

BUDGETING PRACTICES IN NEPAL
A CASE STUDY OF NEPAL ELECTRICITY AUTHORITY

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RECOMMENDATION

This is to certify that the Thesis

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Entitled:

BUDGETING PRACTICES IN NEPAL

(A Case study of Nepal Electricity Authority)

has been prepared as approved by this Department in the prescribed format of Faculty of Management. This Thesis is forwarded for examination.

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DECLARATION

I hereby declare that the work done in thesis entitled “**Budgeting Practices in Nepal A Case study of Nepal Electricity Authority**” submitted to Central Department of Management, Faculty of Management, Tribhuvan University, is my own created work reported in the form of partial fulfillment of the requirement of Master’s of Business Studies (M.B.S.) course under the guidance of respected teacher and supervisor Dr. Arun K. Thakur of Central Department of Management T.U.

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This is really an appreciable curriculum of T.U. because it helps the students to express their theoretical concept gained during the study period into the practical field. So, being concerned to thesis, I have also got a chance to express my theoretical concept gained from class and library study into this practical field. The present study "**BUDGETING PRACTICES IN NEPAL A CASE STUDY OF NEPAL ELECTRICITY AUTHORITY**" has been prepared for the partial fulfillment of the requirement for Master Degree in Business Studies.

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CHAPTER I

INTRODUCTION

1.1 Background

Profit is the final goal of every business organization. The profit cannot be achieved automatically but we can achieve with the help of proper planning and implementation. It is primary measure of business success in any business organization. Business organizations are established to achieve certain goals and objectives. The main objective of business organization is to earn profit. To achieve the objective of the organization, planning of activities is essential. Planning of activities of the organization is the basic task of management and is a key for organizational success. Usually, profit does not just appear it should be managed well with better managerial skill. There are various term of profit. An economist says that profit is reward for entrepreneurs for taking risk. A labour might say that it is a measure of labour's efficiency for negotiating in wage. An investor might view it as a gauge of the return on his or her money. An accountant will define it simply as the excess of revenue over the expenditure (*Welsch, et.al; 1992: 38*).

The primary purpose of planning in business is to increase profit and decrease of cost. Profit planning is one of the most important managerial tools used to plan and control business operations. Profit planning is a systematic approach for attaining effective management performance and evaluation. The concept of comprehensive profit planning and control encompasses and fully depends upon as to what extent the management follows proper planning, effective coordination and dynamic control. Thus, the procedure for preparing plan in respect of future financial and physical requirements is generally called profit planning (*Pandey; 1993: 56*).

Nepal is richest country in water, although Nepal has pretty condition of water resources organizations like Nepal Electricity Authority (NEA) require exploiting these natural resources at the best interest of nation. For this NEA and the like organizations must have sound profit planning system through

which it can rightly address the need of production, sales, cost and marketing plan. If profit planning is rightly followed, NEA can increase efficiency and profit. Without proper planned sales revenue, planned production volume and controlled expenses, desired profit cannot be secured. Thus these budgets are used for the planning of profit, their follow up procedure and they are compared with the actual achievement using different means such as cost volume profit analysis, variance analysis and coefficient of variation etc. Profit planning and control is an important managerial tool would be a helpful means to forecasting electricity requirement, generation, distribution, diversification, and control of all the processes of the company.

Nepal Electricity Authority is the largest public utility enterprises in Nepal. It was formed in 1st Badra 2042 BS. (1985 AD) amalgamating with the department of electricity corporation and number of other related department operate according to the provision of NEA act 2041B.S.kathmandu is the central office of NEA. It has established its branch offices, distribution sector, power house, grid house in all over the kingdom are about 200. About more than 10000 staffs are presently employed here.

Main objective or purpose of NEA is to provide electricity service to reasonable price or affordable price. It is also reasonable for transmission making generation and also distribution of electricity.

By the end of fiscal year 2009/10 from all projects across the country, 697 MW of electricity has been generated of total electricity generated, 689 MW has been connected to the nation grid, while for the reset the stand-alone micro hydro electricity centres have been supplying them at the local level. Likewise, including the thermal electricity centres, production of 53.4 MW and solar centres, production of 100 KW, the total electricity production has reached 752 MW.

Until the first eight months of the current FY 2010/11, construction works at the Rahughat Hydro Electricity project (HEP.) (32KW) in Myagdi district was going on construction works of the power house and 4.06 km tunnel is underway in Chameliya HEP (30MW) in Darchula district of far West Region.

In Makawanpur district, construction works of the power house and 1.06 km tunnel is under way. In Makawanpur district construction of Kulekhani 111 HEP (14 KW.) has been ongoing as the upper Tamakoshi HEP, debt arrangements have been signed with various entities with the aim of managing solely from domestic sources.

As previous year, involvement of the private sector in electricity production in the current F/Y 2010/11 too, it was not as expected. Some electricity project developed by the private sector however are gradually coming in to operation after completion of construction works by the end of F/Y 2009/10 in the process of extension of power grids.

In the process of rural electrification, total of 247547 household families are connected to electricity service in their home through participation of 242 community based organization under the peoples participation based community rural electrification programme. The electrification process is moving on with the expectation that around 70,000 additional households will be able to receive electricity service in their homes by the end of the current (F/Y 2010/11).

In the current F/Y 2010/11 a total of 3557.51 GWH electricity was produced of which of the share of hydro electricity was 2,813 GWH, thermal electricity was 5.43 GWH and electricity imported from India was 721.08 GWH of the total electricity available 2925.35 GWH is estimated to be consumed internally (within Nepal).

The number of customers receiving electricity is growing every year. By the end of F/Y 2009/10, the number of customers had reached 1790819 while by the end of mid January in the current F/Y 2010/11, the number of customers increased by 9.02 percent and reached 1952505. (Source: GNMF, 2010/11). To remedy the inherent weakness associated with these fragmented electricity organization with overlapping and duplication of work, merger of these individual organization becomes necessary to achieve efficiency and reliable services.

Realizing the above facts, this study carried out to identify the process and method of profit planning in this organization and to check whether there were or not there wear any flaws in such planning and to give effective planning and forecasting technique.

1.2 Role of Public Enterprise

Public enterprises depends upon the government which is managed, controlled and owned by government to provide good, service and other things to the people at cheap price. The organization having more than fifty percent share owned by government is called public enterprises.

In Nepal, public enterprises are established with the investment of Nepal government. Public enterprises main objective are not only commercial but also for public relationship, welfare, better economic growth, generate employment and social development of nation. It has tried to maintain proper balanced between profit and service.

Nepal is a land lock and underdeveloped country of the world with poor economic condition but here is more investing opportunities. It has occupied total area of 147181 km sq. kilometres, length of 885 km sq from east to west and average breath of about 193 km from north to south. More than 29% of the people are living below the poverty line. Per capita income is about \$ 528. GDP growth rate is around 4%. It has also fluctuation trend. More than 73% of people still depend on agricultural sector.

Nepal has adopted mix economic policy for its economic aspect. It helps to facilitate the co-existence of public and private sector. Despite of many private enterprises, they are only focus to generate profit and ignore social relation and welfare.

The co-existence is more essential and useful for achieving objective of social and economic development. Mainly the role of PEs has been infrastructure defence sector, public utilities, commercial sector training sector, industrial, banking sector and many more.

PES are important to generate industrial bases and public utilities in the nation, to provide better goods and services to the people at minimum price, to

generate employment opportunities, to mobilizes the nation resources, to collect government revenue into productive uses and to fulfil the government plans with policies and objectives. It is important to utilize resources and to balance regional development, to contribute export promotion and substitution. So the role of public electricity service like Nepal is most important for socio economic development of people, enterprises, collect the revenue for the nation.

According to past annual budgets and economic survey, almost Nepalese PEs has been suffering from regular operation loses by the lack of proper plan. They are unable to generate substantial return from their investment and at last to contribute to the nation though dividend as well as tax .They are creating huge amount of liabilities and as well as being the financial burden to the government and thus after the re-establishment of democracy, the government has adopted the policy of privatization and globalization.

PEs have helped to increased the standard of living, regional balance of developing and they have contributed through import substitution, export promotion and strength having revenue generation of Nepal government and save foreign currency by reducing import as well as to provide the consumable goods and services at a fair and low prices.

1.3 Nepal Electricity Authority

Nepal has second richest country after Brazil in hydro electricity potential in the world. It is also one of the richest countries in natural resources of the world. Hydro electricity is necessary to develop the nation. Nepal has more than 5000 rivers and rivulets with total annual average run off capacity of 200 billion cubic centimetres. This provides capacity to generate 83000 megawatts of hydro power of which approximately 42000 megawatts have been determined as economical feasible.

Nepal had developed its first hydro power station in Pharping in 1911 A.D. Nepal Electricity Authority is heading towards to electricity over the kingdom of Nepal. Nepal Electricity is only the enterprise which supplies electricity with monopoly that is a basic need of people as well as countries.

In the Nepalese context, NEA has some responsibilities these are as follows:

-) To recommend, determine and realize tariff structure for electricity consumption with prior approval of Government of Nepal.
-) To recommend to Nepal government long and short term plans and policies in the power sectors.
-) To arrange pre training and study so as to produce skill manpower in generation, transmission, distribution and other sectors.

For above these responsibilities, NEA sets the following objectives. The objectives of NEA is

-) To generate transmits distribution adequate.
-) Reliable and affordable power by planning
-) Operation and maintaining all generation
-) Constructing

1.4 Budgeting as a Tool of Profit Planning

A budgeting is a written plan for the future. The manager of the firms which use budgets, are forced to plan to ahead. Thus, this firm trend to do well because they anticipate problem before they occur. A firm without financial goal may find it difficult to make proper decision. A firm with specific goal, in form of budget, makes many decisions ahead of time. Budget helps the firms to control its costly by setting guidelines for spending money for undid items.

A concept of comprehensive budgets covers its use in planning, organizing and controlling all the financial and operating activities of the firm in the next period. Budgeting summarize the estimated result of future transaction for the entire company in much the same manner as the accounting process records and summarize the result of complete transaction (*Lynch ;1989:142*).

“Budget as a tool of planning and control is clearly related to the broader system of planning and control in an organization. Planning involves the specification for the basic objective that the organization will pursue and fundamental policies that will guide it. In operation terms, it involves the step of setting objectives, specifying goal, formulating strategies, expressed in

financial terms, for the operation and resources of enterprises for the same specified period in the future” (*Khan and jain;1989:296*).

Hence, budgeting includes sales, production, distribution and financial aspects of an organization. Budgets programs are design to carry out a variety of function, planning, evaluation of performance, coordinating activities, implementation of plans, communicating motivating and authoring.

1.5 Statement of the Problem

In Nepal, there are thirty six public enterprises established in various sector to utilize the resources for the overall development of the country with efficiency goal and objective. Profit is one of the major objectives of the every business organization. It is important for an organization not only to survive in the short-run but also to grow and operate in the future successfully.

Profit is purely influenced by planning, implementation and controlling system of any concern organization. The budget is to ensure the planned profit of the concern. So, it is maintained as tools of planning and controlling of profits. The primary objective of an annual budgets, to measure the profit expectation for the next fiscal year with due to regard all the circumstances, favourable and unfavourable that can influence of the trading prospects. There are some basic objectives of budget which is a plan setting out the proposals and decisions of those running organization instrument where by supreme governing body sanctions the raising the revenue or incurring the expenditure, a yardstick of what expenditure or revenue ought to be if the organization is working efficiently.

It seems that almost of the enterprises established in public sector are facing huge losses. NEA is one of the important public enterprises in industrial sector which is facing the same problem of dismal performance and financial position of the enterprise is getting worse day by day. So this study carried out identifies the planning for profit aspect of the company. The main problems of Nepal electricity authority are mentioned below.

-) To what extent is the process of planning is being followed by NEA?
-) Is there any strong relationship between costs, assets, revenue with the various measures of profitability?
-) What the deviation between budget and actual finance program of NEA?
-) Is there huge variance between budgeted and actual figures?
-) What steps should be taken to improve the profit planning system in the Public enterprises like NEA?

1.6 Objectives of the Study

The main objective of this study is to know the present budgeting practices applied in NEA, its effectiveness and the impact of these in company's overall performance. Keeping the above-mentioned problems in view, following are the specific objectives for this study.

-) To analyze the variation between actual and budgeted sales.
-) To analyze the various functional budgets of NEA.
-) To examine the present practices and effectiveness adopted by the NEA on the basis of budgeting.
-) To evaluates the financial index in relationship with profit planning.

1.7 Significance of the Study

Budgeting is one of the most important plans for public enterprises in Nepal to achieve their goal. In Nepal most of the enterprises are suffering from performance due to the lack of proper management of budget. Budget is the most important for every enterprise to earn profit, goodwill, image and patent etc.

Nepalese enterprises like NEA suffering from huge losses by political interference also. This study has primarily focused on budgeting practices aspect of companies like NEA. The good budgeting system is play vital role to the success and survival of a business firm. The systematic and scientific approaches of budgeting furnished here would be of immense help to the concerned firm to design, plan and control financial and accounting plan of company. The public enterprises like NEA can prepare, appraise and evaluate

the sales, production, expenditure and profit budgeting which in turn help to prepare overall strategic planning, implementation and control. The relationship among financial indicators that has been described in the study would give very insightful explanation of how give variables affect another financial variable. This would be significant to all types of manager to produce desire effect on some variable changing another one.

Likewise, government may take advantage of the study to review their policy reforms and controlling activities. Moreover students, researchers, investor, scholars, and other interested parties those are interested this field may take advantage of the study. Likewise this study is designed to conduct from management view, planners and policy makers will find its results important. Investors can be compensated for risking their capital. Hence, it is the primary obligation for management of the firm to maximize the firm's benefits over the long term by satisfying its social responsibility. The budgeting processes and its elements considerably contributes to improve the profitability of an enterprise and to improve the overall financial performance of an organization by the help of best and effective utilization of resources and thereby an improvement in the industrialization process of a country.

Achievement of the objectives in every organization depends upon the application of resources. This availability of resources is scare and the financial performance of an organization depends upon the use of its resources. Budgeting is the key factor to the productive financial planning. So, all types of the organizations running under commercial principle have to give due regard to these most important single tools while managing their physical and financial targets. If the planning, implementation and controlling process of an organization is effective and good result oriented, the pace of development naturally steps forward.

1.8 Limitations of the Study

This study is only related to budgeting practice of NEA. There are various limitations to analyze the data. Beyond the resource and time constraints

followings are some of the obstacles that may occur in course of conducting research.

-) This study is primarily based upon secondary data. Thus the reliability of results depends on these data.
-) The accuracy of the study will be determined by the authenticity and reliability of data provided by NEA.
-) Time and resource constrains another limitation of the study.
-) Analysis has been focused on financial and accounting aspect.
-) Some data has been taken from oral conversation with NEA's employees and customers.
-) Selected financial and statistical tools have been employed for analysis purpose. This study is only a case study, thus the result will not be applied for all types of PEs and other organization.
-) This study has focused the period from F/Y 2001 to F/Y 2010.
-) This study is only for the partial fulfilment of the requirement for the degree of master of business studies (MBS).

1.9 Organization of the Study

This study has been organized into following five different chapters.

Chapter I: Introduction:

This chapter deals with introduction. It includes background, role of public enterprises, profile of NEA, statement of problem, objectives of the study, significance of the study, limitation of the study and organization of the study.

Chapter II: Review of Literature:

This chapter include conceptual framework and review of previous study. The conceptual framework includes fundamental concept and component of budgeting. It mainly deals with theoretical analysis and briefly presents review of available literature. It considers review of text book, reports, journal, articles and previous thesis etc.

Chapter III: Research Methodology:

This chapter contains research design, population and sample, nature and source of data, size of data, data collection procedures, research variables, tools used for analysis etc.

Chapter IV: Presentation and Analysis of Data:

This chapter consist of systematic presentation and interpretation of collected data from different sources. The presentation and interpretation of data is made with the help of selected financial and statistical tools and technique, it also includes major findings.

Chapter V: Summary, Conclusion and Recommendation:

This chapter includes summary, conclusion and recommendation for further improvement. The bibliography, appendix and other supporting documents have also incorporated at the end of the study.

CHAPTER II

REVIEW OF LITERATURE

Literature Review is the foundation study of any type of research. This is the knowledge, which helps to the research for starting and completion of the study. It provides guidelines, ideas, format and several important data for the research field. Therefore previous studies are most important for completing any type of study because these are the basic guidelines which provide way of doing of the research.

