sales is Rs. 9530.48 million in the fiscal year 2008/09 and increase to Rs. 14459.08 million in the fiscal year 2012/013. The variances between actual and budgeted cost of sales of NEA are unfavorable in the fiscal year 2008/09 & 2010/011 and positive in the other fiscal year. From this analysis in is conclude that there is less deviation between actual and budgeted cost of sales and in the fiscal year 2008/09 & 2010/011 the actual cost of sales is higher than budgeted cost and other fiscal the actual cost is less than budgeted cost.

Table: 4.10

Statistical Analysis of Cost of Sales of NEA

(Rs. In Million)

Description	Average	SD	CV %	Correlation
Budgeted	12007.98	2235.96	18.62	0.9711
Actual	11804.91	2051.34	17.38	

Source: Appendix IX

The Table 4.10 shows that the average budgeted and actual cost of sales of NEA is Rs. 12007.98 & Rs. 11804.91 million. The standard deviations of cost of sales of NEA are RS. 2235.96 & Rs. 2051.34 million similarly, the coefficients of variation are 18.62% & 17.38% these figures shows high fluctuation in budgeted cost rather than actual cost. The result of correlation coefficient is positive correlation of 0.9711 between actual and budgeted cost of sales of NEA. It shows that if budgeted cost is increase the actual cost is also increase and vice-versa.

4.5 Operating Expenses Plan of NEA

An expense incurred in carrying out an organization's day-to-day activities but not directly associate with production is called operating expense. Operating

expense includes such things as payroll, sales commission, employee benefits and pension contribution, transportation and travel, amortization and depreciation, rent, repair and taxes. The expenses are usually subdivided into selling expenses, administrative expenses and general expenses. Also called a non manufacturing expenses

Table: 4.11
Operating Expenses of NEA

		'Rs. in Million'					
Items	Description	2008/09	2009/10	2010/11	2011/12	2012/13	
Distribution Expenses	Budgeted	2244.1	2436.91	2867.58	2888.05	3670.68	
	Actual	2110.01	2575.09	3091.21	3004.18	3685.15	
	Variance	Rs.	134.09	-138.18	-223.63	-116.13	-14.47
		Result	F	U	U	U	U
Administration Expenses	Budgeted	798.91	730.43	797.98	783.56	1009.38	
	Actual	683.98	651.69	789.52	866.74	973.38	
	Variance	Rs.	114.93	78.74	8.46	-83.18	36
		Result	F	F	F	U	F
Depreciation Expenses	Budgeted	1798.45	2231.4	2498.26	2960.98	3105	
	Actual	1895.17	2361.2	2902.92	3031.33	3175.8	
	Variance	Rs.	-96.72	-129.8	-404.66	-70.35	-70.8
		Result	U	U	U	U	U
Other Operating Expenses	Budgeted	98.78	110	150	150	-	
	Actual	108.51	96.68	112.35	323.68	-	
	Variance	Rs.	-9.73	13.32	37.65	-173.68	-
		Result	U	F	F	U	-
Total Operating Expenses	Budgeted	4940.24	5508.74	6313.82	6782.59	7785.06	
	Actual	4797.67	5684.66	6896	7225.93	7834.33	
	Variance	Rs.	142.57	-175.92	-582.18	-443.34	-49.27
		Result	F	U	U	U	U

Source: Annual reports of NEA from the fiscal year 2008/09 to 2012/013

Table 4.9 shows that the operating expenses plan of NEA, the operating expenses of NEA includes distribution expenses, administrative expenses, depreciation expenses and other operating expenses. NEA is practice to make plan for each item of operating cost and each fiscal year the distribution expenses is high than other expenses.

The budgeted & actual distribution expenses of NEA are increases each year than previous year. There is deviation between actual and budgeted distribution expenses and the variances are negative & unfavorable each year except the fiscal year 2008/09 it means the actual distribution expenses is high than the budgeted expenses and distribution expenses plan is not effective.

The actual and budgeted administrative expenses are fluctuating each year during the study period. There is favorable variance between actual and budgeted administrative expenses except the fiscal year 011/012 it means the actual administrative expenses is low than the budgeted administrative expenses except the fiscal year 2011/012. From the above analysis it is clear that the administrative expenses plan is effective in NEA.

Depreciation expenses are the second major components of operating expenses in NEA. The actual and budgeted depreciation expenses of NEA are increases each year than previous year during the study period. There is low deviation between actual and budgeted depreciation expenses compare to other cost but the variances are unfavorable in each fiscal year, it means the actual depreciation expenses is high than the budgeted depreciation expenses.

Figure: 4.7
Operating Expenses of NEA

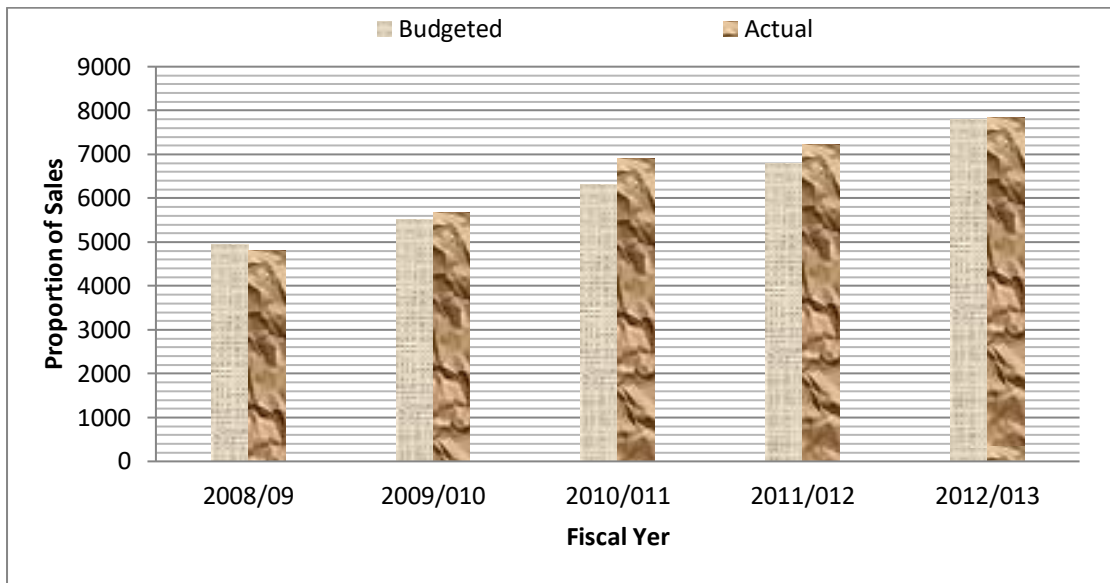


Figure 4.7 shows the budgeted and actual operating cost of NEA, both budgeted and actual cost are increases each year during the study period. The budgeted operating cost is Rs. 4940.24 million in the fiscal year 2008/09 and increase to Rs. 7785.06 million in the fiscal year 2012/013 similarly the actual operating cost is Rs. 4797.67 million in the fiscal year 2008/09 and increase to Rs. 7834.33 million in the fiscal year 2012/013. The variances between actual and budgeted cost of sales of NEA are negative & unfavorable except the fiscal year 2008/09. From this analysis in is conclude that there is deviation between actual and budgeted operating cost and the actual operating cost is higher than budgeted cost except the fiscal year 2008/09. The total operating cost plan is not effective in NEA

Table: 4.12
Statistical Analysis of Operating Expenses of NEA
(Rs. In Million)

Description	Average	SD	CV %	Correlation
Budgeted	6266.09	1107.68	17.68	0.9737
Actual	6487.72	1227.41	18.92	

Source: Appendix X

The Table 4.12 shows that the average budgeted and actual operating costs of NEA are Rs. 6266.09 & Rs. 6487.72 million. The standard deviations of operating cost of NEA are RS. 1107.68 & Rs. 1227.41 million similarly, the coefficients of variation are 17.68% & 18.92% these figures shows high fluctuation in actual operating cost rather than budgeted operating cost. The result of correlation coefficient is positive correlation of 0.9737 between actual and budgeted operating cost of NEA. It shows that if budgeted cost is increase the actual cost is also increase and vice-versa.