Review of literature is fundamentally a stock taking of available literature in the field of research. The related matters would help the researcher to support the area of research. In order to, explore the relevant and true facts for the reporting purpose. While conducting the research study previous studies cannot be ignored as those instructions would help to check up the change of duplication in the present study.

In this chapter the researcher has included available literature to this research. It comprises the conceptual framework about the NEA, its activities, budgeting concepts, review of books, previous study. This study is concerned with reviewing, the budgeting of NEA, nature, advantage, importance in this connection, the researcher has reviewed various literatures in the form of books, newspapers, journals, browsing materials from the concerned websites, previous dissertations in the relevant subject matters and various issues have been considered. So, this study 'literature review' has been divided in to two sections.

2.1 Conceptual Framework

Every country can be done rapid socio-economic development by utilizing the scarce resources. Public enterprise is one of the most important and more valuable means of socio-economic development of the country. The rationale behind the establishment of public enterprises are basically to increase the rate of economic growth, to build infrastructures of development, to make provision of public utility, to generate employment opportunity, to supply essential commodities and service, and to reduce imbalance of foreign trade. But in fact,

operational efficiency of the Nepalese public enterprises does not seem satisfactory in accomplishing their objectives or planning. In this scenario, a study of budgeting practices in manufacturing public enterprises in Nepal with a special reference NEA has been undertaken. This study tries to analyze the financial budgets that are prepared by NEA, to sketch the trend of the profitability, to evaluate the variance between budget and actual of the concern and to examine practice and effectiveness of profit planning. Further, reason as to why profitability has been negative, and the factors responsible for such a state of affairs have been explored (*Joel; 1997: 19*).

The present section, conceptual framework has been made with a view to recapitulate the basic concept of literature to show how to complete the present line of study. They have analyzed and searched using appropriate financial tools and techniques. The chapter mainly deals concept of budgets and budgeting, characteristics, advantages, important and limitation of budgeting.

2.1.1 Budgets

A budget is a comprehensive and co-ordinated plan expressed in the financial terms, for the operation and utilization of resources of an enterprise for some specific period in future (*Pandey; 1993: 465*). Budgeting is an amalgamation of managerial techniques and approaches where as the budget is financial expressions for certain period for certain field, it is more numerical rather than theoretical. A budget is a predetermined statement of management policy during a given period, which provides a standard for comparison with the results actually achieved.

A budget is the plan of the firm's expectations in the future as stated previously; planning involves the control and main pulsation of relevant variables controllable, non controllable and reduces the impact of uncertainty. A budget expresses the plan in formally and helps to realise the firm's expectation. It is a comprehensive plan in the sense that all activities and operations are considered when it is prepared as a whole. Budgets are indeed prepared for various segments of the enterprises but they are the components of the total of the master budget (*Pandey; 1993: 466*).

A budget is the monetary or quantitative expansion of business plans and policies to be pursued in the future period procedures for planning, coordination and control of business concern. Many types of budgets are in use today in business. Among them main budget are (a) expenses budget (b) profit budget (c) financial budget and (d) capital expenditure budget. The profit budget is used to plan of profit and to control actual performance. The financial budgets concerned with expenditures for fixed assets.

2.1.2 Budgeting

Budgeting as a tool of planning is closely related to the broader system of planning in an organization. Planning involves the specification of the basic objectives that the organization will peruse and fundamental policies that will guide it. Generally, budgeting may be taken as the action as controlling tools of overall management and with support to later argument, the concept of budgetary control should make clear as fair.

The objective of budgetary control and standard costing is to enable management to conduct business in the most efficient manner. For this purpose, it must show where and to what extent profit or losses and why not they are being realized. The system should supply the answer to the 'why' and 'how' of management. Let's then first set out, what management wants to know? (Management sometimes have to be educated before), what management should, how and what management wants to know? Coincide (*Welsch et. al.; 1992: 466*).

Management is the process of getting things done through others in the same way budgetary control is not possible by owner of the concern. There should be various personnel. The personnel will have clear responsibility those occupy different levels or position of the firm. For budgetary control purpose the suitable information will be analysed or summarized.

In conclusion, the budget involves the statement of plan, the coordination of these plans in to well-balanced programmes and the stable watching of actual operations to ensure that they are kept in line with the predetermined plan. In this way, limits are set expenditure, standard of performance are established,

and forward thinking is more an essential part of business management. Care must be taken, however not to fall in to the error of regarding the budget as an end in itself. It is a means to an end. It is not a method a business management, but an aid to clear thinking and its fundamental object is to enable considered intention to be substitute for opportunism in management (*Willsmore; 1971: 9*). Budget is only details annualized account of company's estimated income and expenditure. It is a document that provides guidelines and direction to the overall economy of the company. Comprehensive profit planning and control is a new term in the literature of a business but it is not new term 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/technique/ tool of management that enhances the efficiency of management. Budgeting involves development and application of broad and long rang objective for the enterprises, specification of goal, strategic or long term goal, tactical or short term profit plan. A systematic performance report details by organized responsibilities, control system and follow up procedures.

The Public enterprise is one of the most important means of socio-economic development of the country. The rationale behind the establishment of public enterprises are basically to accelerate the rate of economic growth, to build infrastructures of development, to make provision of public utility, to generate employment opportunity, to supply essential commodities, service and to reduce trade imbalance of the country. But in fact, operational efficiency of the Nepalese public enterprises does not seem satisfactory in accomplishing their objectives. In this context, a study of profit planning in manufacturing public enterprises in Nepal with a special reference NEA has been undertaken as a case study to analyze the various financial budgets that are prepared by NEA, to sketch the trend of the profitability, to evaluate the variance between budget and actual of the concern and to examine practice and effectiveness of profit planning. Further, reason as to why profitability has been negative, and the

factors responsible for such a state of affairs have been explored (*Joel; 1997: 19*).

Hence, budgeting guidelines and acts as signal light to and for the management, which enable the management to correct its policy and to show its direction for achieving maximum result within a define period. It consist three main budgets:

-) Operation budget (budget related with revenue and expenses)
-) Financial budget (budget related with financial statement)
-) Appropriation budget (budget related with advertising and research expenses)

Budgeting is viewed as a systematic and formal approach designed to help management for preparing significant phases for the management and control function. Specially, it involves:-

-) The development and application of broad and long rang objective for the enterprise.
-) The specification of enterprise goal.
-) The development of profit plan with assigning responsibilities.
-) A system of periodic performance reports detailed by assigned responsibilities and
-) Follow up procedure.

Budgeting is a component of overall planning procedure of an organization. The managerial process and profit planning are interrelated to each other. Success of management always depends on well plan.

Budgeting is a tool, which may be used by the management in planning the future course of action and controlling the actual performance because it is a written plan in which all aspect of business operation concern which future period are included. Budgeting is a predetermined details plan of action developed and distribution as guide to current operation and partial basis for the subsequent evaluation of performance.

The primary aim of budgeting is to assets in assuring the procurement of the profit planned and to provide a guide for assisting in establishing the financial

control policies including fixed assets addition, inventories and the cash position. The adoption of a correctly constructed profit plan provision provide opportunity for a regular and systematic analysis of incurred or anticipated expenses, organized future planning fixing of responsibilities and stimulation of effort. In short, it provides a tool for more effective of individual operation and practical administration of the business as a whole.

The present section, conceptual framework has been made with a view to recapitulate the basic concept of literature to show how to complete the present line of study. They have analyzed and searched using appropriate tools and techniques. The chapter mainly incorporates concept of profit and profit planning, important and limitation of profit planning development of profit planning. Level of forecasting, corporate planning, budgets and budgeting, process of profit planning and the fundamentals of profit planning are the subjects to be considered here.

2.1.3 Objectives of Budget

The concept of comprehensive budget covers its use in planning and controlling all the financial and operating activities of the firm in the forthcoming period (Lynch & Williamson 1984; 142). The budget culminated in a projection of the income statement and balance sheet of the budget period for the company as a whole, this type of budgets is planning budget. Basic objective of the budget is to ensure the planned profit of the concern. So, it is considered as tools of planning and controlling of profits. One of the primary objectives of an annual budgets is to measure the profit expectation for the next fiscal year, with due regard to all the circumstance favourable and unfavourable. That can influence of the trading prospects. There are four basic objective of budget.

-) A plan setting out the proposals and decisions of those running the organization.
-) To forecast of the results expected.
-) An authorization, the instrument where by supreme governing body sanctions the raising the revenue or incurring the expenditure.

) A yardstick of what expenditure or revenue ought to be if the organization is working efficiently.

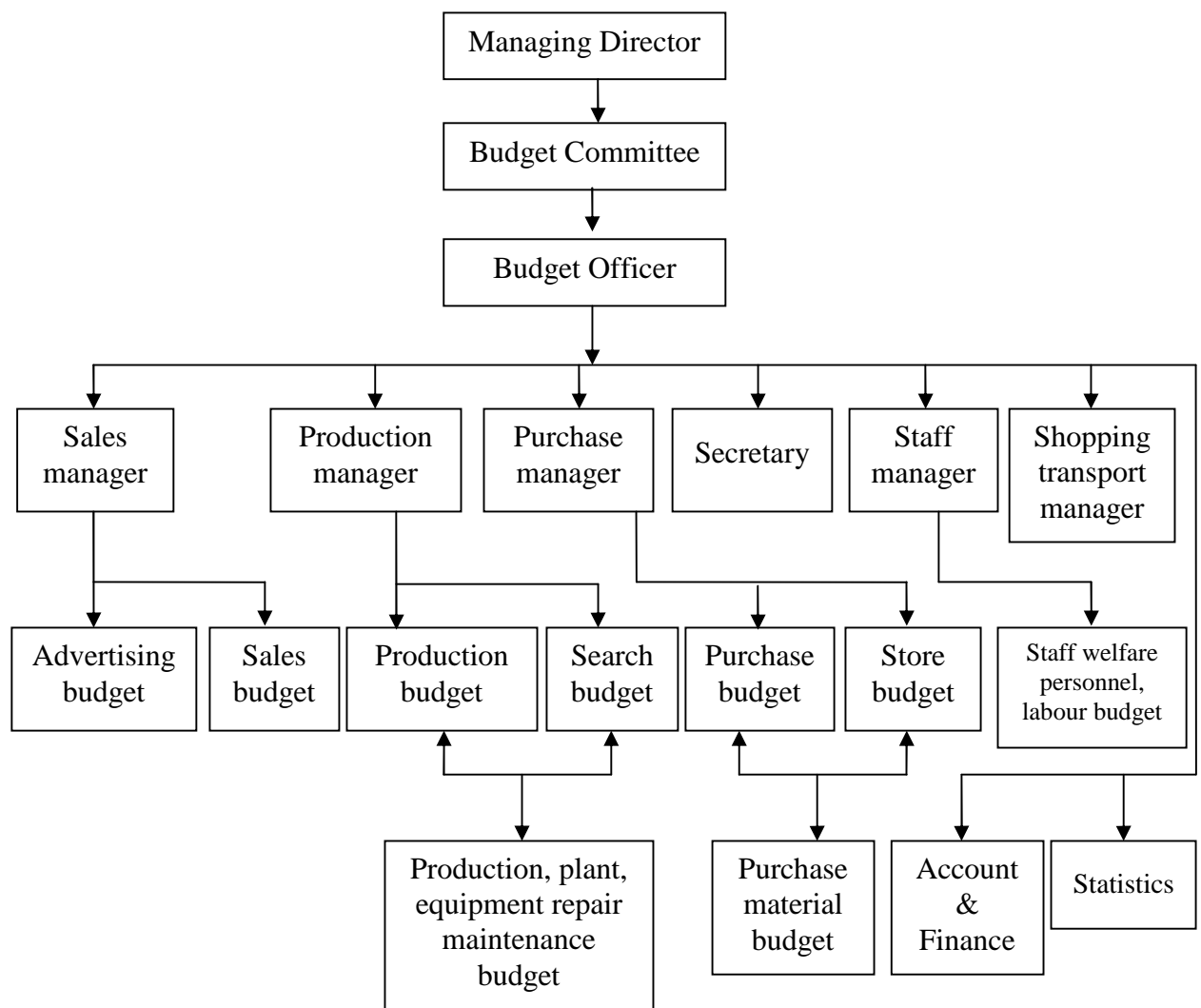
The purpose of budgeting in the context of an annual budget is to projects as accountably as possible the sales, incomes expenditures and profit for ensuring year. This is the principle objectives and all other requirements of budgeting system from it.

2.1.4 Budgetary Control

Budgetary control is the process of determining various budgeted figures for the enterprise for the future period than campaign the budgeted figures with the actual performance for calculating variance. Budgetary control is a system of controlling cost that includes the preparation of budgets coordinating the departments and establishing responsibilities, company actual perform with the budget and outing upon results to achieve maximum profitability.

Budgetary control involves (i) the budget is set by preparing budgets, (ii) the business is divided into various responsibility centres for preparing various budgets, (iii) the actual figures are recorded, (iv) the budgeted and actual figures are compared for studying the performance of different cost centres and (v) it actual performance less than the budgeted norms a remedial action is taken immediately.

Figure 2.1
A Structure of Organization Plan



2.2 Characteristics, Objectives, Advantages, Limitation and Classification of Good Budgeting.

Characteristics, objectives, advantages and limitation of good budgeting of any subject help make clear their concept. Profit planning is a base of the management process. Management requires a variety of information to plan, to control and to make decision. The information and guidance are given by profit planning and management & profit planning are closely inter-linked. Profit planning is very important to any business organization. The following main arguments are usually given for profit planning and control. Profit is primary measure of operational efficiency of any business organization. Profit do not

just happen, profit are managed which is known as profit planning or budgeting. Profit planning is one of the most important management tools which is used to plan and control business organization.

The following main arguments are usually given against profit planning and control (*Welsch, et.al.; 1992: 42*).

2.2.1 Characteristics of Good Budgeting

The Characteristics of good budgeting are as follows:-

-) Budgeting may be formulated for the organization as a whole as for any subunit.
-) A good system of accounting is also essential to make the budgeting useful.
-) A good budgeting system should involved person at difference level while preparing the budget.
-) The subordination should not feel only imposition on term.
-) A budgeting is a quantitative expression of a plan of action and aid to co-ordination and implementation.
-) Budgeting is designed to carry out a variety of function planning, evaluating activities and implementation. (*Rathman ;1974:21-22*)

2.2.2 Objectives of Good Budgeting.

The main objectives of good budgeting are as follows.

-) To state the firm's goal in clear formal term and avoid confusion and facilities their attainability.
-) To communicate expectation to all concern with the management to the firm so that they are understood support and implemented.
-) To provide a detail plan of action for reducing uncertainly and for its proper direction.
-) To coordinate the activities and effect in such a way that the use of resource maximize.

-) To provide a means of measuring and controlling the performance of individual and to supply information based on which the corrective action can be taken.

2.2.3 Advantage of Good Budgeting

The main advantages of good budgeting are as follows:-

-) It forces early consideration of basic policies.
-) It requires adequate and sound organization structure; that is, there must be a definite assignment of responsibility for each function of the enterprise.
-) It compels all members of management from the top to down to participate in the establishment of goals and plans.
-) It requires adequate and appropriate historical accounting data.
-) It compels management to plan for the most economical use of labour material and capital.
-) It instils at all levels of management the habit of timely, careful, and adequate consideration of the relevant factors before reaching important decisions.
-) It reduces cost by increasing the span of control because fewer supervisors are needed.
-) It compels departmental managers to make plans in harmony with the plans of other departments and of the entire enterprise.
-) It requires that management put own in figures what is necessary for satisfactory performance.
-) It forces a periodic self-analysis of the company.
-) It aids in obtaining bank credit; banks commonly require a projection of future operations and cash flows to support large loan.
-) It checks progress or lack of progress toward the objectives of the enterprise.
-) It forces recognition and corrective action (including rewards).
-) It rewards high performance

2.2.4 Limitation of Good Budgeting

The main limitations of good budgeting are as follows-

-) It is based on estimate it is not science.
-) It is danger of rigidity and application for long period.
-) We can't proper evaluation and not a substitute for management.
-) It is difficult, if not impossible, to estimate revenues and expenses in our company realistically.
-) Our management has no interest in all the estimates and schedules. Our strictly informal system is better and works well.
-) It is not realistic to write out and distribute our goals, policies and guidelines to all the supervisors.
-) Budgeting places too great a demand on management time, especially to revise budgets constantly. Too much paper work is required.
-) It takes away management flexibility.
-) It creates all kinds of behavioural problems.
-) It places the management in a straitjacket.
-) It adds a level of complexity that is not needed.
-) It is too costly, aside from management time.
-) The managers, supervisors, and other employees hate budgets.

2.2.5 Classification of Budgets

The classifications of budges are as follows:-

A) On the basis of time

1. Long term budget
2. Short term budget
3. Current budget

B) On the basis of function

1. Sales budget
2. Production budget
3. Direct material budget
4. Direct material purchase budget

5. Direct Labour cost budget
6. Cost of production budget
7. Selling and distribution expenses budget
8. Cash budget
9. Capital budget

C) On the basis of nature and business activities

1. Capital expenditure budget
2. Operating expenditure budget

D) On the basis of flexibilities

1. Static budget
2. Flexible budget

2.3 Establishing the Foundation of Budgeting

To establish sound foundation for initiating a budgeting program, the following steps should be followed:-

Step1: There must be commitment by the top management to the broad concept of budgeting or PPC. A sophisticated understands of its implication and operations.

Step 2: The characteristics of the enterprise and the environment in which it operates including the controllable and uncontrollable variables must be identified and evaluated so that relevant decisions may be made over the characteristics of a budgeting or PPC program that would be effective and practical.

Step 3: There should be and evaluation of the organization structure and assignment of managerial responsibility an implementation of change deemed necessary for effective planning and control.

Step 4: There must be evaluation and reorganization of the accounting system to ensure that it is tailored to the organization responsibilities so that it can provide data particularly useful for planning and control purpose.

Step 5: A policy determination must be made about time dimensions to be use for managerial budgeting or purposes.

Step 6: A program of budget education should be informing management all level about (a) A propose of program. (b) The manager in which it will operate, including the basic management policies and guidelines for the administration. (c) The responsibility of the each level of management in the program and (d) the way in which the program can facilitate the performance of each manager's function (*Welsch, Hilton and Gorden; 2006; 59*).

2.4 Development of Budgeting

The preceding section gives an overview of a comprehensive profit planning. The initiating management decisions were developing statements of broad, objectives, specific goals, basic strategies, and premises. Following those activities and decision, the strategic (long range) and tactical (short range) profit plans are developed. These profit plans are based on a structured planning process that includes a series of sequential steps. The final result is called a comprehensive profit plan (*Welsch; et.al.; 1992: 171*). Development of profit planning relates about sales plans, production plan, materials purchase budget, labour budget, overhead budget, capital expenditure and capital addition budget for strategic (long range) as well as tactical (short range).

2.4.1 Sales Plan

Sales plan is the starting point in the proportion of the comprehensive profit planning and control. All the other plans and budgets depend upon the sales budget. The budget is usually presented both in units and dollars of the sales revenue or sales volume. The preparation of sales plan is based upon the sales forecast. A variety of methods are used to forecast the sales for the planning period (*Arthur et.al.; 1997: 684*).

The sales plan should be worked out on a sound and reasonably detailed basis. It should reflect seasonal influences and any anticipated irregularities in sales. It should be broken down not only into time periods but also into geographical or a responsibility area by the use of sales quotes. A well developed sales plan is generally built up on a quota basis in the first place. So, that the double check by individual quota on total plan is inherent in the building. In a multi-plant

situation, where there is a choice of manufacturing product items in more than one plant, the geographical distribution of sales is of special importance for production planning. Adequate sales planning is basic fundamental to profit planning program (*William; 1998: 502*).

Unless there is a realistic sales plan, partially all other elements of a profit plan will be out of writer with reality. The sales plan is the foundation for periodic planning in the firm because practically all other enterprise planning is built on it. The primary source of cash is sales. The capital additions needed the amount of expense to be planned, the manpower requirements, the production levels and other important operational aspects depend on the volume of sales. In harmony with the comprehensive profit plan, both strategic (long-term) and tactical (short-term) sales plans must be developed. Thus one commonly observes a five years strategic sales plan many management decision commit a large amount of resources involving a life span of many years. Basic strategic and major moves often involve irreversible commitments of resources and long time span (*Welsch et.al.; 1992: 139*).

The strategic and tactical sales plans have three distinct parts (i) the planned volume of sales at the planned sales price per unit for each product, (ii) the sales promotional plan (advertising and other promotional costs) and (iii) the sale (distribution) expenses plan. The primary purpose of sales plan are (a) to reduce uncertainty about revenues, (b) to incorporate management, judgements and decisions in to the planning process (e.g. in the marketing plans), (c) to provides necessary information for developing other elements of a comprehensive profit plan and (d) to facilitate management's control of sales activities (*Welsch, et.al. ; 1992: 172*).

Table 2.1
Components of comprehensive sales planning

Component	Strategic plan	Tactful plan
1.Management policy and assumptions	Broad and general	Details and specific for the year
2.Mkt plan (sales and service revenue)	Annual amounts major group	Detailed by product and responsibility
3.Advertising and promotional plan	General, by year	Detailed and specific for the year
4.Selling and distribution expenses plan	Total fixed and total variable expenses by year	Fixed and variable expenses by month and by responsibility

(Source: Welsch, et.al.2000)

2.4.1.1 Sales Planning and Forecasting

Sales planning and forecasting often are confused. Although related, they have distinctly different purposes. A 'forecast' is not a plan, rather it is a statement and/or a quantified assessment of future conditions about a particular subject (e.g. sales revenue) based on one or more explicit assumptions. A forecast should always state the assumption upon which it is based. A forecast should be viewed as only one input in to the development of a sales plan. The management of a company may accept, modify, or reject the forecast. In contrast, a 'sales plan' incorporates management decisions that are based on forecast, other inputs, and management judgements about such related items as sales volume, prices, sales efforts, production and financing (*Welsch, et.al.; 1992: 172*).

The short-term sales forecast provides the base for the current year's sales plan and finished goods inventory plan. At the same time the influence of the long-term sales forecast is reflected in the capital expenditure plan and in the finished goods inventory plan. The long-term forecast serves at what might be called the anchor end of the finished goods inventory plan. Since inventory at the end of this year is the beginning inventory for next year business it is

necessarily influenced by the long-term sales thinking as well as the current year's short-term forecast. The long-term sales forecast provides the base for developing, in rough outline and the capital expenditure plan. The portion of the plan falling within the current year is reflected in the capital expenditure budget (William; 1998: 502).

It is important to make a distinction between the sales forecast and the sales plan primarily because the internal technical staff should not be expected or permitted to make the fundamental management decisions and judgements implicit in every sales plan (*Welsch, et.al; 1992: 172*).

2.4.1.2 Strategic and Tactical Sales Plan

As a practical approach, a company may schedule completion of the strategic (long-term) sales plan as one of the first steps in the overall planning process. For example, a company operating on a calendar year may complete a long-term sales plan at least in tentative form, by the end of July because this gives sufficient lead time for interim considerations essential to development of next year's comprehensive short-term profit plan during the latter part of the proceeding calendar year. Long-term sales plans are usually developed as annual amounts. The long-term sales plan uses broad grouping of products (product lines) with separate consideration of major and new products and services. Long-term sale plans usually involve in depth analyses of future market potentials, which may be build up form a basic foundation such a 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, 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 judgemental basis (*Welsch et. al.; 1992: 173*).

Tactical sales plan is a short-range sales plan that is prepared for a year in the future. According to Welsch, "A common approach used for short time horizons in a company is to plan sales for twelve months in to the future,

detailing the plan initially by quarters and by months for the 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 plans are usually subject to review and revision on a quarterly basis. The short-term sales plan includes a detailed plan for each major product and for groupings of minor products. Short-term sales plans are usually developed in term of physical units (or jobs) and in sales and/or service dollars. Short-term sales plan must also be structured by marketing responsibility (e.g. by sales districts) for planning and control purposes. Short-term sales plan may involve the application of technical analyses. However, managerial judgement plays a large part in their determination. The amount of detail in a tactical sales plan is a function of the company's environment and characteristics. A short-range sales plan should include considerable detail where as a long range plan should be in broad term (*Welsch et. al.; 1992: 174*).

Table No. 2.2

Strategic and tactical sales plan

Type	Developed by	Time dimension	Characteristics
Strategic	Top management	Long -range	Focus on enterprises objectives and over all strategies; affect all management function; involved comprehensive and long- term consequences
Tactical or operational	All management levels	Short- range	Refines the enterprises objectives to develop programs, polices and performance expectations; involves timing that is intermediates –range to short- range; focuses on level of assigned authority and responsibility

2.4.1.3 Developing a Comprehensive Sales Plan

For developing a comprehensive sales plan, generally following steps should be taken.

Step Ist : Develop management guidelines for sales planning.

Step IInd : Prepare sales forecast.

Step IIIrd : Assemble relevant data.

Z Manufacturing capacity.

Z Sources of raw materials and supplies.

Z Availability of key people and labour force.

Z Capital availability.

Z Availability of alternatives distribution channels.

Step IVth : Develop strategic and tactical sales plans.

Step Vth : Consideration of alternatives.

Step VIth : Develop pricing policies.

Step VIIth : Develop product line consideration.

Step VIIIth : Price cost volume consideration.

2.4.1.4 Methods of Projecting Sales

Following five methods are used in projecting sales (*Bajracharya, et.al. 2010: 174*).

1. Top down forecast

) Analysis of global economy

) Analysis of general socio- economic condition of the country

) Industry analysis

) Product line analysis

) End-use analysis

) Executive opinion method.

2. Bottom up forecast

) Expert opinion

) Delphi method

) Sales force opinion

-) Sales division supervisor's opinion

-) Executive opinion

-) Market experiment method

3. Combination of methods

-) A weighted average of 1 and 2

4. Statistical methods

Trend projection methods

-) Regression trend

-) Time series trend

-) Moving average

5. Survey methods

-) Enumerate consumer survey

-) Consumer sample survey

-) The end – use methods

-) Sales force composite survey

2.4.2 Production Plan

Production budget is the initial stage in budgeting of manufacturing operation. When the sales plan is completed, the next step in building the short range profit plan for superior manufacturing company 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 decisional input, which is the management decision about inventory levels of finished goods that are to be planned (*Welsch et. al.; 1992: 136*).

Production planning and scheduling are factory functions involving determination of the amount of goods to produce and production timing. Therefore the production plan is the primary responsibility of the manufacturing vice-president. It is prepared on the basis of sales budget, plant

capacity, opening inventory of finished goods, required closing inventory of finished goods and production policy of management.

Once sales and inventory requirements have been established, the logical first step in the production area is a facility survey. This survey should determine that all planned produced on existing or contemplated equipment and that they can be made in the volumes required. In this initial stage availability of labour supply and skill are considered. Bottlenecks caused by lack of skills or equipments are frequently uncovered. At this point decisions must be made either to eliminate bottlenecks or to reduce planned volume (William; 1989: 508). Economic batch quantity delivery schedules, seasonal conditions, optimum utilization of plant capacity, reduction of bottlenecks such as shortage of manpower, materials, stock of requirements and work in progress are also considerable factor of the production planning.

This entails the development of the policies about efficient production levels, use of productive facilities and inventory re-levels (finished goods and work-in-process inventory). The quantities specified in the marketing plan, adjusted to conform to production and inventory policies, give the volume of goods that must be manufactured by product and interim time period. Thus, the production budget can be represented in this way: production requirement = sales volume \pm finished goods inventory change (*Welch et. al.; 1992: 210*).

The production budget specifies the planned quantity of goods to be manufactured during the budget period. To develop the production budget, the first step is to establish policies for inventory levels, the next step is to plan to total quantity of each product that is to be manufactured during the budget period and third step is to schedule this production by interim period. A complete production plan should shown budget data classified by (a) products to be manufactured, (b) interim time periods and (c) activities of each responsibility centre in the manufacturing process (*Welsch et. al.; 1992: 212*).

2.4.2.1 Responsibility for Production Planning

The completed marketing plan should be given to the manufacturing executive who is responsible for translating it into a production program consistent with

managerial policies and subject to certain constraints. Planning, scheduling and dispatching of the actual production throughout the year are functions of the production department. Therefore, it is essential that the production managers perform responsibility for the planning and control of these functions. These managers have firsthand knowledge of the plant and personnel capacities, availability of materials and production process. Although responsibility rests directly upon the production managers, top management policies must be considered in such matters as inventory levels, stability of production and capital additions (plant capacity) (*Welsch et. al.; 1992: 211*).

2.4.2.2 General Consideration in Planning Production and Inventory Level

The production plan does not aim to set the precise amounts and timing of actual production during the budget period. Rather, the production plan represents the implications of planned sales volume for planned production volume as a basis for planning of various aspects of the manufacturing function plant capacity requirements, direct material, component requirements, timing of purchases, direct labour requirement, costs and factory overhead.

The production budget should be developed in terms of quantities of physical units of finished goods. Therefore, when it is possible to plan sales volume by units as well as by dollar amounts, production budgeting is simplified. To develop the production plan, manufacturing executives must resolve the problem of coordinating sales, inventories and production so that the lowest possible overall cost results. The importance of coordination of production planning cannot be overemphasized, because it affects so many decisions relating to cost, capital commitments, employees and so on. Decisions required to develop the production plan include the following.

-) Total production requirements (by product) for the budget period.
-) Inventory policies about levels of finished goods, work-in-progress and the costs of carrying inventory.
-) Plant capacity policies, such as the limits of permissible departures from a stable production level throughout the year.

-) Adequacy of manufacturing facilities (expansion, contraction of plant capacity).
-) Availability of direct materials, purchased components, and labour.
-) Length of the processing time.
-) Economic lots and runs.
-) Timing of production throughout the budget period by responsibility centres. (*Bajracharya, et.al. 2010: 40*).

2.4.2.3 Developing the Production Budget

Production managers must translate the quantities in the sales budget into unit production requirements for the budget period for each product while considering management inventory policies. The budgeted production for the budget period has been determined; the next problem is prorating this producing by interim periods during the budget year. Interim production must be planned to (1) provide sufficient goods to meet interim sales requirements, (2) keep interim inventory levels within policy constraints and (3) manufactured the goods as economically possible (*Welsch et. al.; 1992: 213*).

Generally, the following table method is used to obtain the planned production of a business concern.

Planned for sales (in units)	XXX
Add: desired final inventory level of finished goods	<u>+XXX</u>
Total required production	<u>XXXX</u>
Less: opening stock of finished goods	-XXX
Planned production for the year	<u>XXXX</u>

2.4.2.4 Setting of Inventory Policy

In most business, inventories represent a relatively high investment and may have a significant impact on the major functions of the enterprise and its profit. If the level of inventory is greater than requirement, it is a sign of under utilization of their fund and cost of capital burden. If the level of inventory is lower than requirement it loses the opportunity of profit by unsuccessful to fulfil of the market demand. So, inventory and requirement of production must be at balance position. In other word, the objectives of inventory policies

should be to plan the optimal level of inventory, investment and through control to reasonably maintain these optimal levels.

To determine inventory policies for finished goods, management should consider these factors (*Welsch et. al.; 1992: 220*).

1. Quantities (in units) needed to meet sales requirements. Resolving this problem entails consideration of the sales budget and seasonal demand. The sales department executives should be directly involved in this problem.
2. Perish ability of items.
3. Length of the production period.
4. Storage facilities.
5. Adequacy of capital to finance inventory production some time in advance of sales.
6. Distribution time requirement.
7. Cost of holding inventory. Frequently there are numerous and significant costs connected with stocking large quantities of goods. The principle holding costs involved are labour, insurance, taxes, rent, depreciation, transportation and handling.
8. Protection against district material and component shortages.
9. Protection against labour shortages.
10. Protection against materials and parts price increases.
11. Risks in involved in inventory:
 -) Price declines,
 -) Obsolescence of stock,
 -) Casualty loss and theft,
 -) Lack of demand,
 -) Customer returns policies.

2.4.2.5 Setting Production Policies

Seasonal sales are typical in most companies. Yet production efficiency is usually enhanced by relatively by stable production levels. In many companies where sales of the primary product are seasonal, developing new products that

can be stored or that have inverse seasonal pattern stabilizes production levels. Inventory fluctuation provides a tempting method of levelling production, yet as previously discussed, certain pitfalls should be considered. Stabilization of production is desirable for a number of completing reasons and generally results in significant reductions of costs and improvements in operations. The advantages of stable production levels can be outlined as follows (*Welsch et. al.; 1992: 223*).

1. Stability of employment, resulting in:
 -) Improved morale and hence greater worker efficiency,
 -) Less labour turnover,
 -) Attraction of better employees,
 -) Reduction of expense for training new employees.
2. Economic in purchasing raw materials and components as a result of:
 -) Availability,
 -) Volume discounts,
 -) Simplified storage problems,
 -) Smaller capital requirements,
 -) Reduced inventory risk.
3. Better utilization of plant facilities, which tends to:
 -) Reduce the capacity required to meet peak seasons.
 -) Avoid the capacity.