4.6 Operating Profit Plan of NEA

The profit earned from a firm's normal core business operations. This value does not include any profit earned from the firm's investments (such as earnings from firms in which the company has partial interest) and the effects of interest and taxes. Also known as "earnings before interest and tax or operating income calculated as;

Operating Profit = Operating Revenue - COGS - Operating Expenses - Depreciation & Amortization.

Table: 4.13
Operating Profit of NEA

Fiscal Year	Actual	Budgeted	Variance	
			Rs.	Result
2008/09	1647.55	3040.81	-1393.26	U
2009/010	387.67	28.46	359.21	F
2010/011	-1018.47	262.31	-1280.78	U
2011/012	-520.19	-828.21	308.02	F
2012/023	-509.35	-1240.12	730.77	F

Source: Annual reports of NEA from the fiscal year 2008/09 to 2012/013

Figure: 4.8
Operating Profit of NEA

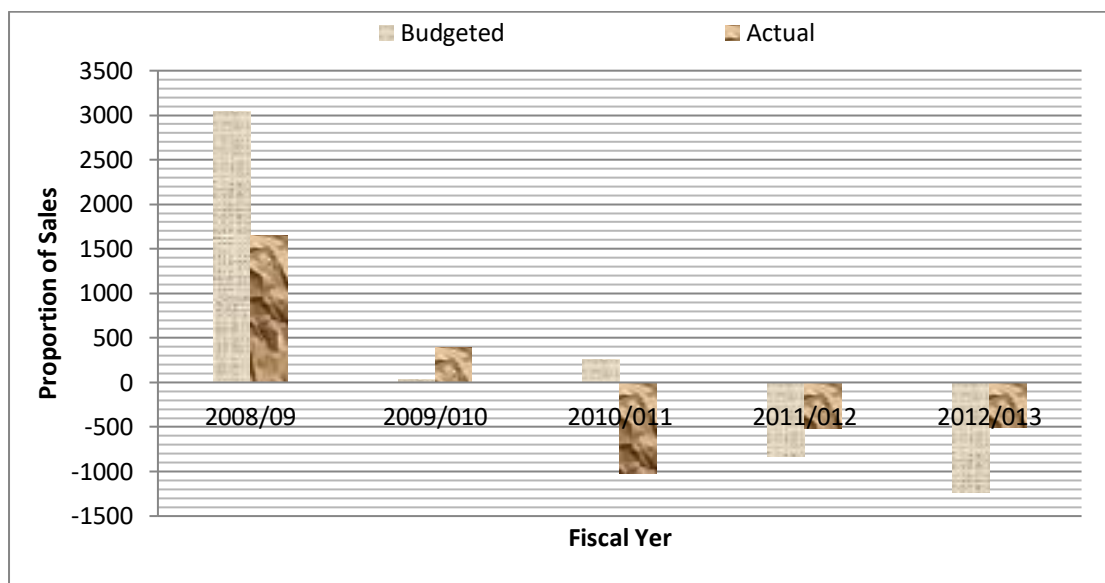


Figure 4.8 shows the budgeted and actual operating profit of NEA, both budgeted and actual operating profit/loss is fluctuating each year during the study period. NEA has Rs. 1647.55 million operating profit in the fiscal year 2008/09 but at the end of fiscal year 1012/013 it has Rs.509.35 million operating loss. There is high deviation between actual and budgeted operating profit/loss data the variances between actual and budgeted operating profit/loss of NEA are negative & in the fiscal year 2008/09 & 2010/011. From this analysis in is conclude that there is high deviation between actual and budgeted operating profit/loss and the actual operating cost is higher than budgeted cost in the fiscal year 2008/09 & 2010/011. The operating profit/loss plan of NEA is not effective.

Table: 4.14
Statistical Analysis of Operating Profit of NEA

(Rs. In Million)				
Description	Average	SD	CV %	Correlation
Budgeted	-2.56	1052.61	41149.92	0.8252
Actual	252.65	1674.87	662.92	

Source: Appendix XI

The Table 4.14 shows that the average budgeted and actual operating profits/losses of NEA are Rs. -2.56 million & Rs. 252.65 million. The standard deviations of operating profit/loss of NEA are RS. 1052.61 & Rs. 1674.87, these figures show high fluctuation in actual operating profit/loss rather than budgeted operating profit/loss. The result of correlation coefficient is positive correlation of 0.8252 between actual and budgeted operating profit/loss of NEA. It shows that if budgeted operating profit/loss is increase the actual operating profit/loss is also increase and vice-versa.

4.7 Net Profit/loss Plan of NEA

Net profit often referred to as the bottom line, net profit is calculated by subtracting a company's total expenses from total revenue, thus showing what the company has earned (or lost) in a given period of time (usually one year) also called net income or net earnings. Net loss is the result that occurs when expenses exceed the income or total revenue produced for a given period of time.

Table: 4.15
Net Profit/loss of NEA

(Rs. In Million)

Fiscal Year	Actual	Budgeted	Variances	
			Rs.	Result
2008/09	-2524.92	-2845.64	320.72	F
2009/010	-5027.84	-4681.24	-346.6	U
2010/011	-6961.82	-5350.92	-1610.9	U
2011/012	-6089.22	-6511.65	422.43	F
2012/023	-9947.88	-8550.76	-1397.12	U

Source: Annual reports of NEA from the fiscal year 2008/09 to 2012/013

Figure: 4.9
Net Profit/Loss of NEA

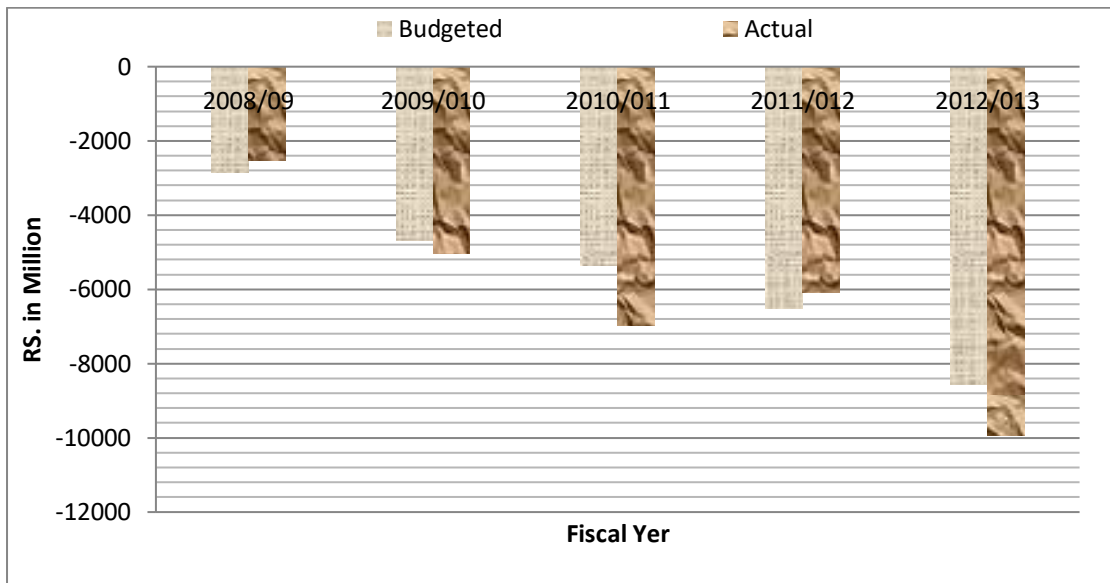


Figure 4.9 shows the budgeted and actual net profit/loss of NEA, both budgeted and actual net profit/loss is increases each year during the study period. NEA has Rs. 2524.92 million net losses in the fiscal year 2008/09 but at the end of fiscal year 1012/013 it is increase to Rs.9947.92 million. There is high deviation between actual and budgeted net profit/loss data the variances between actual and budgeted net profit/loss of NEA are negative & unfavorable in the fiscal year 2009/010, 2010/011 & 2012/013. From this analysis in is conclude that there is high deviation between actual and budgeted net profit/loss and the actual operating cost is higher than budgeted cost in the fiscal year 2009/010, 2010/011 & 2012/013. The net profit/loss plan of NEA is not effective and NEA has suffering from heavy loss during the study period.

Table: 4.16
Statistical Analysis of Net Profit of NEA

(Rs. In Million)				
Description	Average	SD	CV %	Correlation
Budgeted	-6110.34	2714.74	44.43	0.9526
Actual	-5588.04	2123.09	37.99	

Source: Appendix XII

The budgeted and actual net profit /loss data have been tabulated in table 4.16 by using different statistical tools. The Table 4.16 shows that the budgeted & actual average net losses of NEA are Rs. 6110.34 & Rs. 5588.04 million. The standard deviation of net losses are Rs. 2714.74 & Rs. 2123.09 million similarly, the coefficient of variation are 44.43% & 37.99% these figures shows high fluctuation in budgeted net loss rather than actual net losses. The results of correlation are positive correlation of 0.9526 between budgeted & actual net profit and loss of NEA. It shows that if budgeted loss is increase the actual loss is also increase and vice-versa.

4.8 Plan for Number of Consumers of NEA

A consumer is a person or group of people, such as a household, who are the final users of products or services. The consumer's use is final in the sense that the product is usually not improved by the use. The consumer is the one who pays to consume the goods and services produced. As such, consumers play a vital role in the economic system of a nation. In the absence of effective consumer demand, producers would lack one of the key motivations to produce

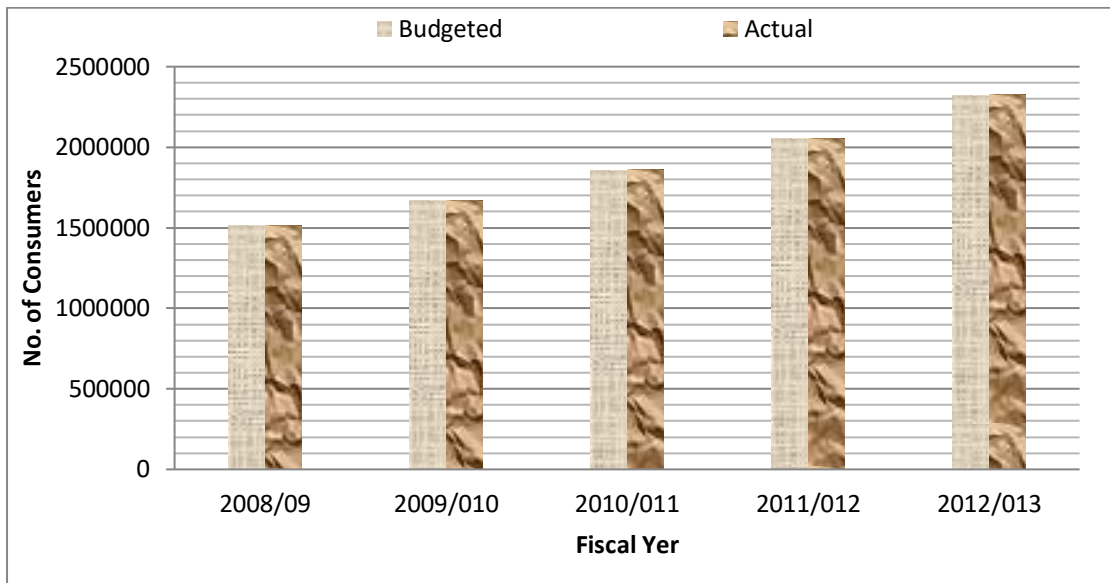
Table: 4.17

Number of Consumers of NEA

Fiscal Year	Actual	Budgeted	Achievement %
2008/09	1516883	1511985	100.32
2009/010	1670610	1670610	100.00
2010/011	1864067	1854275	100.53
2011/012	2056155	2053259	100.14
2012/013	2324414	2320409	100.17

Source: Annual reports of NEA from the fiscal year 2008/09 to 2012/013

Figure: 4.10
Net Profit/Loss of NEA



From the analysis of table 4.17 & figure 4.10, it is clearly seen that the budgeted and actual number of consumers of organization are not fluctuated. In the all fiscal year targets are achieved more than 100%. The achievement level is high and satisfactory and the plan for consumers is very much effective.

4.9 Regression Analysis

The regression line have been developed to show the degree of relationship between budgeted and actual data and to estimate further figure of concern variables. The regression line of different variables and actual figures for 2070/71 are calculated as follows.

Table: 4.18
Regression Analysis of Different Variables

Variables	Unit/Rs.	Budgeted Data for 2013/14 (X)	Regression Line	Actual Data for 2013/14
Sales	Rs.	24599.47	$Y = -4507.36 + 1.23X$	25749.99
Sales	GWH	3161.39	$Y = -160.21 + 1.05X$	3159.25
Production	GWH	4260.45	$Y = 6.27 + 0.99X$	4224.12
Cost of Sales	Rs.	16299.1	$Y = 1106.79 + 0.89X$	15612.99
Operating Cost	Rs.	8771.86	$Y = -273.07 + 1.08X$	9200.54
Operating Profit/Loss	Rs.	1137.12	$Y = 256.13 + 1.31X$	1745.76
Net Profit/Loss	Rs.	-4515.48	$Y = -821.97 + 0.78X$	-4343.86

Source: Appendix V, VI, VII, IX, X, XI, XII & XIII

Where,

Y = dependent variable i.e. actual figures

X = Independent variable i.e. budgeted figures

A line of regression is the line, which gives the best estimate to the value of one variable for any specified value of the other variable. Thus the line of regression is the line of best fit. The line which gives the best estimates for the values of y for any specified value of x is given. From the table 4.18 estimation, it is seen that the actual sales of NEA in the fiscal year 2013/014 will be Rs. 25749.99 million, cost of sales Rs. 15612.99 million, operating cost Rs. 9200.54 million, operating profit Rs. 1745.76 million, net loss Rs. 4343.86 million, total production 4260.45 GWH & total sales will be 3159.25 GWH.

4.10 Cost – Volume - Profit Analysis

Cost value profit analysis including both contribution analysis and break even analysis. Contribution analysis involves a series of analytical technique used to determine and evaluate the effects on profit of changes sales volume, sales price, fixed cost and variable cost. Break even analysis emphasizes the level of

output or productive activity at which sales revenue exactly equals with total cost that there is no profit and loss. Cost volume profit analysis is the most useful for management decision making. Specially break even analysis is the term to study the relationship between cost volume and profit at various level of activity.