2.4.3 Material Purchase and Usage Budget

After having the concept of sales plan and production plan the next step in the budget process involves the determination of material purchase and usage budget. The determination of materials usage leads to the solution of the problem of when and how much to purchase of each material. Material purchase and usage budget demonstrates the build up of the quantities of each material to be used by quarters, based on the production budget. The materials cost is also considered in material purchase budget. Material budget should be

also budgeted by types of raw material and parts, by user responsibility, by interim period and by types of finished goods.

Ruthmen viewed “after the sales and production has estimated, the next steps to prepare material purchase budget, when the production budget is completed than the requirement of raw materials and components to be used in the process of manufacturing the finished products could be estimated”. A purchase budget gives the details of materials purchase to be made in the budget period (*Ruthmen; 1994: 5*).

A comprehensive profit planning and control program includes planning and controlling raw material and component used in the manufacturing of finished products. Adequate co-ordination and balance should be planned and controlled in between (1) factory requirements for raw materials, (2) raw materials inventory levels and (3) purchase of raw materials.

To assure that right amounts of raw materials will be on hand at the time required and to plan for the costs of such materials, it is essential that the tactical (short-term) profit plan includes (1) detailed budget specifying quantity and cost of materials required and (2) a related budget of raw materials purchase. Thus planning raw materials usually requires four sub budgets namely:- (1) material budget, (2) purchase budget, (3) materials inventory budget and (4) cost of materials used budget (*Welsch et. al.; 1992: 211*).

1. Material Budget

This budget specifies the planned quantities of each raw materials and part required for planned production. It should specify by time, by product and by using responsibility.

2. Purchase Budget

The material budget specifies the quantities and timing of each raw materials need therefore a plan for material purchase must be developed. The purchases budget specifies the estimated quantities of raw materials and parts to be purchased and their estimated cost as well as delivery dates.

3. Material Inventory Budget

The budget reports the planned levels of raw materials inventory items of quantities and cost. The difference in units between materials requirements as specified in materials budget and the purchase budget is reflected as in increases or decreases in the inventory budget.

4. Cost of Materials Used Budget

This budget reports the estimated cost of the materials planned for the materials budget, observing that the materials budget cannot be cost unit the planned cost of purchases. It specifies the planned cost of the materials and parts that will be used in the production process.

2.4.3.1 Materials and Parts Inventory Policies

The quantity differential planned between the materials and parts budget and the purchases budget is accounted for by the change in materials and parts inventory levels. As with the finished goods inventory budget, with respect to sales and production, the materials and parts inventory budget provides a cushion between materials and parts requirements and purchases. If materials and parts requirements are seasonal, a stable materials and parts inventory level means that purchases must exactly parallel factory material and parts requirement. Yet, in the same case, purchase can be at a uniform level only if inventory is allowed to absorb variations in materials and part requirements. The optimal purchasing plan will generally be between these two extremes. The timing of purchases will depend on inventory policies. The primary consideration in setting inventory policies for materials and parts are:

1. Timing and quality of manufacturing needs.
2. Economics in purchasing through quantity discounts.
3. Availability of materials and parts.
4. Lead time (order and delivery).
5. Perish ability of materials and parts.
6. Storage facilities needed.
7. Capital requirement to finance inventory.
8. Costs of storage.

9. Expected changes in the cost of materials and parts.
10. Protection against shortages.
11. Risks involved in inventories.
12. Opportunity costs (inadequate inventory) (Welsch et. al.; 1992: 243).

2.4.3.2 Purchasing Policy

Purchasing is the most important function of materials management as the moment an order is placed for the purchase of materials, a substantial part of the company's finance is committed which affects cash flow position of the company. So, the purchasing policy should be included the answer of some question like, what to purchase? When to purchase? Where to purchase? From where purchase? How much to purchase and what price to purchase?

Management policy with respect to purchases and inventory should be specified. The two basic timing factors are (i) how much to purchase at a time and (ii) when to purchase (Welsch et. al.; 1992: 244). To solve the first question, there is a well-known approach. The approach is known as economic order quantity 'EOQ'. An economic order quantity is the number of units per order to be purchase that will resulting in the lowest total of order costs and carrying cost of a annual's supply of the products. The quantity seeks to balance the cost of inventory and acquisition the cost of inventory possession.

For the calculation of 'EOQ' following formula is used.

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

Where,

- A = Annual quantity used in units
- O = Average annual cost of placing an order
- C = Annual caring cost of one unit in inventory for one year (e.g. storage insurance, return as investment in inventory).

Another approach which is a recent development in material's inventory management is called Just-in-time (JIT) purchasing. Its primary objective is to minimize inventory level and the resulting cost. In this approach, materials and parts are not purchased until needed for production, thereby minimizing

inventory-holding costs. In such an approach, it is critical to anticipate exactly when the materials and parts will be needed for production so that the acquisition can be reflected in the materials and parts budget for profit planning and control (PPC) purposes (*Welsch et. al.; 1992: 245*).

2.4.4 Direct Labour Budget

Direct labour budget is also developed from production budget. Firstly, direct labour requirement must be computed so that the company will know whether sufficient labour is available to meet production needs. By knowing in advance, the company can develop a plan to adjust the labour force as the situation may require. Direct labour is all labours expended in altering the construction, composition, confirmation or condition of the product.

After having the concept of direct labour we needed to recapitulate the concept of 'direct labour budget'. Generally a plan about the direct labour is called the 'direct labour budget' that is prepared after completed the production budget. The direct labour budget is developed in a manner similar to that of the material purchase budgets. The main difference lies in the fact that labour is not purchased and stored in inventory, as raw materials are direct labour is used at the time of purchase (i.e. it is incurred only at the time of production). Thus, to develop the direct labour input (i.e. incurred), it is necessary only to know the amount of time required by production departments and the wage rate prevailing in the production department. It is that labour that can be conveniently identified or attributed wholly to a particular job, product and process expended in converting raw materials into finished goods. It includes payment made to labour engaged on the actual production of the product, in finding of an operation, process, labour engaged in aiding the manufacturing by way of supervision, maintenance, tool setting, transportation of material and inspectors, analysis etc. specially required for such production. Wages paid to supervisors, inspectors etc. can be treated as direct labour if they are directly engaged on specific product and process, they spend their time. Similarly where the cost is not significant like the wages of trainees or apprentice, their labour though directly spent on a product is not treated as direct labour.

Welsch views, the direct labour budget includes the planned direct labour requirements necessary to produce the types and quantities of outputs planned in the production budget. This budget may give details about direct labour cost are about both direct labour hours cost. Planning and controlling labour cost involve major and complex problem areas: (i) personnel needs, (ii) re-measurement, (iii) training, (iv) jobs description and evaluation, (v) performance measurement, (vi) union negotiation and (vii) wage and salary administration.

1. Labour generally classified as direct and indirect. Direct labour cost includes the wages paid to employees who work directly on specific productive output.
2. Estimate ratios direct labour cost to some measure of output that can be planned realistically.
3. Develop personnel tables by enumerating personnel requirements (including) for direct labour in each responsibility centre.

2.4.4.1 Planning Standard Labour Time

An important function of industrial engineers is to develop standard labour time for various operations and products. In some cases, it is impractical to estimate direct labour time expect in terms of averages based on experience. The following four approaches are commonly used for planning standard labour time.

1. Time and Motion Studies

There studies are usually made by industrial engineers. They analyze the operations required on a product (by cost centres). By observation (and by actual timing with a stop watch), a standard time for each specific operation is determined. The industrial engineer must decide whether the fastest, slowest, or average employee's time should be used. Never the time and motion studies can provide reliable information about the labour time needed to perform each specific operation. The results of time and motion studies can provide basic

input data for developing the direct labour hours needed to meet planned production.

2. Standard Costs

If a standard cost accounting system is used, careful analyzes of direct labour hour requirements per unit of production will generally have been made. In such cases, the standard labour time per unit of product used to derive labour hour requirements.

3. Direct Estimate by Supervisors

Some companies ask the manager of each productive operation to estimate the direct labour hours required for the planned output. In making such estimates, the manager must rely on (1) judgement, (2) recent past performance of the department, (3) assistance from the next level of management and (4) technical staff personal.

4. Statistical Estimates by a Staff Group

Cost accounting records of past performance usually provide useful information for converting production requirements to direct labour hours. This approach is frequently used for producing departments that process several products simultaneously. The historical ratio of direct labour hours to some measure of physical output is computed and then adjusted for planned changes in the responsibility centre. The accuracy of this method depends on the reliability of the cost records and the uniformity of the production process from period to period. However, it is questionable because past in efficiencies will often be projected into the future. Even though some other method of estimating direct labour hours in used historical ratios of direct labour hours to productive output are frequently good checks on the accuracy of other methods used (*Welsch et. al.; 1992: 282*).

2.4.5 Overhead Budgets

Cost may be divided into two portions direct and indirect. The indirect portion of total cost is overhead. Which is the aggregate of indirect material, indirect labour and indirect expenses? Overheads comprise all expenditure incurred for or in connection with the general organization of the whole or part of the

undertaking i.e. the cost of operating supplies and services used by the undertaking including the maintenance of capital assets. There are three main types of the overhead namely:- manufacturing/ factory overhead, selling & distribution overhead and office and administration overhead.

Welsch viewed, "Expenses planning should not focus on decreasing expenses, but rather on better utilization of limited resources". Viewed in this light, expense planning and control may cause either decreased or increased expenditures. Expenses planning and control should focus on the relationship between expenditures and the benefits should be viewed as goals, and sufficient resources must be planned to support the operating activities essential for their accomplishment (*Welsch et. al.; 1992: 302*).

The overhead budget should be in detail for each responsibility centre and by interim time period. The budget can be divided into three sub-budgets namely, manufacturing factory overhead budget, selling distribution expenses budget, and office and administrative expenses budget.

2.4.5.1 Manufacturing/Factory Overhead Budget

Manufacturing overhead is that part of total production cost not directly identifiable with specific products or jobs. Manufacturing overhead consists of (1) indirect material, (2) indirect labour (including salaries) and other miscellaneous factory expenses such as taxes, insurance, depreciation, supplies, utilities and repairs. Manufacturing overhead includes many dissimilar expenses; therefore, it causes problems in the allocation of those cost to products. Since there are many different types of expenses, control responsibility often widely diffused. For example, such items are depreciation, taxes, and insurance are usually not subject to direct control by factory managers but rather by higher level management (*Welsch et. al.; 1992: 307*).

Manufacturing overhead/factory overhead budget gives an estimate of the worker overhead expenses to be incurred in a budget period to achieve the production target. The budget includes the cost of indirect material, indirect labour and indirect worker expenses. The calculation of the manufacturing overhead is made using the following methods.

Indirect materials	XXX
Add: Indirect labour	+XXX
Add: Indirect factory expenses	<u>XXX</u>
Total manufacturing overhead	XXX

Manufacturing overhead budgets are developed immediately of the production budget, as tentatively approved, has been converted to expected output (however measured) for each producing and service department in the factory (*Welsch et. al.; 1992 306*). When developing the manufacturing overhead budget, the following steps should be taken.

Step 1: Translate the requirements specified in the production plan in to output in each department.

Step 2: Plan departmental overhead expenses.

Step 3: Allocate the planned departmental expenses to the producing department.

Step 4: Allocate the producing department expenses to be products the product.

After these above steps, per unit overhead rate for each product could be computed and by adding the direct material cost and indirect labour cost for each product. The position is in to compute the cost of goods manufactured.

The budget may be classified into fixed cost, semi variable cost and variable. It can be broken into department overhead budget to facilitate control. In preparing the budget, fixed works overhead can be estimated on the basis of past information after taking into consideration the expected changes which may occur during the budget period. Variable costs are on the basis of the budget output because these expenses are bound to change with the change in output.

2.4.5.2 Selling and Distribution Overhead Budget

Selling and distribution expenses include all cost related to selling, distribution and delivery of products to customers. The expenses are not cost and are not allocated to specific product. Welsch viewed, "fundamentally, the top marketing executive has the direct responsibility for planning the optimum

economic balance (for profit potential) between (1) the sales budget and (2) the advertising budget and the distribution expenses budget". Therefore profit planning and control views sales, advertising and distribution expenses as one basic problem rather than as three separate problems. This view is logical because of the interrelationship between them (*Welsch et. al.; 1992: 314*). There are two type of selling expenses namely (1) sales office expenses which cover the cost of sales man and their administrative support and (2) sales direction and promotion expenses, which cover the cost of directing the sales efforts and promotional changes such as advertising.

The distribution expenses budget should be planned by responsibility centre, district or by the products. The top marketing executive has the overall responsibility for developing the distribution expenses budgets. The promotion manager should be responsible for developing the promotion plan and the advertise field. Sales managers should be responsible for developing both their marketing plan and their distribution expenses budget. The budget should separately identify controllable, non controllable expenses and this budget should be detailed by interim time period (*Welsch et. al.; 1992: 315*).

2.4.5.3 Office and Administrative Overhead Budget

Office and Administrative expenses include those expenses other than manufacturing and distribution. They are incurred in the responsibility centres that prove supervision of and service to all factions 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 (*Welsch et. al.; 1992: 316*).

Administrative expenses budget covers the expenses incurred in framing policies, direction the organization and controlling the business operation. The budget provides an estimate of the expenses of the control office and office manager salaries. The budget can be prepared with the help of past experience and anticipated changes. Much difficulty is appeared when the planner is not experienced in developing such budget as most of the administration expenses are of a fixed nature. Although, fixed expenses remain constant and are not

related to sales volume in the short run, they are dependent upon sales in the long-run with a small change in output. However, reduces by discharging the services some member of the staffs and lacking other economy measure. On the other hand with persistent increase in output, business activity and administration expenses will increase but they may lag behind business activity. According to Welsch, It is advisable to base budgeted administrative expenses on specific plans and programs. Past experience, adjusted for anticipated changes in management policy and general economic conditions is helpful. Because most administrative expenses are fixed, an analysis of the historical record will often provide a sound basis for budgeting them (*Welsch et. al.; 1992: 317*).

2.4.6 Capital Expenditure Budget

A capital expenditure is the use of funds or cash to obtain operational assets that will (1) help earn future revenues or (2) reduce future costs. Capital expenditure includes such fixed (i.e. operational) assets as property, plant, equipment, major renovations and patents. Typically, capital expenditures projects involve large amount of cash, other resource and debt that are tied up for relatively long periods of time, capital expenditures are investments because they require the commitment benefit today to receive higher economic benefits (i.e. profit) in the future. Capital expenditure becomes expenses in the future as their related goods future profits from future revenues or to achieve future cost savings (*Welsch et. al.; 1992: 395*).

A major issue in planning capital expenditure is the problem of ensuring that a company has the capacity to produce, acquire to deliver the goods and services that will be needed to meet its sales and services plans (*Welsch et. al.; 1992: 632*). A major issue in control in the actual expenditure of funds is the problem of ensuring that the actual expenditures are consistent with the plans and that funds are available when the expenditures are incurred. The capital expenditure is an important part of budgeting. The capital expenditure budget is variously referred to as the capital additions budget, plant and equipment budget,

construction budget, capital outlay budget, investment budget or plant additions budgets.

The capital budgeting decision involves a current outlay or series of outlays of cash resources in return for an anticipated flow of future benefits (*Quirin; 1967: 2*). Capital expenditure management includes addition disposition, modification and replacement of fixed assets. From the preceding discussion may be deduced the following basic feature of capital budgeting are (a) Potentially large anticipated benefits, (b) a relatively high degree of risk and (c) a relatively long time period between the initial outlay and the anticipated return (*Oster; 1974: 4*). Capital budgeting is the planning of expenditure whose return will be available beyond one year time interval. It is the process of deciding in advance whether a concern should commit its resources to a project or not whose benefits would be spread over several time periods (*Jain & Narang; 1984: 231*). It may be defined as the decision making process by which firms evaluates the purchase of major fixed assets, including building, machinery and equipment. It is part of the firm's formal planning process for the acquisition and investment of capital (*Hampton; 1976: 245*).

Capital budgeting involves the generation of investment proposals. The estimate of cash flows for the proposals is the evaluation of cash flows, the selection of projects based upon an acceptance criterion and finally the continual revaluation of investment projects after their acceptance (*Van Horne; 1997: 148*). It involves the entire process of planning expenditures whose returns are expected to extend beyond one year. The choice of one year is arbitrary, of course but it is a convenient cut off point for distinguishing between kinds of expenditures (*Weston & Brigham; 1978: 144*).