Table: 4.19
Contribution Margin Analysis

'Rs. in Million'			
Fiscal Year	Total Revenue	Variable Cost	Contribution Margin
2008/09	15976.05	11100.58	4875.47
2009/010	16007.6	12621.26	3386.34
2010/011	18352.87	15188.81	3164.06
2011/012	19329.76	15251.39	4078.37
2012/013	21784.06	19039.16	2744.9

Source: Source: Annual reports of NEA & Appendix IV

Figure: 4.11
Trend of Contribution Margin

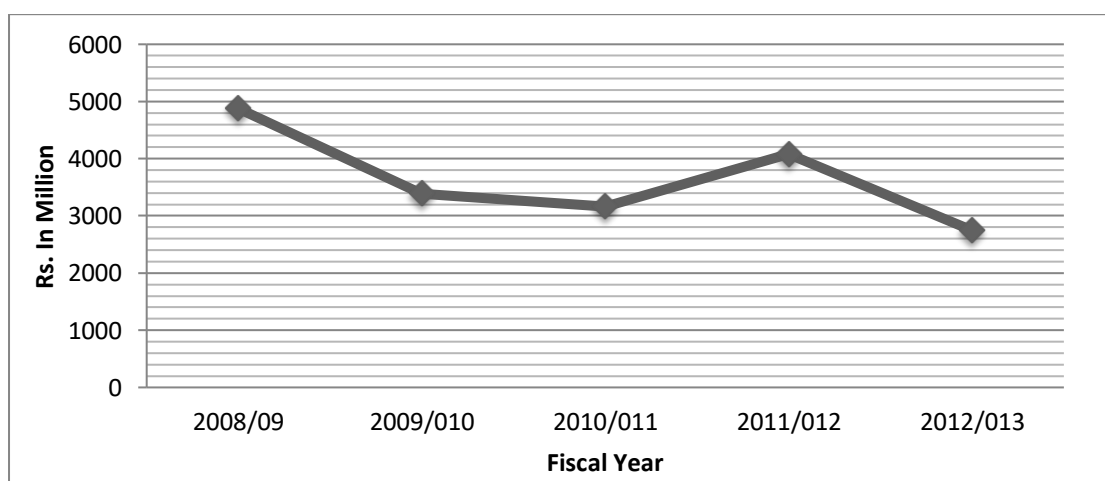


Table 4.19 & figure 4.11 shows that the contribution margin of NEA during the study period. CM is regarded as the excess of income price of a unit of output over its VC. It also can be defined as the excess of income amount over VC.

Contribution margin of NEA is decreases each year than previous year except the fiscal year 2011/012. The highest CM is Rs.4875.47 million in the fiscal year 2008/09 and that of lowest is Rs. 2744.9 million in the fiscal year 2012/013.

Table: 4.20

Profit Volume (P/V) Ratio Analysis

‘Rs. in Million’

Fiscal Year	Total Revenue	Contribution Margin	P/V Ratio
2008/09	15976.05	4875.47	0.3052
2009/010	16007.6	3386.34	0.2115
2010/011	18352.87	3164.06	0.1724
2011/012	19329.76	4078.37	0.2110
2012/013	21784.06	2744.9	0.1260

Source: Source: Annual reports of NEA & Appendix IV

Figure: 4.12

Trend of P/V Ratio

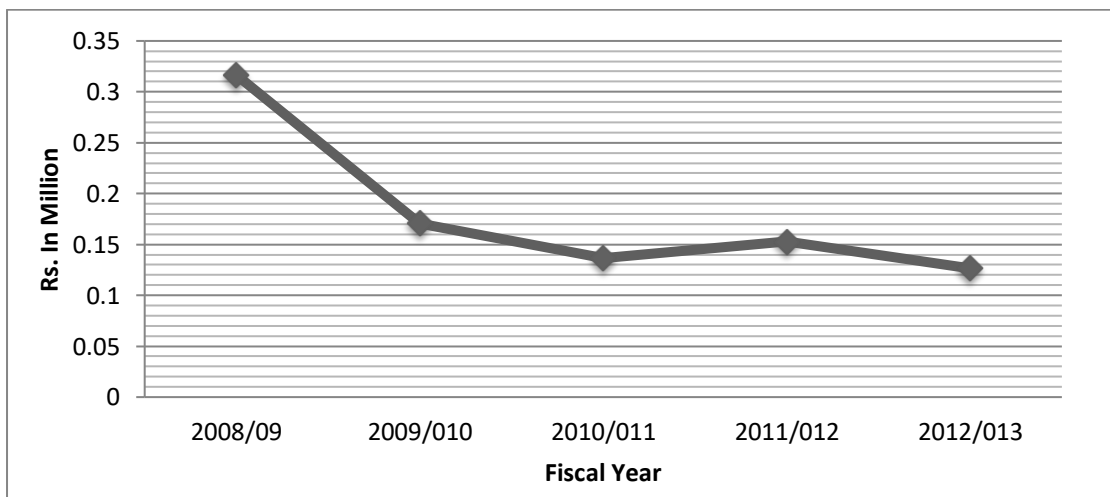


Table 4.20 & figure 4.12 shows that the P/V ratio of NEA during the study period. P/V Ratio is also known as CM Ratio. It is important tool in studying profitability index. P/V ratio of NEA is decreases each year than previous year except the fiscal year 2011/012. The highest P/V ratio is 0.3052 in the fiscal year 2008/09 and that of lowest is 0.1260 in the fiscal year 2012/013.

Table: 4.21
Break Even Point Analysis

Fiscal Year	Fixed Cost	P/V Ratio	‘Rs. in Million’	
			BEP Sales	Total Revenue
2008/09	7400.39	0.3052	24247.67	15976.05
2009/010	8414.17	0.2115	39783.31	16007.6
2010/011	10125.88	0.1724	58734.8	18352.87
2011/012	10167.59	0.2110	48187.63	19329.76
2012/013	12692.78	0.1260	100736.3	21784.06

Source: Source: Annual reports of NEA & Appendix IV

Figure: 4.13
Trend of BE Sales

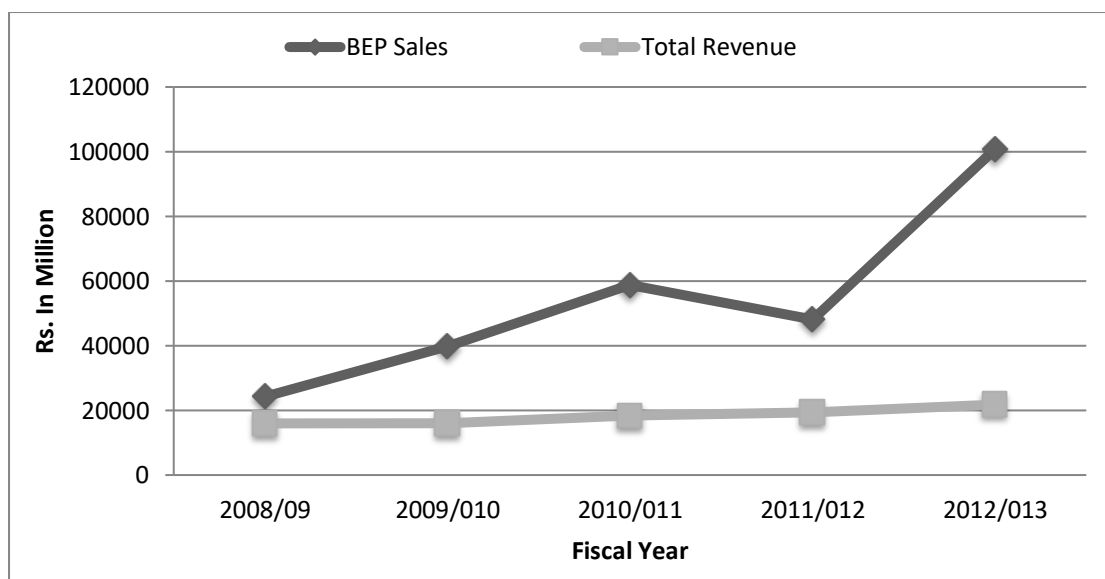


Table 4.21 & figure 4.13 shows that the BEP sales & total sales of NEA during the study period. The break even point is the level of activity where total cost equals with total revenue. If the sale is higher then break even volume there will be profit and if sales are less then break even sales, there will be loss. In case of NEA it is seen that NEA is operating below BEP since BFP sales is less than actual sales during the study period. This means that the sales revenue has not covered even total cost during this fiscal year.

Table: 4.22

Margin of Safety Analysis

			'Rs. in Million'
Fiscal Year	Total Revenue	BE Sales	Margin of Safety
2008/09	15976.05	24247.67	-8271.62
2009/010	16007.6	39783.31	-23775.7
2010/011	18352.87	58734.8	-40381.9
2011/012	19329.76	48187.63	-28857.9
2012/013	21784.06	100736.3	-78952.2

Source: Source: Annual reports of NEA & Appendix IV

Figure: 4.14

Trend of Margin of Safety

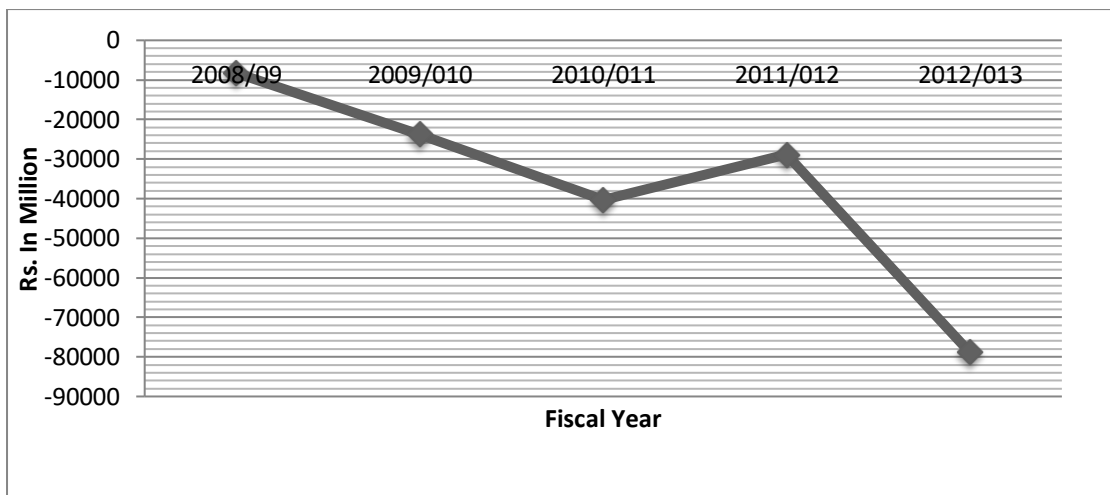


Table 4.22 & figure 4.14 shows that the MOS of NEA during the study period. MOS is the excess of income over the break even income volume. It is the difference between the actual income revenue and the break-even income revenue. NEA has the negative margin of safety in each fiscal year during the study period.

4.11 Major Findings of the Study

- All the fiscal year sales targets are achieved up to only 92% level still the achievement level have been increased to 100.05% in the year 2012/013.
- The average budgeted and actual sales of NEA are Rs. 17426.45 & Rs. 16929.48 and the achievement of sales during the five year study period is 96.92%. There is positive correlation of 0.9922 between budgeted and actual sales of NEA.
- All the fiscal year sales unit targets are achieved up to 95% level still the achievement level have been increased to 100.09% in the year 2012/2013.
- The average budgeted and actual sales units of NEA are 2610.38 GWH & 2577.75 GWH and the achievement of sales unit during the five year study period is 98.68%. There is positive correlation of 0.9978 between budgeted and actual sales unit of NEA.
- The average budgeted and actual production units of NEA are 3608.51GWH & 3612.33 GWH and the achievement of production unit during the five year study period is 100.11%. There is positive relationship between budgeted and actual production.
- The actual sale is more than 70% of total production in each fiscal year. The average production and sales units of NEA are 3612.33 GWH & 2577.75 GWH similarly and the proportion of sales on total production unit during the five year study period is 71.33%.
- The average budgeted and actual costs of sales of NEA are Rs. 12007.98 & Rs. 11804.91 million and the coefficients of variation are 18.62% & 17.38% these figures shows high fluctuation in budgeted cost rather than actual cost.
- The average budgeted and actual operating costs of NEA are Rs. 6266.09 & Rs. 6487.72 million and the coefficients of variation are

17.68% & 18.92% these figures shows high fluctuation in actual operating cost rather than budgeted operating cost.

- The average budgeted and actual operating profits/losses of NEA are Rs. -2.56 million & Rs. 252.65 million. The result of correlation coefficient is positive correlation of 0.8252 between actual and budgeted operating profit/loss of NEA.
- The budgeted & actual average net losses of NEA are Rs. 6110.34 & Rs. 5588.04 million and the coefficient of variation are 44.43% & 37.99% these figures shows high fluctuation in budgeted net loss rather than actual net losses.
- The budgeted and actual numbers of consumers of organization are not fluctuated. In the all fiscal year targets are achieved more than 100%.
- From the regression analysis, it is seen that the actual sales of NEA in the fiscal year 2013/014 will be Rs. 25749.99 million, cost of sales Rs. 15612.99 million, operating cost Rs. 9200.54 million, operating profit Rs. 1745.76 million, net loss Rs. 4343.86 million, total production 4260.45 GWH & total sales will be 3159.25 GWH.
- It is found that NEA is operating below BEP since BFP sales is less than actual sales during the study period and NEA has the negative margin of safety in each fiscal year during the study period.

CHAPTER – V

SUMMARY, CONCLUSION & RECOMMENDATIONS

This is the final chapter of this research study, which has been divided into summary, conclusion and recommendations. In this chapter, the researcher examine the processed data to come into new concluding upon the PPC analysis of NEA. It also aims to give forth some suggestion that must be helpful for further enhancement of the operation of NEA.

5.1 Summary

Every business organization set up with certain objective of providing services to people and earns profit as income whether that is productive or non-productive. But it is not a joke to fulfill that objective easily in this competitive world of business. As globalization take place it became tougher to sustain in market. So, they not only just try and see the result also do hard work and provide many facilities to secure from loss. Hence they need to think about future course of action in such a way so hat they can accomplish their business objectives. In order to make profit it is necessary to check business capacity, activities, utilization of resources and if there is any part to reduce cast because little reduction in expenses can make profit in income. Hence, budgeting tools helps to assist in analyzing the situation. Therefore, budgeting & controlling is important to survive & lead the company successfully. Organization cannot achieve its goal without proper planning and implementation.

Nepal still belongs to the groups of the least development country. Due to recession, the economic growth is not increasing. Political instability, strikes, bandas, shortage of fuel, food, raw material, insecurity of public, higher rate of transportation, power cut of electricity, labor hike, higher rate of wages etc largely impact negatively in the development of industries.

Budgeting is the planning of activities in such way that it helps in increasing the income at a minimum possible cost or at optimum cost. Budgeting can be used an effective remedy for the organization running in loss and maintain same or high level profit. It is combination of various financial and physical techniques, which not only helps on increasing profit but also to reduce unnecessary cost and utilize the expenses in the best manner. This study aims at examining the application of profit planning in NEA.

This study has tried to cover the various aspects of profit planning in NEA from the time of fiscal year 2008/09 to the end of fiscal year 2012/013. In the first introductory chapter, this study has tried to give brief introduction, brief profile of NEA, statement of the problem, objective of the study , limitation of the study, significance of the study and organization of the study. During the research works an extensive review of various literatures, books, past thesis, journals have been made and internet materials from relevant websites were also consulted. The work was compiled into “review of literature” chapter. Research methodology followed for this research work is mentioned in the chapter three entitled as “Research Methodology”. Likewise, Data relating to various activities of the NEA has been collected, presented in tabular and various diagram form and are tired to be interpreted in the study report in logical ways. Data are then analyzed applying various financial, mathematical and statistical tools have been listed in a systematic manner. All these works are compiled in the fourth chapter titled as “Data Presentation and Analysis” of the study. Finally, the summary, conclusions and the recommendation are made for this study is hereby being presented in this chapter five titled as “Summary, Conclusion and Recommendation”.

5.2 Conclusion

Different types of budgeting tools, which are used in the academic field and in multinational companies of developed nation are not applied by NEA. NEA has

not segregating cost into fixed and variable. Segregation of cost into fixed and variable is the fundamentals of budgeting analysis. The company did not adopt the cost control programme. The accumulation and apportion of cost on the basis of cost center is not done by the company. Therefore, NEA has not been able to use budgeting properly.