A capital budgeting is the process of determining which capital investments will be undertaken. There are three stages of capital budgeting namely (a) proposal generation, (b) analysis and (c) implementation. Capital budgeting is the analysis of proposal long-term investments and the decision making process that determines the types of plant and equipment firm will own. How much will

be invested in such assets and when the expenditure will be made (*Henderson; 1995: 118*).

2.4.6.1 Method for Evaluation of Capital Budgeting

To determine the various investment proposals, the necessary information should have collected and evaluated them. The all investment proposals have some risky or uncertainty. The investment proposals does not differ from the risk of existing investment projects of a firm and that the acceptance of any proposal or group of an investment proposal does not change the relative business risk of the firm. The investment decision will be either to accept or to reject the proposal. Van Horne suggests four methods of evaluating capital budgeting such as: (i) average rate of return, (ii) payback period, (iii) internal rate of return and (iv) net present value (*Van Horne; 1997: 149*).

A brief introduction of the above evaluation of capital budgeting method is given below:

I. Average Rate of Return (ARR)

This accounting measure represents the ratio of the average annual profits after tax to the investment in the project (*Van Horne; 1997: 149*) ARR is calculated by the help of following formula.

$$\text{ARR} = \frac{\text{Average Annual Profit (After Tax)}}{\text{Average Investment Over the Life of the Project}} \times 100\%$$

The method of evaluating proposal capital expenditure is also known as the accounting rate of return method. It is based upon accounting information rather than cash flow. The most important and advantage of the method is its simplicity in calculation and it makes use of readily available accounting information. It does not take into consideration the timing of cash inflows and out flows. The method ignores the time value of money to consider of the project evaluation. The higher the ARR is better to the firm.

II. Pay Back Period (PBP)

The payback period of an investment project tell us the number of years required to recover our initial cash investment. It is the ratio of initial fixed

investment over the annual cash inflows for the recovery period (*Van Horne; 1997: 150*). Payback period is calculated by the help of following the formula.

$$\text{Payback Period} = \frac{\text{Cost of the Investment}}{\text{Net Cash Inflow Per Year}}$$

The method is based on the idea that the original cost of investment must be recovered if the company is to remain in effective existence. The method is also simple to understand and easy to calculation. It is also ignore the time value of money.

III. Internal Rate of Return (IRR)

The internal rate of return method is a discounted cash flow approach of capital budgeting. Because of the various short comings in the average rate of return and payback methods, it is generally that discounted cash flow methods provide a more objective base for evaluating and selecting investment projects. These methods take account of both the magnitude and the timing of expected cash flows in each period of a project life. The internal rate of return for an investment proposal is the discount rate that equates the present value of the expected cash flows with the present value of the expected inflows (*Van Horne; 1997: 150*). A discounted cash flow or time value adjusted method for appraising capital investment decision is the internal rate of return method. The IRR depends entirely on the initial outlay and the cash proceeds of the project which is being evaluated for acceptance or rejection. It is defined as the discount rate which equates the aggregate present value of the net cash inflows (cash flow after taxes) within the aggregate present value cash out flows of a project. It is represented by 'r' and calculated by the help of following formula.

$$A_0 = \frac{A_1}{(1+r)} + \frac{A_2}{(1+r)^2} + \dots + \frac{A_n}{(1+r)^n}$$

Where,

- A_0 = the initial outlay
- A_1, A_2, A_n = future net cash flows
- r = Internal rate of return

If there are a number of alternative proposals, the internal rate of return of all alternatives should be compared and the alternative which gives the maximum internal rate should be selected as the most profitable one. The main difficulties of the method is calculation which will equates present value of net cash flows with that of initial cost of the project.

IV. Net Present Value (NPV)

The present value method is a discounted cash flow approach to capital budgeting. With the present value method, all cash flows are discounted to present value, using the required rate of return. The net present value is calculated by the following formula (Van Horne; 1997: 152).

$$NPV = \sum_{t=0}^n \frac{A_t}{(1+K)^t}$$

Where,

K = Overall cost of capital

t = No. of year (no of period)

A = the stream of cash flows including initial cash outlay.

From the above formula, NPV may be defined as the summation of the present values of the cash flow after tax in each year minus the summation of present values of the net cash outflows in each year. The method has some merits (like, it explicitly) recognizes the time value of money, considers the total benefits arising out of proposal over its life time. The method is particularly useful for selection of mutually exclusive projects.

After having a brief introduction of the four methods of capital budgeting decision, the decision criteria can be summarized and presented below in table.

Table 2.3
Capital budgeting decision criteria

S.N.	Name of methods	Accept/Reject Rule
1.	Average Rate of Return (ARR)	Highest/Higher the ARR is accepted and vice versa.
2.	Pay Back Period (PBP)	Lowest/lower the payback period is accepted and vice-versa.
3.	Internal Rate of Return (IRR)	IRR should be higher than overall cost of capital (K_0) is accepted and vice versa.
4.	Net Present Value (NPV)	Highest/higher the NPV is accepted and vice versa (only the positive).

2.4.7 Cash Budget

The cash budget is a forecast of expected cash receipts and payments for a future period (*Ruthman; 1994: 275*). Cash shows the planned cash inflows, outflows and ending position by interim periods for a specific time period. A cash budget basically includes two parts. First part is the planned cash receipts (inflows) and second part is the planned cash disbursement (outflow). It prepared after all of the other budgets have been completed. It is the most important part of the firm's budget programme. It consists of three parts namely – (a) estimates of cash receipts, (b) estimates of cash disbursements and (3) cash balances of each budget period.

A cash budget is arrived at through a projection of future cash receipts and cash disbursements of the firm over various intervals of time. It reveals the timing and amount of expected cash inflows and outflows over the period studied (*Van Horne; 1997: 806*). Cash budget may be made for almost any period of time for near term, forecast, monthly periods – probably are most frequently used because they take into account seasonal variations in cash flow. When cash flows are relatively stable, budgeting at quarterly or even longer intervals may be justified (*Van Horne; 1997: 807*).

Planning cash inflows and cash outflows gives, the planned beginning and ending cash position for the budget period. Planning the cash inflows and outflows will indicate the need for financing probable cash deficits and need for investment planning to put excess cash to profitable use. The cash budget is directly related to other plans. Such as the sales plan, account receivable, expenses budgets and the capital expenditures budget.

The primary purposes of the cash budget are to:

1. Give the probable cash position at the end of each period as a result of planned operations;
2. Identify cash excess or shortage by time periods;
3. Established the need for financing and/or the availability of idle cash for investments;
4. Coordinate cash with total working capital;
 - a. Sales revenue,
 - b. Expenses,
 - c. Investment, and
 - d. Liabilities.
 - e. Establish a sound basis for continuous monitoring of the cash position (*Welsch et. al.; 1992: 434*).

A comprehensive profit planning and control programme establishes the foundation for a realistic cash budget. There must be a balance between available cash and the cash demanding activities operations, Capital expenditures and so on (*Welsch et. al.; 1992: 435*).

2.4.7.1 Approaches Used to Develop Cash Budget

There are two major approaches are used to develop the cash budget. They are following:

1. Cash receipts and disbursement approach.
2. Financial accounting approach.

1. Cash Receipts and Disbursement Approach

Cash receipts and disbursement approach is based on a detailed analysis of the increases and decreases in the budgeted cash account. That should reflect all

cash inflows and outflows from such budgets as sales, expenses and capital expenditures (*Welsch et. al.; 1992: 436*). So that, it is also called the direct or cash account method. It is often used for short-term cash planning as a part of the annual profit plan. Generally, the approach is not appropriate for the more long-term profit plan. The underlying budgets the cause cash inflow and out flows are carefully analyzed to translate them from an accrual basis to a cash basis.

Cash inflows arise from cash sales, collection of accounts, a/c receivable, notes receivable, interest received on investment, sales of capital assets and miscellaneous income resources; and cash outflows arise from purchase (in cash), payment of loan, increase in investment, repurchase of the common share, payment of salaries payment of rent, payment of taxes, losses and miscellaneous expenditures.

2. Financial Accounting Approach

The starting point in this approach is planned net income shown on the budgeted income statement. Basically, planned net income is converted from an accrual basis to cash basis (that is, adjusted for changes in the non cash working capital accounts such as inventories, receivables, prepaid expenses, accruals, and deferrals). This approach requires less supporting detail and provides less detail about the cash inflows and outflows. It is useful for making long-ranges cash projections. This approach is also known as the indirect to or income statement approach. It is used for analytical purpose to develop the annual cash budget. However, it is used more often for long-term cash planning.

Basically the method develops cash flows starting with net incomes adjustment to net income is made for non cash items affecting accrual basis net income. The other cash inflows and outflows are estimated for non operating items such as sale of fixed assets, capital additions and payment of debt and dividends. These estimates are computed much like the cash receipts and disbursements methods. For a common set of underlying plans, the cash receipts and

disbursements approach and the financial accounting approach derive the same cash flow results (*Welsch et. al.; 1992: 447*).

2.4.7.2 Techniques for Improving Cash Flow

Improving cash flow basically involves increasing the amount of available cash on day to day basis. To accomplish the objectives the management should focus on (1) cash collection process, (2) cash payment process and (3) investment policies.

A number of methods have been employed to speed up the collection process of cash and maximize available cash. These methods are designed to do one or all of the following.

- a. Speed the mailing time of payments from customers to the firm,
- b. Reduce the time during which payments received by the firm remain uncollected funds and
- c. Speed the movement of funds to disbursements banks.

In the connection, Shafer viewed, some of the ways often used to improve the efficiency of the cash collection process are as follows.

1. Review the lag from the date of sales of goods and services on credit to the mailing of (i) invoices and (ii) first billing to the extent feasible, invoices should be designed to also be the first billing to encourage immediate payment by the customer. The time lag can avoid significance adverse after on early collection.
2. If cash discounts are given to customers for early payments, review their effect on early cash collection and whether the discount is too high or too low. Also, monitor whether the discount policy is being violated in the company. Alternatively, if discounts are not given, does the company assess an 'interest' penalty for late payment? How much cash inflows are lost by not charging for late payment?
3. Review the credit granting process to determine whether bad credit risks are being screened out. Also, are delinquent receivables being identified early and collection action taken before the receivable becomes an unforgettable?

4. Consider ways to decrease the time between the date that customers pay by check and the date that the cash is available for use in the company's bank account. This time is called 'float' and it may vary from one day to ten days. Float may be very costly because (i) the cash inflow is slow and (ii) the opportunity to earn interest on the cash during the float period is lost (*Shafer; 1987: 114*).

2.5 Forecasting

Forecasting is the integral part of decision-making activities of management. An organization establishes goals and objectives, seeks to predict the environmental factors, then selects actions that it hopes will result in attainment of goals and objectives. The need for forecasting is increasing as management attempts to decrease its dependence on chance and becomes more scientific in dealing with its environments. Since, each area of an organization is related to all others, a good or bad forecast can affect the entire organization (*Makridarkis et. al.; 1977: 4*).

A forecast should always state the assumptions upon which it is based. Forecast should be viewed as only one input into the development of a plan. The management of a firm may accept, modify or reject the forecast. Forecasts are indispensable factor in planning. Forecasts are statements of expected future condition; definite statements of what will actually happen are patently impossible. Expectations depend upon the assumptions. If the assumptions are plausible, the forecast has a better chance of being useful. Gupta viewed, “when estimates of future conditions are made on the systematic and the figure or statement obtain is known as forecast” (*Gupta; 1992: 82*).

2.5.1 Level of Forecasting

A large number of forecasting methods are available to management today. To handle the increasing variety and complexity of managerial forecasting problems, the different level of forecasting and different forecasting techniques have been developed in recent years. The selection of level of forecasting depends upon many of factors like the context of forecasts, the relevance and availability factors, the degree of accuracy of the data, the desirable time period

to be forecast, the time available for making the forecast, and the cost of the forecasting. There are three levels of forecasting namely (1) short-term forecasting (2) intermediate-term forecasting, and (3) long-term forecasting.

1. Short-Term Forecasting

The short-term forecasting is a predication extending a maximum of two years into the future. The short-term forecasting provides more rationally ordered information and a sound base for decision making to the management. The short-term forecast of general business conditions often important in deriving a short-term sales forecast is useful in making internal estimates of the company operations. The internal estimates made by the adjoining department in the large enterprises can be integrated with up to date.

2. Intermediate-Term Forecasting

The intermediate-term forecasting covers from three to five years in to the future. This is one of the least developed area of prediction because the forecaster does not have the advantage of surveys of consumer and business intentions. Neither can be extrapolate long-term trends no one is a particularly good position to rank the importance spending intentions are of vital assistance in the development of short run predications.

3. Long-Term Forecasting

Forecasts are frequently made in the form of long range projection that compete an economic situation with a minimum of five year into the future with present circumstances or with those of the relevant past. The prospects a picture that has some empirical foundation, sought is reasonable statement of the most probable outcome of an explicit combination of assumptions. Sometimes these assumptions are varied to yield a range of possible result. Typically, long-range aggregate projections have been set in a gross national production framework. Once an appraisal has been made of the growth potential of the aggregate economy, consideration may be given first to the magnitude of future industry sales by product or services line as well as total.

The purpose of long-range projection is to give a rough picture of future prospects, long range aggregate projection have been set in a gross national product frame work. Long range forecast may indicate the volume of investment necessary in plant and equipment.

2.5.2 Planning Verses Forecasting

Sales planning and forecasting often are confused. Although related, they have distinctly different purposes. A forecast is not a plan it is a statement or a quantified assessment of future conditions about a particular subject (e.g. sales revenue) based one or more explicit assumptions. A forecast should always state the assumptions upon which it is based. A forecast should be viewed as only one input into the development of a sales plan. The management of a company may accept, modify or reject the forecast. In contrast, a sales plan incorporates management decisions that are based on the forecast, other inputs and management judgements about such related items as sales volume, prices, sales efforts, production and financing (*Welsch et. al.; 1992: 172*).

The distinction between forecasting and planning is not an easy. 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. Many companies prepare and use forecast but do not have disciplined planning procedures other companies have planning without using such procedures. Actually forecasting is important part of the budgeting procedure.

2.6 Concept of Surplus

The term 'surplus' refers to the balance of earning expected to be available with an enterprise after providing for its working expenses, interest payment and various provision for liability. In other words, surplus is the amount of resources with enterprises to be retained in the enterprises for future growth and expansion or to be distributed to the owners of enterprise as dividend or for both purposes. Although profit is an absolute concept and profitability is a

relative concept for the purpose of the analysis, the researcher use the term 'profit' and 'profitability' interchangeable refers to generation of surplus.

2.6.1 Need and Essence of Surplus Generation

Surplus generation for public enterprises is an important as well as essential due to the following reasons:

- a. The evaluation of public enterprise performance in financial terms would be facilitated.
- b. The enterprises would be less dependent upon public money and as result they could plan their productive programme independently.
- c. A prescribed minimum rate of return would help their expansion, diversity and growth.

2.6.2 Case for Profitability

An underdeveloped country is generally characterized by scarce national resources. In that country financial, natural, human, technological etc. and the available resources too are left utilized, underutilized or mix-utilized. In other words due to low income, low saving and low investment the rate of capital formation is became quite low in an under-developed country. Thus, public enterprises have to play a more position and promising role in nation's economic development.

In the developing countries, governments expect the public enterprise to yield resources for financing not only the latter's own expansion but also for financing the national plans. In fact, the increasing obligations of the enterprises in mobilizing additional plan resources have been widely and increasingly recognized in the plan documents of developing countries. This has been accepted in Nepal too since the formation of the second plan in 1962.

Some economists like I.M.D. little and Roy Harrod are in favour of earning a large amount of profit as possible. Little suggests that profit be used partly for expansion and partly for workers welfare and partly for augmenting the national revenues. Sir Roy Horrod went to extent of expressing the view'.....that the nationalized industry be told in future, they will have to

find their capital requirement by internal finance (*Nation Planning Commission, Three Year Plan; 1962: 29*).

One of the main reason for creating public enterprise in the under developed countries is to raise the internal resources by way of retained earnings and dividend payments. In Nepal too, Government of Nepal has deliberately envisaged the public enterprise as the instrument of mobilizing resources in the country. This objective has been explicitly mentioned in various plan documents of the country since the formulation of the second plan in 1962. Nepal government has issued a circular to all the public enterprises in June 1980 to earn a certain rate of return of their capital employed.

If public enterprises are not dependent on the government for their expansion they can maintain independence and initiative to a great extent. Otherwise, uncertainty with change in politics and political pressures may come into negative influence. However, giving subsidies and grants to a public enterprise a mixed economy like Nepal where the private enterprises also operate side by side is morally unjust and economically unsound. It simply helps to conceal their inefficiency and financial in-discipline, entailing a direct burden on the tax payers.

Thus, in the scenario of Nepal where public enterprises have been established with explicit objective of generating surplus for further economic development, earning surplus is compatible with the national economic goals. The government should decide the amount of surpluses to be generated by each enterprise taking into consideration the nature of market. The particular public enterprise is operating, its surplus generating potentiality, national objectives, enterprise constraint etc. Thus, a part of the general profit they will go to the treasury of Nepal government by way of dividend payment that is meant for future economic growth of the country and balance is apportioned for various reserve fund and retained earnings. The amount apportioned could be used any time for investment, expansion and improvement of the enterprises (*Pathak; 1983: 41*).

2.6.3 Profitability Ratio

Profitability is a measure of efficiency and the search for it provides an incentive to achieve efficiency (*Khan & Jain; 1998: 136*). The ratios measure overall efficiency of management as the return generated on sale and investment. It is also a control measure of the earning power of a firm as well as operating efficiency.

Profitability ratios essentially relate to the profit earned by a firm during a particular period to various parameters like sales, shareholders equity, capital employed and total assets. Western and Brigham express their view, "Profitability is net result of a large number of policies and decisions. The ratio examine of thus for reveal some interesting things about the way the firm operates but the profitability ratio give final answers about how effectively the firm is being managed" (*Weston & Brigham; 1978: 140*).

Profitability ratios are designed to provide answers to such as (a) is the profit earned by the firm adequate? (b) What rate of return does it represent? (c) What is the rate of profit for various divisions and segment of the firm? (d) What is the earning per share? (e) What amount was paid in dividends (f) what is the rate of return to equity holder? And so on (*Khan & Jain; 1998: 136*). The profitability ratio is calculated to measure the operative efficiency of the company. Besides, management, creditors and owner of the company are also interested in the profitability ratio of the firm (*Pandey; 1993: 116*).

The profitability ratios are two types, those showing profitability in relation to sales and those showing profitability in relation to investment. Together these ratios indicate the firm's efficiency of operation (*Van Horne; 1999: 77*). The ratios can be determined on the basis either of sales or investment. The more important profitability ratio is relation to sales are gross profit margin, net profit margin, return on fixed assets, return on total assets return and capital employed. An introduction of the ratios is given below.

1. Gross Profit Margin (GPM)

Gross profit margin ratio refers the percentage relationship between gross profit and sales. Gross profit means the excess amount of sales over cost of goods

sold. Van Horne viewed, "this ratio tells us the profit of the firm relative to sales after we deduct the cost of producing the good sold. It indicates the efficiency of operation as well as how product is priced" (*Van Horne; 1996: 772*). It is calculated by the help of following formula.

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100\%$$

A high ratio of gross profit margin is a sign of good management. It means the firm is able to produce its products relatively at low cost and to sale relatively at higher price and vice-versa. So, higher ratio is favourable to the any business firm.

2. Net Profit Margin (NPM)

Net profit margin measures the percentage of each sales dollar left after all expenses, including taxes have been deducted (Gitman; 1988: 108). It is that ratio, which measures the relationship between net profit and sales of a firm. It is computed by dividing net profit after tax by net sales. It is calculated by following formula.

$$\text{Net Profit Margin} = \frac{\text{Net Profit After Tax}}{\text{Net Sales}} \times 100\%$$

The net profit margin tells us the relative efficiency of the firm after taking into account all expenses and income taxes but not extra ordinary charges. A higher the ratio is preferable to a firm. Such firm will be able to accelerate its profit at faster rate than the firm with lower net profit margin.

3. Return on Assets (ROA)

Return on assets ratio measures the net profit after tax against the amount invested in the assets. Van Horne viewed, "when we multiply the assets turnover of the firm by the net profit margin, we obtain the return on assets ratio or earning power on total asset" (*Van Horne; 1996: 174*). The statement can be written in the following formula.

$$\begin{aligned} \text{Return on Assets} &= \text{Assets Turnover Ratio} \times \text{Net Profit Margin} \\ &= \frac{\text{Net Profit After Tax}}{\text{Total Assets}} \times 100\% \end{aligned}$$

Return on assets measures how efficient the firm is in order to manage its total assets and to generate profit. Higher is preferable.

4. Return on Capital Employed (ROCE)

The term capital employed refers to long-term funds supplied by the creditors and owners of the firm. Return on capital employed is the relationship between net profits after tax to the total capital employed. The ratio measures the overall effectiveness of management in earning profit from using total capital. It can be calculated by dividing net profit after tax by total capital employed.

$$\text{Return on Capital Employed (ROCE)} = \frac{\text{Net Profit After Tax}}{\text{Total Capital Employed}}$$

The ratio is most important because it reflects the overall efficiency with which capital is used. It is a helpful tool for making capital budgeting decisions. Higher the ratio is favourable to the firm and vice-versa.

2.6.4 Solvency Ratio

Solvency ratio refers to that ratio which reveals the liquidity position of the concern. It shows the financial standing of the concern. Solvency ratios are calculated to judge the financial position of the firm from short-term solvency view point as well as long-term. Generally short-term solvency ratios are current ratio, quick ratio and long-term solvency ratio is debt equity ratio.

1. Current Ratio

One of the most general and most frequently used ratios is called current ratio. It is a measure of short-term liquidity. It is calculated by dividing the firm's current assets by current liabilities (*Gitman; 1988: 96*). Current assets normally include cash, marketable securities, prepaid, advance expenses, accounts receivable and inventories. Current liabilities consist of accounts payable, short-term notes payable and a/c receivable. The ratio is calculated by the help of following formula.

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

There is no hard and fast rule conventionally a current ratio of 2:1 is considered satisfactory. The higher the current ratio is favourable to the organization.

2. Quick Ratio

Quick ratio is ratio of liquid assets to current liabilities. Liquid assets are those assets, which are readily converted into cash. It includes cash balances, bill receivable, a/c receivable, sundry debtors and short-term investment. Inventory and prepaid expenses are not included in liquid assets because the emphasis is on the ready availability of cash in case of liquid assets. It is also known as acid test or liquid ratio. Quick ratio is a measure of liquidity of firm. It is calculated by the firm's current assets minus inventory and prepaid expenses from current liability. Quick ratio can be deriving by using following formula.

$$\begin{aligned}\text{Quick Ratio} &= \frac{\text{Quick Asset}}{\text{Current Liability}} \\ &= \frac{\text{Current Assets} - \text{Inventory} - \text{Prepaid Expenses}}{\text{Current Liability}}\end{aligned}$$

Generally, a quick ratio 1:1 is considered to represent a satisfactory current condition. The standard for the quick ratio depends upon the types of the business organization.

3. Debt - Equity Ratio

The relationship between creditors and owners' fund is a popular measure of the long-term financial solvency of a firm. The relationship is shown by the debt equity ratio. This ratio indicates the relative claims of borrower and owners against the firm's assets. Gitman viewed, "the debt equity ratio indicates the relationship between the long-term fund provided by creditors and those provided by the firm's owner" (*Gitman; 1988: 103*). According to Van Horne, the debt to net worth ratio is computed by simply dividing total debt of the firm (including current liability) by shareholder's equity (*Van Horne; 1996: 767*). The ratio is computed by the following formula.

$$\begin{aligned}\text{Debt Equity Ratio} &= \frac{\text{Long Term Debt}}{\text{Shareholder's Equity}} \\ &= \frac{\text{Total Debt}}{\text{Shareholder's Equity}}\end{aligned}$$

The ratio calculated on the basis of book-value, it is some time useful to calculate this ratio using market value. A high debt equity ratio shows that the claim of creditors is greater than those of owners. It is risky to the creditor. So, creditors always want a low debt-equity ratio. High the ratio is unfavourable to creditors as well as business point of view and versa. It is an important tool of financial analysis to appraise the financial structure of a firm. It is useful to creditor, owners of the firm and the firm itself.

2.6.5 Efficiency Ratio

As efficiency ratio may be defined as a test of the relationship between sales and various types of assets of organization. By depending upon the various assets there are various types of activity ratio. Efficiency ratios indicate how effectively the company is using its asset. It is also known as activity ratio or turnover ratio. Efficiency ratios are concerned with measuring the efficiency in operating as well as assets management (*Khan & Jain; 1997:149*). It is used to measure the speed with which various account are converted into sales or cash. The ratios involve a relationship between sales and various assets (like inventory, receivable, fixed asset, total assets etc.). Inventory turnover ratio, total assets turnover ratio, debtor turnover ratio, capital employed turnover ratio are the more important and widely used as the efficiency ratio.

1. Inventory Turnover Ratio

Inventory turnover ratio indicates the number of times inventory is replaced during the year. The ratio shows how rapidly the inventory is turning in to receivable through sales. It calculated by sales divided by average inventory. In other word, it measures the relationship between cost of goods sold and the inventory level. The ratio can be computed by following to following approaches.

$$\text{a) Inventory Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

$$\text{b) Inventory Turnover Ratio} = \frac{\text{Sales}}{\text{Closing Inventory}}$$

The ratio is a most important tool of inventory management. So, it is also known as stock turnover ratio. It shows the utilization of inventory management of a business firm. A higher the ratio is better than a lower the ratio. Higher the ratio indicates the better efficiency of the inventory in the firm.

2. Debtors Turnover Ratio

Every business firms cannot always sell their products in cash. They should have to sell their product on credit that is known as debtors, bill receivable and a/c receivable which is current assets of the firm. The debtor's turnover ratio is a test of liquidity of debtors of the firm. It is also known as receivable turnover ratio. The ratio is very closely related with the average collection period. It shows how rapidly debtors are converted into cash. It shows the relationship between sales and debtors of the firm. It is calculated by dividing credit sales with debtors of the firm.

$$\text{Debtors Turnover Ratio} = \frac{\text{Credit Sales}}{\text{Average Debtors}}$$

To solve the problem arising out of the non-availability of the information in respect of credit sales and debtors, the following alternative approach is used.

$$\text{Debtor Turnover Ratio} = \frac{\text{Total Sales}}{\text{Closing Debtor}}$$

Higher closing balance of debtors the preferable to the business firm which shows the better the trade credit management and vice-versa.

3. Assets Turnover Ratio

Assets turnover ratio is the relationship between sale and various types of assets (like fixed assets, current assets, total assets etc.). It shows the firm's earning power with utilization of the various types of assets. It is also known as investment turnover ratio. Depending upon the different concept of assets, there are following types of this ratio.

The first assets turnover ratio is total assets turnover ratio which is calculated by dividing sales with total tangible assets (*Gitman; 1988: 100*).

$$\text{Total Assets Turnover Ratio} = \frac{\text{Sales}}{\text{Total Asset}}$$

Total assets turnover ratio indicates the efficiency with which the firm uses all assets to generate sales. The higher the ratio shows more efficiently its assets have been used and vice-versa.

The second types of assets turnover ratio is fixed assets turnover ratio, which is calculated by dividing sales by net fixed assets.

$$\text{Fixed Asset Turnover Ratio} = \frac{\text{Sales}}{\text{Net Fixed Assets}}$$

Fixed assets turnover ratio is the relationship between sales and net fixed assets of the firm. It measures the efficiency with which the firm has been using its fixed assets to generate sales. A third type of assets turnover ratio is current assets turnover ratio which is the relationship between current asset and sales. It is calculated by dividing sales by current assets.

$$\text{Current Assets Turnover Ratio} = \frac{\text{Sales}}{\text{Current Assets}}$$

Assets turnover ratios express the number of times assets (fixed, current & total) are being turnover in a stipulated period of time. The ratio is an important in cases of manufacturing as well as trading concern. Generally higher the assets turnover ratios (fixed assets turnover ratio, current assets turnover ratio and total assets turnover ratio) is preferable to the firm.

4. Capital Employed Turnover Ratio

Capital employed means those noncurrent liabilities including owner's equity. It is also defined as permanent capital or long-term fund. Capital employed turnover ratio refers the relationship between sales and capital employed. It can be calculated by dividing sales by capital employed.

$$\text{Capital Employed Turnover Ratio} = \frac{\text{sales}}{\text{Capital Employed}}$$

Capital employed turnover ratio expresses the number of times capital employed is being turnover in a stipulated period of time. It measures the ability of generating sales per dollar of long-term investment. Higher ratio is favourable to the firm and vice-versa.

2.7 Review of Previous Related Research Works

2.7.1 Journal and Articles

Acharya (1999), in his article, *"Dursanchar Ko Bartaman Awastha ra Nijikaran"* has suggested to utilize its fund rather than accept high interest bearing loans for capital investment, since the rate of earning in liquid fund is less than the rate of interest it pays for the loan.

Acharya (2000), in his article *"Profitability Structure of NEA"* suggested utilizing its internal resource. He writes "It has become possible to maximize profit utilizing internal resources with minimum cost. In other hand, liquidity position of the corporation is quite high as it keeps capacity to pay of whole debt at once if the circumstances so required. Keeping in view the increasing services it can be expected that the further profitability trend will get improve furthermore in comparison to current trend provided the revenue structure from national and international service remain within a certain limit at unchanged tariff situation."

Pokhrel (2005), in his article *"Revenue Collection in Nepal Telecom and strengthening it in future"* shows Nepal telecom standard cash collection and revenue ratio has been taken as 98% through some portion of cash collection during the year may pertain to previous years. But the result shows the actual cash/revenue percentage fluctuated from the standard.

Poudel (2010), "*Sana tatha kutir udhyog ko arthik byawasthapan*" reveals that cottage and small industries department has big amount of expenses as uncertified which shows lack of responsibility in financial aspect by the public enterprises.

The above review of various journal and articles related to profit planning and control (budgeting) and cash management reveals the poor budgeting practices in Nepalese PE's.

2.7.2 Review of Thesis

There are many research work made as like as this topic i.e. profit planning and control (budgeting). Some research works made on the topic of profit planning in Nepalese context and the same are relevant to review here in this section.

There are very few research papers concerning this particular i.e. budgeting practice. Most of the students of account group have done the research in the topic of profit planning and control of different public and non public enterprises. Some dissertations reviewed here are on the topics of budgeting.

Bhata (2005), has submitted a dissertation on the topic "*Profit Planning in Royal Drugs Limited*" this research of Bhatta was mainly concerned with the current practice of profit planning and examines that to what extent the RDL is apply profit planning system Primary as well as secondary data have been used in the research reporters. The main objectives of Bhatta's research work were:

-) To analyze the various functional budgets that is prepared in public enterprise of Royal Drugs Limited.
-) To sketch the trend of profit or loss.
-) To evaluate the variance between budgeted and actual of the enterprise.
-) To examine practice and effectiveness of profit planning.

Major finding of Bhatt's research are:

-) There is a lack of entrepreneur ship and business in the operation of the enterprise.
-) Authority and responsibilities are not clear among the department management and working managers.
-) There is a more conflict and lack of co-ordination between departments.
-) Responsibility counters to control of cost are not clearly defined.
-) Internal and external variables providing opportunities threats and strengths and weaknesses are not identified.

Dahal (2006), carried out the study on "*Impact of Budgeting on profitability of manufacturing industry: A case study of Ganga Rosin and Tarpendine Industry*" in 2006. This study has pointed out the following major findings and gave recommendations:-

Objectives of the study:

-) To analyze the profit planning applied in GRTI.

-) To analyze the major functional and financial plans formulated and implemented in GRTI.
-) To examine the outcome of those plans in terms of achievement.
-) To point out possible suggestions and recommendations to improve the performance of GRTI with the means to profit planning system.

Findings:

-) The industry has not operated in full capacity.
-) Actual sales of Rosin are more fluctuating than budgeted sales and Budgeted production of rosin are more fluctuating than actual production.
-) GRTI has a practice of preparing both strategic and tactical plans.
-) The net profit and gross profit of GRTI are in increasing trend every year.
-) Comparing net profit and gross profit, net profit is very low than gross profit. It shows that over fixed cost or administration charge.
-) There is positive and close correlation between budgeted and actual sales.
-) GRTI was able to meet its BEP sales therefore, it was profit every year.
-) GRTI has no practice of cost segregation.
-) Investment in current assets is being higher than necessity, which may reduce the profitability of industry in the future.