Sales revenue of NEA is increasing in fluctuating trend. NEA is not producing sufficient electricity. Profit pattern of the company shows that the company is ineffective in the profit planning. The cost structure of NEA discloses variable cost and fixed cost which indicates the risk due to high variable cost CVP analysis shows that the contribution margin did not cover the fixed cost. BEP of the company is greater than actual sales due to low PV ratio. The business of the company is in high operating risk due to higher break-even sales.

The plans are prepared from top level and later it is communicated to the lower level. There is lack of authorities to formulate various plans in lower level management. Company has not analyzed its strengths and weaknesses. NEA has not able to utilized its capacity in optimum level, very high cost on large projects are another problem of NEA. Most of the public enterprises created financial burden to the government. To run NEA properly controlling of cost and participative management are essential. NEA has practice to make planning for each activity like sales, production, cost of sales, operating profit, net profit but the overall profit planning activities are not more effective.

5.3 Recommendations

On the basis of above study, the following recommendation seems to be fruitful to the management of NEA.

- NEA has not practiced CVP analysis. So it is suggested that NEA should practice CVP analysis and cost volume profit relationship should be considered while formulating profit plan.
- Classification of cost into variable and fixed as well as controllable and non-controllable must be made within specific framework of responsibility center and time.
- Cost plan of NEA are not systematically maintained. Separate cost control department need to be established to control cost.
- Sales revenue of NEA is in increasing trend but it is not sufficient to cover the cost and earn profit.
- Price rising is not only one alternative to increase sales revenue controlling is necessary to decrease the wasteful expenses. NEA should adopt the controlling tools.
- Budgeting manuals should be communicated from top to lower levels. All personnel should be participated on decision making and planning process.
- Systematic and periodicals performance reports should be strictly followed to trace poor performance and take corrective action immediately and timely.
- NEA should reduce variable cost and fixed cost as well as increase sales revenue to generate profit. This also helps in reducing break-even sales.

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Appendix I

Actual Figures of NEA from the fiscal year 2008 to 2012

‘Rs. In Million’

Particular	2012	2011	2010	2009	2008
Sales (A)	20088.64	17946.82	17164.6	14405.93	15041.39
Cost of Sales:					
Generation	1147.69	929.56	1541.27	1119.71	979.76
Power Purchases	11948.41	10493.74	9746.57	7691.28	7437.04
Royalty	941.6	854.76	849.77	796.12	839.18
Transmission	421.38	345.96	337.73	328.16	274.85
Total Cost of Sales (B)	14459.08	12624.02	12475.34	9935.27	9530.83
Gross Profit (C=A-B)	5629.56	5322.8	4689.26	4470.66	5510.56
Operating Expenses:					
Distribution Expenses	3685.15	3004.18	3091.21	2575.09	2110.01
Administrative Expenses	973.38	866.74	789.52	651.69	683.98
Depreciation Expenses	3175.8	3031.33	2902.92	2361.2	1895.17
Other operating Expenses	0	323.68	112.35	96.68	108.51
Total Operating Expenses (D)	7834.33	7225.93	6896	5684.66	4797.67
Income From Other Service (E)	1695.42	1382.94	1188.27	1601.67	934.66
Operating Profit (F=C-D+E)	-509.35	-520.19	-1018.47	387.67	1647.55
Net Profit/Loss After Tax	-9947.88	-6089.22	-6961.82	-5027.84	-2524.92

Appendix II

Actual Revenue, Expenses & Profit/Loss of NEA

‘Rs. In Million’

Particulars	2012	2011	2010	2009	2008
Sales (A)	20088.64	17946.82	17164.6	14405.93	15041.39
Income From Other Service (B)	1695.42	1382.94	1188.27	1601.67	934.66
Total Revenue (C=A+B)	21784.06	19329.76	18352.87	16007.6	15976.05
Total Expenses (D)	31731.94	25418.98	25314.69	21035.44	18500.97
Net Profit/Loss After Tax (C-D)	-9947.88	-6089.22	-6961.82	-5027.84	-2524.92

Appendix III

Budgeted Figures of NEA from the fiscal year 2008 to 2012

‘Rs. In Million’

Particular	2012	2011	2010	2009	2008
Sales (A)	20079.13	18003.8	17586.91	15220.87	16241.56
Cost of Sales:					
Generation	1756.61	1045.26	1823.22	1121.82	1023.56
Power Purchases	11731.64	10956.81	9078.76	8423.09	6798.98
Royalty	936.3	855.02	888.08	811.7	937.78
Transmission	459.38	381.91	345.16	318.84	345.98
Total Cost of Sales (B)	14883.93	13239	12135.22	10675.45	9106.3
Gross Profit (C=A-B)	5195.2	4764.8	5451.69	4545.42	7135.26
Operating Expenses:					
Distribution Expenses	3670.68	2888.05	2867.58	2436.91	2244.1
Administrative Expenses	1009.38	783.56	797.98	730.43	798.91
Depreciation Expenses	3105	2960.98	2498.26	2231.4	1798.45
Other operating Expenses	0	150	150	110	98.78
Total Operating Expenses (D)	7785.06	6782.59	6313.82	5508.74	4940.24
Income From Other Service (E)	1349.74	1189.58	1124.44	991.78	845.79
Operating Profit (F=C-D+E)	-1240.12	-828.21	262.31	28.46	3040.81
Net Profit/Loss After Tax	-8550.76	-6511.65	-5350.92	-4681.24	-2845.64

Appendix IV

Actual Figures of NEA from the fiscal year 2008 to 2012

‘Rs. In Million’

Particular	2012	2011	2010	2009	2008
Variable Cost	19039.16	15251.39	15188.81	12621.26	11100.58
Fixed Cost	12692.78	10167.59	10125.88	8414.176	7400.388
Total Cost	31731.94	25418.98	25314.69	21035.44	18500.97

Appendix V

Calculation for Mean Value, Standard Deviation, Coefficient of Variation & Correlation between Actual Sales & Budgeted Sales

‘Rs. In Million’

Year	Budgeted (X)	Actual (Y)	X ²	Y ²	XY
2008/09	16241.56	15041.39	263788271.23	226243413.13	244295638.17
2009/10	15220.87	14405.93	231674883.56	207530819.16	219270787.76
2010/11	17586.91	17164.60	309299403.35	294623493.16	301872275.39
2011/12	18003.80	17946.82	324136814.44	322088348.11	323110957.92
2012/13	20079.13	20088.64	403171461.56	403553457.05	403362414.08
N = 5	∑ X = 87132.27	∑ Y = 84647.38	∑ X² = 1532070834.14	∑ Y² = 1454039530.62	∑ XY = 1491912073.31

Budgeted,

$$\text{Mean } (\bar{X}) = \frac{\sum X}{N} = 17426.45$$

$$\text{Standard Deviation } (\delta_X) = \sqrt{\frac{1}{n} \left[\sum X^2 - \frac{(\sum X)^2}{n} \right]} = 1848.27$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{X}} = 10.61$$

Actual,

$$\text{Mean } (\bar{Y}) = \frac{\sum Y}{N} = 16929.48$$

$$\text{Standard Deviation } (\delta_Y) = \sqrt{\frac{1}{n} \left[\sum Y^2 - \frac{(\sum Y)^2}{n} \right]} = 2291.49$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{Y}} = 13.54$$

$$\text{Correlation } (r_{xy}) = \frac{n \sum XY - \sum X \sum Y}{\sqrt{n \sum X^2 - (\sum X)^2 \times n \sum Y^2 - (\sum Y)^2}} = 0.9922$$

Regression Line,

$$Y - \bar{Y} = r_{xy} \times \frac{\delta_Y}{\delta_X} (X - \bar{X})$$

$$Y - 16929.48 = 0.9922 \times \frac{2291.49}{1848.27} (X - 17426.45)$$

$$Y = -4507.36 + 1.23X$$

Appendix VI

Calculation for Mean Value, Standard Deviation, Coefficient of Variation & Correlation between Actual Sales & Budgeted Sales

(Unit In GWH)