K.C. (2007), has conducted a research on the topic, "*Profit planning in Nepal Electricity Authority and Nepal Telecom.*" This research work is basically concerned is to highlight the current practice of profit planning and its effectiveness in the company's other specified objective are:

-) To examine the present profit planning premises adopted by the companies.
-) To analysis the difference between budgets and actual achievement of the companies.

-) To point out suitable suggestion and recommendation. To conduct this research, both primary and secondary source of data have been used. The time period was five years from FY 2051/52 to 2055/56 in this study. K.C. has pointed various finding or recommendations. Few major findings and recommendations are as follows:

The major finding of the study is as follows:

-) Specific goals and objectives are not conveyed to lower level of staff and it denotes the absence of MBO principle of management.
-) There is lack of proper coordination between the various responsible departments.
-) There is no cost classification system. Overhead are not classified systematically and it creates problem of analyze its expenses properly.
-) Absence of skilled and purely academic manpower in budgeting section, the company has unable to prepare systematic future plan.
-) There is no arrangement of any accounting and management planning training by the company.
-) Actual sales are very below than budgeted sales.
-) There is a lack of entrepreneurship in the operation of the company.
-) The companies are suffering from low contribution margin and high fixed cost.

Niraula (2008), has made research on “*impact of budgeting on profitability, a case study of Nepal electricity authority*” and pointed out the following major findings and recommendations:

Objectives of the study:

-) To analyze the various functional budget of NEA
-) To analyze the true picture of managerial budgeting adopted by NEA.
-) To analyze the variance between budget and actual achievements of the authority.
-) To point out the major shortcoming and recommend suggestive measures

Findings:

-) Actual and budgeted sales are found to be significant but the difference between budgeted and actual production is found to be vague. In spite of the fact, there is perfect correlation between budgeted and actual sales and production respectively.
-) It is bearing a high fixed cost due to the technology that it is using till now, overstaffing and many more.
-) Actual sales are always less than actual production due to power loss which is a main problem of NEA, which affects its profit directly.
-) It has not classified its overhead systematically, which creates difficulties in analysis the expenses properly.
-) Account receivable and average collection period are found to be increasing within the study period. It is also upgrading the condition of cash shortage.
-) There is a large possibility of earning a huge volume profit if its capacity is used at optimum level as the figure shown with the help of flexible budget.
-) NEA has not maintained its periodic performance report systematically.
-) Because of all those facts mentioned above, it is suffering from continuous loss.

Paudel (2008), has tried to investigate the “*sales budgeting and effectiveness in manufacturing public enterprises*”. The major objectives of this study is to analyze the present sales planning system of Royal Drugs limited (RDL). Other major objectives are:

-) To analyze the sales budgeting prepare by RDL with theoretical prescription.
-) To analyze the cause of sales fluctuation in different month and years.
-) To study the relationship of sales plan with production plan inventory and different overheads made by RDL.
-) To study about variance between actual and budgeted sales.

On the basis of his finding, he has recommended the following facts:

-) For the effective implementation of budgetary system work sheet of manuals should be communicated to all the levels of management.
-) Cost volume profit relationship should be considered while formulating profit plan. Especially in determining sales volume, selling price and profit.
-) HPPCL should have the competitive pricing policy according to the market situation gain high market share.
-) Environment of entrepreneurship and commercial concept should be developed in the overall operation on of the HPPCL.
-) HPPCL should formulate and prepare profit planning and controlling calendar.

Bhandari (2009), has conducted a research on “*Cash management in public enterprises of Nepal- A case study of Nepal Telecom Ltd.*” The objectives of the study are as follows:

-) To examine and critically analyze the existing cash management practice in NTC.
-) To assess the revenue generation practice of NTC.
-) To examine the financial performance of the organization.
-) To review the cash mobilization practice of the organization.
-) To make suggestion for the effectiveness of cash management in NTC.

The major findings of the study are as follows:

-) NTC has satisfactory liquidity position and it has maintained proper cash and bank balance. The cash and bank balance with respect to current liabilities has been increasing trend.
-) NTC has low consistency in cash and bank balance.
-) Sales relationship with cash balance is positive.
-) Relationship between sales and net profit of NTC is in good condition it has been increased earned profit in each fiscal year.

) NTC does not follow the periodic performance report.

2.8 Research Gap

All the studies mentioned above are concern with the study about budgeting that too basically related with the profit planning system of Nepalese business enterprises. These studies have pointed out the similarities findings. It seems that there is no proper planning and control system in Nepalese proposes enterprises. Therefore this study is designed to highlight the ‘Budgeting procedure of Nepal Electricity Authority’. It means, the scope of the study is to find or identify the role playing by budgeting that is adopting or practicing currently by public enterprises in increasing their efficiency. Previous study has not been yet made emphasizing the variance of budgeted and actual sales in NEA. This research work covers time period of ten years for propose of trend analysis. So this study will be fruit full to those interested scholars, students, teacher, civil society, shareholders, businessmen and government for academically as well as policy making and implementation perspectives. This study will also work to identify the various causes of generating loss, to analyze them and recommend practical suggestions to NEA.

CHAPTER III

RESEARCH METHODOLOGY

Research methodology is the way to solve the research problem in a systematic manner. It may be understood as a science of studying how research is done scientifically, systematically and planned way of collection, analysis and interpretation of the data are made to solve the research problem and accomplish basic objective of the study. This study carried out to analyze, examine and interpret the budgeting, various functional budgets and its use in the process of planning profit and its effectiveness in the public enterprises with the help of various financial tools and statistical tools etc. Research methodology is followed to conduct the research on this subject matter.

3.1 Research Design

In order to fulfilment the objectives of the study as much as possible, an adequate attention has been paid in the process of research design. The research is fully based on secondary data. This research can preferably be said descriptive and analytical as its attempts to describe and explore various aspects and dimensions of profit planning in NEA. This study is quantitative since the quantitative data have extensively employed. Trends of sales, production and profitability, planning methods and practices, financial relationship among financial variables etc. are the main issues to be dealt throughout the research. The data collected using the different methods are tabulated and analyzed using different financial and statistical tools to find out real condition of profit planning in NEA.

3.2 Population and Sample

The large group about which the generalization is made is called the population under study, or the universe and small portion on which the study is made is called the sample of the study. Nepal electricity authority is only one electricity supplier of Nepal. Many hydro power companies are generating electricity but they have no authority to supply to a consumer that this Nepal electricity authority is our population and sample as well.

There are 36 public enterprises whose shares are traded activity in market; hence it is not possible to study all of them regarding the study topic. Therefore sampling will be done selecting firm population. Nepal Electricity Authority is the one of sampling in 36 public enterprises. This study specially focuses upon budgeting practices of NEA. Following are the years and total number of observations employed here in this study. This study deals of the data of 10 years from F/Y 2001 to F/Y 2010.

3.3 Nature and Sources of Data

The significance of research depends on the nature, availability and accuracy of information Data collection is major work of the research work. In this study secondary data have been used. Mainly, the followings sources have been used to accumulate the required information.

Secondary data have been collected from financial statements, annual reports, and other published and unpublished official records of concerned public enterprises. All the collected data and information have been properly arranged, synthesized, tabulated and calculated to arrive at the realistic analytical steps.

-) Previous studies and reports.
-) Budget, balance sheet, financial statement of the NEA
-) Published and unpublished relevant document of NEA
-) Journals, newspaper, magazines and booklets published half yearly or yearly.
-) Official record and similar other dissertation.

The study covered a period of the fiscal year 2001 to 2010 as sample year. Data were taken from NEA and the analysis was made on the basis of these ten years data.

3.4 Research Variables

The research variables of this study are mainly budgeted sales and actual sales with volume and unit, cost of sales, profit and loss, cash receipt and payment, expenses and financial index etc.

3.5 Tools for Analysis

Both of financial and statistical tools have been considered in this research work.

3.5.1 Financial Tools

Financial Ratio Analysis

Financial ratio is an arithmetical relationship between two or more financial variables. Company's short-term and long-term solvency position, assets and debt management and profitability have been measured through following ratios.

Current Ratio

Current ratio measures the extent to which the claims of short term creditors are covered by short terms assets. The current asset of 2:1 is considered satisfactory.

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Quick Ratio

Quick ratio measures the ability of the firm for immediate payment of current liabilities. Generally quick ratio of 1:1 is considered satisfactory.

$$\text{Quick Ratio} = \frac{\text{CA} - \text{Inventories} - \text{prepaid}}{\text{Current Liabilities}}$$

Total Assets Turnover Ratio

Total assets turnover indicates how effectively the assets are utilized to generate sales revenue. Increasing ratio is preferable.

$$\text{Total Assets Turnover} = \frac{\text{Sales}}{\text{Total Assets}}$$

Gross Profit Margin

Gross profit margin indicates how cost effective a company is to get its operating profit.

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Sales}}$$

Net Profit Margin

Net profit margin is the profit per Rs. sales indicating the overall cost effectiveness of a company.

$$\text{Net Profit Margin} = \frac{\text{Net Profit}}{\text{Sales}}$$

Return on Assets

Return on assets measures how efficient the firm is in order to manage its total assets and to generate profit.

$$\text{Return on Assets} = \frac{\text{Net Profit}}{\text{Total Assets}}$$

Debt Ratio

Debt ratio measures the percentage of the firm's assets financed by creditors. The lower the ratio, the greater the proportion afforded to the creditors in the event of liquidation.

$$\text{Debt Ratio} = \frac{\text{Debt}}{\text{Total Assets}}$$

Return on equity

It measures the rate of return on common stakeholder's investment. Increasing ratio is favourable.

$$\text{Return on equity (ROE)} = \frac{\text{Net income}}{\text{Equity}}$$

3.5.2 Statistical Tools

Mean

The sum of all the observations divided by the number of observations is called mean. It is usually denoted by \bar{X} . It is defined by the following formula.

$$\text{Mean} = \frac{\sum X}{N}$$

Where,

$\sum X$ = the sum of observations

N = no. of observations

Standard Deviation (S.D.)

S.D. measures the extent of dispersion of observed variables from the average. This tool helps to recognize volatility of variable within a given time periods.

Standard Deviation denoted by σ is given by:

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{\sum X^2}{N}}$$

Where,

N = No of observation in Series X

X^2 = Summation of square of deviation from mean value

Coefficient of Variation (C.V)

Coefficient of variation measures the standard deviation (S.D.) per unit average of the given variable. Unlike standard deviation, it is the relative measure of dispersion.

$$\text{C.V} = \frac{\sigma}{\sum X} \times 100\%$$

Where, σ = Standard Deviation

$\sum X$ = Arithmetic Mean

Co-efficient of Determination (R^2)

R^2 explains the ability of independent variable to predict the change in dependent variable.

$$R^2 = r \times r$$

F-test

To test the significance of regression model, f-test is utilized. F-test facilitates to identify whether the model is significant or not with the help of SPSS software.

T-test

T-test is applied as a tool to determine the explaining power of independent variable. While t-value is significant, the variable under consideration can best explain the variation in dependent variable with the help of SPSS software.

Simple Linear Regression Model

Regression is the statistical tool that is used to determine the statistical relationship between two or more variables and to make estimation of one

variable basis of another variable. The equation of simple linear regression model is $y = a + bx$. The variable to predict is called the dependent variable and the variable on which the prediction is based is called the independent variable.

Discriminate Analysis

Discriminate analysis is developed by Altman and is also called Altman model. This model can be employed to discriminate whether or not a company is consideration likely to fail in the near future. Analysis of each of the individual ratios sometimes is confusing so z-score model developed by Altman is employed. Z-score above 2.99 represents healthy firm. Z-score below 1.81 always represents unhealthy firms. Z-score between these two represent area of gray.

The equation of Z- score is calculated by:

$$Z = 1.2 x_1 + 1.4 x_2 + 3.3 x_3 + 0.6 x_4 + 1.0 x_5$$

Where,

x_1 = Net working capital to total assets (NWC/TA)

x_2 = Current asset to current liabilities (CA/CL)

x_3 = Net profit to total assets (NP/TA)

x_4 = Net profit to sales (NP/Sales)

x_5 = Sales to total assets (Sales/TA)

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

This vital chapter deals with data presentation and analysis according to research methodology as mentioned in previous chapter. Collected data has been presented and tabulated in proper format with table and figure to achieve the objective of study. For analysis purpose, various statistical, financial tools and accounting tools have been employed as per require. Budgeting and its various dimensions like financial budgets and practices, trends of profitability and assets management, variance of budgeted and actual plan, growth of consumer, sales report by consumer group, relationship of financial variables etc. are the main issues to be considered in this chapter.

4.1 Sales Plan

Sales plan is primary step and fundamental plan at which other plans depend. NEA has the practice of preparing both short and long term budgets. According to the nature of customer, NEA has categories its consumers likewise; domestic, commercial, industrial and so on. NEA has been preparing sales budget in unit and rupees from earlier stage of budgeting. In order to assess effectiveness of sales budget, sales in unit and rupees have been comparing with actual sales unit and rupees. Thus, table 4.1 shows the budgeted sales, actual sales, variation in unit, and percentage (%), mean, SD, CV as well as in rupees of last ten years.

Table 4.1
Budgeted and Actual Sales (units) with Variance of NEA

Years	Sales in unit(in millions)		Deviation (units)	Deviation (%)	Remark
	Budgeted	Actual			
2001	1523	1426	-97	-6.37	Unfavourable
2002	1642	1537	-105	-6.39	Unfavourable
2003	1805	1708	-97	-5.37	Unfavourable
2004	1906	1800	-106	-5.56	Unfavourable
2005	1989	1918	-71	-3.57	Unfavourable
2006	2145	2028	-117	-5.45	Unfavourable
2007	2362	2203	-159	-6.73	Unfavourable
2008	2421	2318	-103	-4.25	Unfavourable
2009	2696	2205	-491	-18.21	Unfavourable
2010	3073	2602	-471	-15.36	Unfavourable
Total	21562	19745	-1818	-8.43	Unfavourable
mean	2157	1975			
SD	460.84	348.67			
CV	21.37%	17.65%			

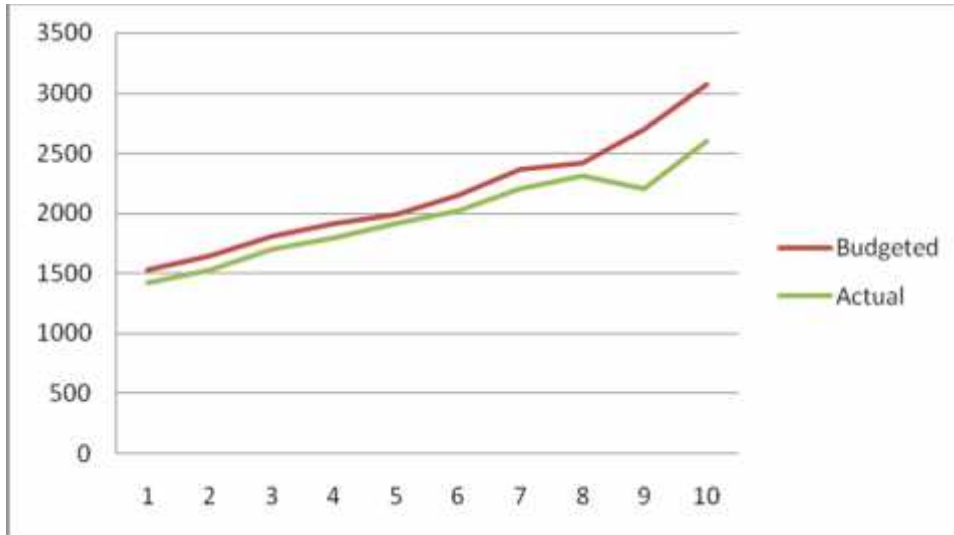
Sources:-Annual Report of NEA from 2001 to2010.

The above table no 4.1 shows that sales were not achieved during the study periods. In the F/Y 2001 the budgeted sales of NEA was 1523 units in million and gradually increased up to 3073 unit in million in F/Y 2010. On the other side the actual sales of NEA in F/Y 2001 1426 units in million and reach to 2602 units in million in F/Y 2010. The annual unfavourable deviation is seems to be neither less than 3.57 percent, nor more 18.21 percent, which means the budgeted sales were more than actual sales units. In average, budgeted sales 2157 units in million and actual sales 1975 units in million. Standard deviation of budgeted sales in unit is 460.84 and 348.67 for actual sales in units. CV of actual sales is 17.65 percentages against the CV of 21.37 of budgeted sales 8.43 unfavourable percentage seem in study periods.