Year	Budgeted (X)	Actual (Y)	X ²	Y ²	XY
2008/09	2288.51	2310.32	5237278.02	5337578.50	5287190.42
2009/10	2308.91	2204.59	5331065.39	4860217.07	5090199.90
2010/11	2677.83	2601.53	7170773.51	6767958.34	6966455.08
2011/12	2734.74	2727.62	7478802.87	7439910.86	7459331.52
2012/13	3041.93	3044.69	9253338.12	9270137.20	9261733.85
N = 5	∑ X = 13051.92	∑ Y = 12888.75	∑ X² = 34471257.91	∑ Y² = 33675801.97	∑ XY = 34064910.77

Budgeted,

$$\text{Mean } (\bar{X}) = \frac{\sum X}{N} = 2610.38$$

$$\text{Standard Deviation } (\delta_X) = \sqrt{\frac{1}{n} \left[\sum X^2 - \frac{(\sum X)^2}{n} \right]} = 316.52$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{X}} = 12.13$$

Actual,

$$\text{Mean } (\bar{Y}) = \frac{\sum Y}{N} = 2577.75$$

$$\text{Standard Deviation } (\delta_Y) = \sqrt{\frac{1}{n} \left[\sum Y^2 - \frac{(\sum Y)^2}{n} \right]} = 336.09$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{Y}} = 13.04$$

$$\text{Correlation } (r_{xy}) = \frac{n \sum XY - \sum X \sum Y}{\sqrt{n \sum X^2 - (\sum X)^2 \times n \sum Y^2 - (\sum Y)^2}} = 0.9878$$

Regression Line,

$$Y - \bar{Y} = r_{xy} \times \frac{\delta_y}{\delta_x} (X - \bar{X})$$

$$Y - 2577.75 = 0.9878 \times \frac{336.09}{316.52} (X - 2610.38)$$

$$Y = -160.21 + 1.05X$$

Appendix VII

Calculation for Mean Value, Standard Deviation, Coefficient of Variation & Correlation between Actual Production & Budgeted Production

(Unit in GWH)

Year	Budgeted (X)	Actual (Y)	X ²	Y ²	XY
2008/09	3172.29	3185.95	10063423.84	10150277.40	10106757.33
2009/10	3139.77	3130.76	9858155.65	9801658.18	9829866.33
2010/11	3693.29	3707.74	13640391.02	13747335.91	13693759.06
2011/12	3858.37	3858.37	14887019.06	14887019.06	14887019.06
2012/13	4178.81	4178.81	17462453.02	17462453.02	17462453.02
N = 5	Σ X = 18042.53	Σ Y = 18061.63	Σ X² = 65911442.59	Σ Y² = 66048743.56	Σ XY = 65979854.79

Budgeted,

$$\text{Mean } (\bar{X}) = \frac{\sum X}{N} = 3608.51$$

$$\text{Standard Deviation } (\delta_x) = \sqrt{\frac{1}{n} \left[\sum X^2 - \frac{(\sum X)^2}{n} \right]} = 448.57$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{X}} = 12.43$$

Actual,

$$\text{Mean } (\bar{Y}) = \frac{\sum Y}{N} = 3612.33$$

$$\text{Standard Deviation } (\delta_y) = \sqrt{\frac{1}{n} \left[\sum Y^2 - \frac{(\sum Y)^2}{n} \right]} = 448.40$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{Y}} = 12.41$$

$$\text{Correlation } (r_{xy}) = \frac{n \sum XY - \sum X \sum Y}{\sqrt{n \sum X^2 - (\sum X)^2 \times n \sum Y^2 - (\sum Y)^2}} = 0.9997$$

Regression Line,

$$Y - \bar{Y} = r_{xy} \times \frac{\delta_Y}{\delta_X} (X - \bar{X})$$

$$Y - 3612.33 = 0.9997 \times \frac{448.40}{448.57} (X - 3608.51)$$

$$Y = 6.27 + 0.99$$

Appendix VIII

Calculation for Mean Value, Standard Deviation, Coefficient of Variation & Correlation between Actual Production & Sales

(Unit in GWH)

Year	Budgeted (X)	Actual (Y)	X ²	Y ²	XY
2008/09	3185.95	2310.32	10150277.40	5337578.50	7360564.00
2009/10	3130.76	2204.59	9801658.18	4860217.07	6902042.19
2010/11	3707.74	2601.53	13747335.91	6767958.34	9645796.84
2011/12	3858.37	2727.62	14887019.06	7439910.86	10524167.18
2012/13	4178.81	3044.69	17462453.02	9270137.20	12723181.02
N = 5	∑ X = 18061.63	∑ Y = 12888.75	∑ X² = 66048743.56	∑ Y² = 33675801.97	∑ XY = 47155751.23

Budgeted,

$$\text{Mean } (\bar{X}) = \frac{\sum X}{N} = 3612.33$$

$$\text{Standard Deviation } (\delta_X) = \sqrt{\frac{1}{n} \left[\sum X^2 - \frac{(\sum X)^2}{n} \right]} = 448.40$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{X}} = 12.41$$

Actual,

$$\text{Mean } (\bar{Y}) = \frac{\sum Y}{N} = 2577.75$$

$$\text{Standard Deviation } (\delta_Y) = \sqrt{\frac{1}{n} \left[\sum Y^2 - \frac{(\sum Y)^2}{n} \right]} = 336.09$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{Y}} = 13.04$$

$$\text{Correlation } (r_{xy}) = \frac{n \sum XY - \sum X \sum Y}{\sqrt{n \sum X^2 - (\sum X)^2 \times n \sum Y^2 - (\sum Y)^2}} = 0.9910$$

Appendix IX

Calculation for Mean Value, Standard Deviation, Coefficient of Variation & Correlation between Budgeted & Actual Cost of Sales

‘Rs. In Million’

Year	Budgeted (X)	Actual (Y)	X ²	Y ²	XY
2008/09	9106.30	9530.83	82924699.69	90836720.49	86790597.23
2009/10	10675.45	9935.27	113965232.70	98709589.97	106063478.12
2010/11	12135.22	12475.34	147263564.45	155634108.12	151390995.47
2011/12	13239.00	12624.02	175271121.00	159365880.96	167129400.78
2012/13	14883.93	14459.08	221531372.24	209064994.45	215207934.58
N = 5	∑ X = 60039.90	∑ Y = 59024.54	∑ X² = 740955990.09	∑ Y² = 713611293.98	∑ XY = 726582406.19

Budgeted,

$$\text{Mean } (\bar{X}) = \frac{\sum X}{N} = 12007.98$$

$$\text{Standard Deviation } (\delta_X) = \sqrt{\frac{1}{n} \left[\sum X^2 - \frac{(\sum X)^2}{n} \right]} = 2235.96$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{X}} = 18.62$$

Actual,

$$\text{Mean } (\bar{Y}) = \frac{\sum Y}{N} = 11804.91$$

$$\text{Standard Deviation } (\delta_Y) = \sqrt{\frac{1}{n} \left[\sum Y^2 - \frac{(\sum Y)^2}{n} \right]} = 2051.34$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{Y}} = 17.38$$

$$\text{Correlation } (r_{xy}) = \frac{n \sum XY - \sum X \sum Y}{\sqrt{n \sum X^2 - (\sum X)^2 \times n \sum Y^2 - (\sum Y)^2}} = 0.9711$$

Regression Line,

$$Y - \bar{Y} = r_{xy} \times \frac{\delta_Y}{\delta_X} (X - \bar{X})$$

$$Y - 11804.91 = 0.9711 \times \frac{2051.34}{2235.96} (X - 12007.98)$$

$$Y = 1106.79 + 0.89X$$

Appendix X

Calculation for Mean Value, Standard Deviation, Coefficient of Variation & Correlation between Budgeted & Actual Operating Cost of NEA

‘Rs. In Million’

Year	Budgeted (X)	Actual (Y)	X ²	Y ²	XY
2008/09	4940.24	4797.67	24405971.26	23017637.43	23701641.24
2009/10	5508.74	5684.66	30346216.39	32315359.32	31315313.93
2010/11	6313.82	6896.00	39864322.99	47554816.00	43540102.72
2011/12	6782.59	7225.93	46003527.11	52214064.36	49010520.56
2012/13	7785.06	7834.33	60607159.20	61376726.55	60990729.11
N = 5	∑ X = 31330.45	∑ Y = 32438.59	∑ X² = 201227196.95	∑ Y² = 216478603.66	∑ XY = 208558307.56

Budgeted,

$$\text{Mean } (\bar{X}) = \frac{\sum X}{N} = 6266.09$$

$$\text{Standard Deviation } (\delta_X) = \sqrt{\frac{1}{n} \left[\sum X^2 - \frac{(\sum X)^2}{n} \right]} = 1107.68$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{X}} = 17.68$$

Actual,

$$\text{Mean } (\bar{Y}) = \frac{\sum Y}{N} = 6487.72$$

$$\text{Standard Deviation } (\delta_Y) = \sqrt{\frac{1}{n} \left[\sum Y^2 - \frac{(\sum Y)^2}{n} \right]} = 1227.41$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{Y}} = 18.92$$

$$\text{Correlation } (r_{xy}) = \frac{n \sum XY - \sum X \sum Y}{\sqrt{n \sum X^2 - (\sum X)^2 \times n \sum Y^2 - (\sum Y)^2}} = 0.9737$$

Regression Line,

$$Y - \bar{Y} = r_{xy} \times \frac{\delta_Y}{\delta_X} (X - \bar{X})$$

$$Y - 6487.72 = 0.9737 \times \frac{1227.41}{1107.68} (X - 6266.09)$$

$$Y = -273.07 + 1.08X$$

Appendix XI

Calculation for Mean Value, Standard Deviation, Coefficient of Variation & Correlation between Budgeted & Actual Operating Profit

‘Rs. In Million’

Year	Budgeted (X)	Actual (Y)	X ²	Y ²	XY
2008/09	1647.55	3040.81	2714421.00	9246525.46	5009886.52
2009/10	387.67	28.46	150288.03	809.97	11033.09
2010/11	-1018.47	262.31	1037281.14	68806.54	-267154.87
2011/12	-520.19	-828.21	270597.64	685931.80	430826.56
2012/13	-509.35	-1240.12	259437.42	1537897.61	631655.12
N = 5	∑ X = -12.79	∑ Y = 1263.25	∑ X² = 4432025.23	∑ Y² = 11539971.38	∑ XY = 5816246.42

Budgeted,

$$\text{Mean } (\bar{X}) = \frac{\sum X}{N} = -2.56$$

$$\text{Standard Deviation } (\delta_X) = \sqrt{\frac{1}{n} \left[\sum X^2 - \frac{(\sum X)^2}{n} \right]} = 1052.61$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{X}} = -41149.92$$

Actual,

$$\text{Mean } (\bar{Y}) = \frac{\sum Y}{N} = 252.65$$

$$\text{Standard Deviation } (\delta_Y) = \sqrt{\frac{1}{n} \left[\sum Y^2 - \frac{(\sum Y)^2}{n} \right]} = 1674.87$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{Y}} = 662.92$$

$$\text{Correlation } (r_{xy}) = \frac{n \sum XY - \sum X \sum Y}{\sqrt{n \sum X^2 - (\sum X)^2 \times n \sum Y^2 - (\sum Y)^2}} = 0.8252$$

Regression Line,

$$Y - \bar{Y} = r_{xy} \times \frac{\delta_Y}{\delta_X} (X - \bar{X})$$

$$Y - 252.65 = 0.8252 \times \frac{1674.87}{1052.61} (X + 2.65)$$

$$Y = 256.13 + 1.31X$$

Appendix XII

Calculation for Mean Value, Standard Deviation, Coefficient of Variation & Correlation between Budgeted & Actual Net Profit

‘Rs. In Million’

Year	Budgeted (X)	Actual (Y)	X ²	Y ²	XY
2008/09	-2524.92	-2845.64	6375221.01	8097667.01	7185013.35
2009/10	-5027.84	-4681.24	25279175.07	21914007.94	23536525.72
2010/11	-6961.82	-5350.92	48466937.71	28632344.85	37252141.87
2011/12	-6089.22	-6511.65	37078600.21	42401585.72	39650869.41
2012/13	-9947.88	-8550.76	98960316.49	73115496.58	85061934.39
N = 5	∑ X = -30551.68	∑ Y = -27940.21	∑ X² = 216160250.49	∑ Y² = 174161102.09	∑ XY = 192686484.75

Budgeted,

$$\text{Mean } (\bar{X}) = \frac{\sum X}{N} = -6110.34$$

$$\text{Standard Deviation } (\delta_X) = \sqrt{\frac{1}{n} \left[\sum X^2 - \frac{(\sum X)^2}{n} \right]} = 2714.74$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{X}} = -44.43$$

Actual,

$$\text{Mean } (\bar{Y}) = \frac{\sum Y}{N} = -5588.04$$

$$\text{Standard Deviation } (\delta_Y) = \sqrt{\frac{1}{n} \left[\sum Y^2 - \frac{(\sum Y)^2}{n} \right]} = 2123.09$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{Y}} = -37.99$$

$$\text{Correlation } (r_{xy}) = \frac{n \sum XY - \sum X \sum Y}{\sqrt{n \sum X^2 - (\sum X)^2 \times n \sum Y^2 - (\sum Y)^2}} = 0.9526$$

Regression Line,

$$Y - \bar{Y} = r_{xy} \times \frac{\delta_Y}{\delta_X} (X - \bar{X})$$

$$Y + 5588.04 = 0.9972 \times \frac{2123.09}{2714.74} (X + 6110.34)$$

$$Y = -821.97 + 0.78X$$

Appendix XIII

Calculation for Mean Value, Standard Deviation, Coefficient of Variation & Correlation between Total Revenue & Expenses

‘Rs. In Million’

Year	Budgeted (X)	Actual (Y)	X ²	Y ²	XY
2008/09	15976.05	18500.97	255234173.60	342285890.94	295572421.77
2009/10	16007.60	21035.44	256243257.76	442489735.99	336726909.34
2010/11	18352.87	25314.69	336827837.24	640833529.80	464597214.66
2011/12	19329.76	25418.98	373639621.66	646124544.24	491342782.84
2012/13	21784.06	31731.94	474545270.08	1006916016.16	691250484.88
N = 5	∑ X = 91450.34	∑ Y = 122002.02	∑ X² = 1696490160.34	∑ Y² = 3078649717.13	∑ XY = 2279489813.49

Budgeted,

$$\text{Mean } (\bar{X}) = \frac{\sum X}{N} = 18290.07$$

$$\text{Standard Deviation } (\delta_X) = \sqrt{\frac{1}{n} \left[\sum X^2 - \frac{(\sum X)^2}{n} \right]} = 2442.19$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{X}} = 13.35$$

Actual,

$$\text{Mean } (\bar{Y}) = \frac{\sum Y}{N} = 24400.40$$

$$\text{Standard Deviation } (\delta_Y) = \sqrt{\frac{1}{n} \left[\sum Y^2 - \frac{(\sum Y)^2}{n} \right]} = 5043.59$$

$$\text{Coefficient of Variation (CV)} = \frac{\delta}{\bar{Y}} = 20.67$$

$$\text{Correlation } (r_{xy}) = \frac{n \sum XY - \sum X \sum Y}{\sqrt{n \sum X^2 - (\sum X)^2 \times n \sum Y^2 - (\sum Y)^2}} = 0.9755$$

Regression Line,

$$Y - \bar{Y} = r_{xy} \times \frac{\delta_Y}{\delta_X} (X - \bar{X})$$

$$Y - 24400.40 = 0.9755 \times \frac{5043.59}{2442.19} (X - 18290.07)$$

$$Y = 12446.67 + 2.01X$$