Moreover the deviation happened to be unhealthy. That huge gap must be considered through the coordination and integration of efforts of all stakeholder, branches and departments.

Figure 4.1

Budgeted and Actual Sales in units of NEA



Above figure 4.1 express that budgeted sales and actual sales in units. Actual sales are lower than budgeted in every study period. The period 2001 to 2008 has low deviation of actual and budgeted sales but year 2008 to 2010 has greater deviation. This huge deviation creates more complex to forecast next year sales.

The trends of increase and decrease of sales for the periods seem to be unpredictable due to the lack of clear policies and program of the NEA.

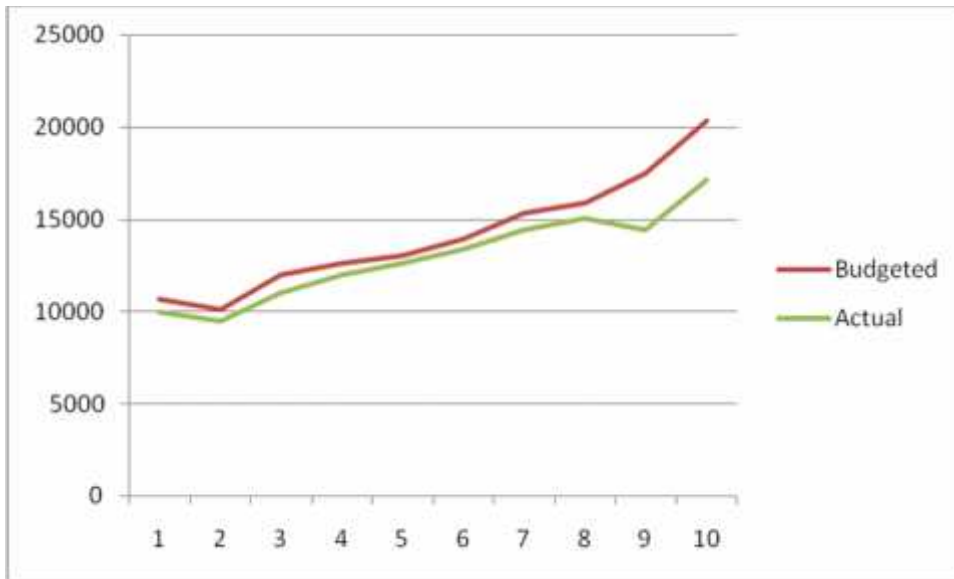
Table 4.2**Budgeted and Actual Sales (Revenue) with variance of NEA**

Year	Sales revenue (in millions)		Deviation (Rs)	Deviation (%)	Remarks
	Budgeted	Actual			
2001	10687	9952	-735	-6.88	Unfavourable
2002	10096	9476	-620	-6.14	Unfavourable
2003	11968	11012	-956	-7.99	Unfavourable
2004	12585	11992	-593	-4.71	Unfavourable
2005	13018	12605	-413	-3.17	Unfavourable
2006	13940	13369	-571	-4.09	Unfavourable
2007	15315	14447	-868	-5.67	Unfavourable
2008	15891	15041	-850	-5.35	Unfavourable
2009	17533	14405	-3128	-17.84	Unfavourable
2010	20365	17164	-3201	-15.72	Unfavourable
Total	141398	129463	-11935	-8.44	Unfavourable
Mean	14140	12946			
SD	3023.59	2291.57			
CV	21.38%	17.70%			

Sources:-Annual Report of NEA from 2001 to2010.

The above table 4.2 shows the actual sales and budgeted sales in volume. As in revenue the budgeted and actual sales revenue for the F/Y 2001 was Rs 10687 million and 9952 million and come to Rs 20365 million and Rs 17164 million respectively in F/Y 2010. It seems that the trend of continuous increment in comparison previous years. The highest unfavourable variance among the above data is 17.84 percent in F/Y 2009 and lowest unfavourable in F/Y 2005, which is 3.17 percent. On the basis of analysis, it can be said that NEA is unable to meet its targets in both units and amount. However, overall variances are less than 18%. Thus overall effectiveness of sales seems unsatisfactory.

Figure 4.2
Budgeted and Actual Sales in revenue of NEA



Above 4.2 figures shows also variance between budget and actual sales in volumes. The above graphical presentation also justifies the gradual increment of budgeted and actual sales during the period. To achieve the target the company seems very poor. At the end of study period it seems very weak forecasting of the sales.

4.1.1 Sales Forecasting

Regression analysis represents a more applied method of forecasting sales and is said fewer subjects to potential limitation relative to the other statistical methods. So regression equations are introduced to forecast sales for next year.

I. Regression Equation of Actual Sales on Budgeted Sales

A regression model is developed taking actual sales (AS) as dependent variable and budgeted sales (BS) as independent variable. Detailed regression results are presented in following table with the help of SPSS software.

Table 4.3
Regression Results

Model	a	b ₁	R ²	R	Std. Error of Estimate	F	F- sing
AS = a + b ₁ BS	2584.81 (10.71) [.000]	.733	.935	.967	653.97	114.850	.000

Note: (i) Figures in parenthesis () and [] represent t-value and level of it being significance.

Source:- Appendix 1

The table 4.3 shows the Coefficient of determination R² of this model is .935 that represent 93.5 percent variation of actual sales can be explained by the regression line. Regression coefficient, b₁ indicates that for every Rs. change in budgeted sales, actual sales will change by Rs. 0.733. It seems strong positive correlation of the budgeted and actual sales. f- Value of model and t-value of regression coefficient are both are significant at 1 percent level of significances. The standard deviation or error in estimate is 653.97 million.

Forecasting purpose for next year, regression equation is AS = a + b₁ BS. Now, assume that a budgeted sale for coming year is Rs.21500 (in million). So actual sales would come to be:

$$AS. = 2584.81 + .733 \times B.S.$$

Or, $AS = 2584.81 + .733 \times 21500 = \text{Rs. } 18344.31 \text{ (millions)}$

II. Time Series Analysis

For analysis of time series, time factor is taken as independent variable whereas actual sales are taken as dependent variable.

Table 4.4
Regression Results

Model	a	b ₁	R ²	F	F-sign.
AS = a + b ₁ t	-2026463	1017.503 (10.66) [0.00]	.934	113.75	0.00

Note: (i) Figures in parenthesis () and [] represent t-value and level of it being significance.

Source:- Appendix 2

Above table shows the regression of actual sales on independent factor time. Coefficient of determination, R² is 0.934 showing and it is the proportion of variation in the dependent variable explained by the regression model. Value of regression coefficient, b₁ is positive. It shows that sales increases for each of the subsequent periods.

To forecast regression by the way of time series, Regression equation is

$$AS = a + b_1 \times t$$

$$\text{or } AS = -2026385849 + 1017464.97 \times t.$$

Since sales are to be forecasted for 11th forecasted sales would be as:

$$\begin{aligned} AS &= -2026463 + 1017.503 \times 2011 \\ &= \text{Rs. } 19735.53 \text{ (million.)} \end{aligned}$$

Observing the f-values and t-value regression of time series equation is more relevant than equation of actual sales on budgeted sales. Because f-value and t value model are highly significant.

The annual sales report by consumer group is presented below.

Table No. 4.5
Sales Report by Consumer Group of NEA

(Amount in millions)

Category	Year									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Domestic	3161.21	3641.43	4249.81	4701.07	4987.04	5405.12	6021.40	6297.65	6100.65	7252.06
Non commercial	836.36	722.12	783.99	816.03	862.37	881.73	940.20	982.08	900.75	983.63
Commercial	556.32	818.75	894.91	986.32	1012.66	1081.26	1288.05	1399.51	1384.67	1719.35
Industrial	2869.02	3608.13	4039.65	4380.89	4799.74	4978.69	5300.91	5544.80	5264.33	6060.2
Water supply and irrigation	121.53	138.68	148.53	154.91	17157	19796	214.18	204.67	215.62	353.14
Street light	176.48	200.74	246.79	329.31	354.10	422.35	454.85	467.31	445.96	333.90
Temporary supply	2.75	3.63	4.74	3.46	5.06	11.18	17.36	10.51	12.20	13.58
Transport	28.57	27.90	29.29	28.92	30.72	29.78	31.65	33.70	26.95	27.58
Temple	11.17	12.16	14.24	26.38	29.17	24.42	26.03	26.38	24.41	28.16
Community sales	-	-	16.59	20.09	24.03	23.94	53.70	64.22	70.10	170.90
Total(Internal sale)	7763.41	9173.53	10428.53	11447.39	12276.46	13056.43	14348.33	15030.83	14445.64	16942.50
Bulk supply(India)	396.18	514.12	808.96	673.93	609.51	579.33	428.93	361.14	295.49	604.85
Gross revenue	8159.60	9687.65	11237.49	12121.32	12885.97	13635.76	14777.26	15391.97	14741.13	17547.35
Net income from other services	-	248.17	287.64	424.75	336.7	336.09	689.08	584.18	1601.66	1188.27
Total revenue	8159.60	9935.82	11525.13	12546.07	13222.67	13971.85	15466.34	15976.15	16342.79	18735.62

Source:- Annual Report of NEA from 2001 to2010.

The table 4.5 show the good budgeting is also affected by how sales are distributed among the different segments the company is operating. Table indicated the sales distribution among different consumer groups along the study periods of 2002 to 2010. The major groups in internal sales are domestic, industrial and commercial. Observing over the trends of the sales of these groups the sales of all the groups have been increasing smoothly over the study periods. The trend of other sales also shows the same kind of trend over the analysis periods. Following figure represents the sales trend of major three consumer groups.

Table 4.6
Sales Report by main three Consumer Group of NEA

(Amount in Rs. millions)

Year	Domestic Sales	Commercial Sales	Industrial Sales
2001	3161.21 (38.74)	556.32 (6.75)	2869.02 (35.16)
2002	3641.43 (36.65)	818.75 (8.24)	3608.13 (36.31)
2003	4249.81 (36.87)	894.91 (5.87)	4039.65 (35.05)
2004	4701.07 (37.47)	986.32 (7.86)	4380.89 (34.92)
2005	4987.04 (37.72)	1012.66 (7.66)	4799.74 (36.30)
2006	5405.12 (38.69)	1081.26 (7.74)	4978.69 (35.63)
2007	6021.40 (38.93)	1288.05 (8.32)	5300.91 (34.27)
2008	6297.65 (39.42)	1399.51 (8.76)	5544.80 (34.71)
2009	6100.65 (37.33)	1384.67 (8.47)	5264.33 (32.21)
2010	7252.06 (38.70)	1719.35 (9.18)	6060.20 (32.35)

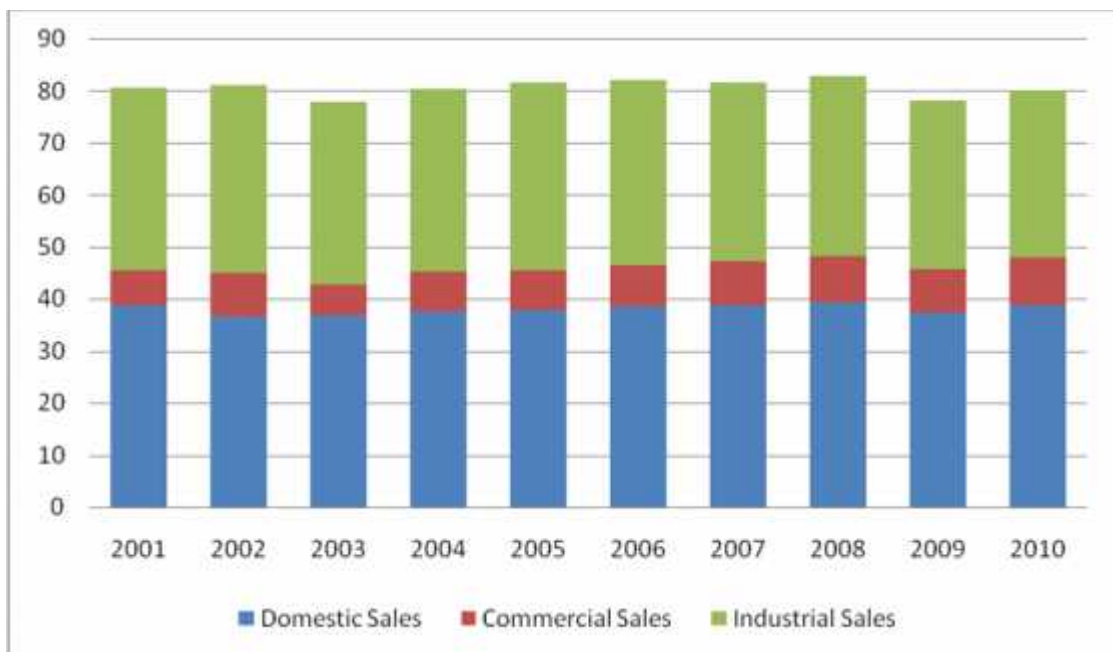
Note: The figure in parenthesis indicate percentage out of total sales

Above table 4.6 present the sales report by main three consumer groups and percentage out of total sales. Total sale for each year of study period domestic sales is higher in comparison to other types of sales. The domestic sales for each year from 2001 to 2010 are ranges from 36.65 percentages to 39.42 percentages out of total sales. The sales for industrial category are rages from 32.21 to 36.31 percent out of total sales. The same for the commercial category ranges from 5.87 to 9.18 percent out of total sales. All categories sales are increases from past year. So, it is like to be satisfactory.

The trend of the sales according these main three consumer categories is also present with the help of following graphical figure:

Figure 4.3

Sales by Domestic, Commercial and Industrial Consumer



The above figure 4.3 is represent of graphical figure of domestic, commercial and industrial consumer sales in percent out of sales. That domestic sale is highest for all the periods followed by industrial sales and commercial sales. Industrial sales however have decreased in year 2006 and 2008. Although sales are increases in every following year. Likewise commercial sales has also decreased in the year 2002 and soared up to Rs.1448 million in the year 2009.

4.2 Growth of consumer

Trend of consumer growth is also an important part of budgeting for the NEA. The categories of consumer and their pattern of growth greatly determine the level production, sales and other financial, transmission, distribution, purchasing policy and investment plan of the company. Here, growth trend of the consumer according their grouping and percentage increase is presented along with the following table:

Table 4.7
Growth of Consumer of NEA

Consumer group	year									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Domestic	713407	848540	930554	1010719	1113740	1227295	1339253	1450254	1595015	1775571
(%)	95.62	95.93	95.87	95.90	96.02	96.07	95.81	95.60	95.47	95.25
Non commercial	7643	8629	9722	9865	9950	10010	10215	10556	10518	10952
(%)	1.02	.97	1.00	.93	.86	.78	.73	.70	.63	.59
Commercial	3386	3898	5317	5454	600	6170	6000	6052	7305	8919
(%)	.45	.44	.55	.52	.52	.48	.43	.40	.44	.48
Industrial	17701	18789	19833	21374	22500	23020	24089	25548	28559	29410
(%)	2.31	2.13	2.04	2.03	1.94	1.80	1.72	1.68	1.71	1.58
Others	3950	4679	5241	6534	7655	11114	18311	24573	29236	39145
(%)	.53	.53	.54	.62	.66	.87	1.31	1.62	1.75	2.1
Total	746086	884535	970611	1053935	1159855	1277447	1397813	1516883	1670610	1864067
% increases	---	8.56	9.73	8.58	10.05	10.14	9.42	8.52	10.13	11.58

Source:- Annual Report of NEA from 2001 to 2010.

The table 4.7 is clear shows the growth of consumer by consumer group and represent % increases. More than 95 percent of consumers are covers by the domestic group. The second highest number of consumer Industrial consumer for the enterprises is around 2 percent for all the period. Likewise number of consumer as a percentage of total consumers is around one percent for non commercial and 0.53 to 2.1 percent is other category of consumers. The trend of growth of consumer for each of categories is increasing over the study

periods last 10 year. This indicates the future prospects of the enterprises are good but it is complex to maintain for NEA. It is very important to note that though domestic consumers are more than 95 percent for all the periods, in terms of sales revenues they occupies only 36 to 39 percent of total revenue. Moreover, consumers in the commercial categories are only around 0.5 percent and it occupies sales revenue around 5 to 9 percent. Likewise, consumers in industrial categories are around 2 percent occupying average 32 to 36 percent of sales for the enterprises.

4.3 Trend of Cost of Goods Sold

Production is the main part of the analysis of budgeting. Production cost is also known as cost of goods sold. It is the summation of material cost, direct labour cost and factory cost. Cost of goods sold and gross profit has negative relationship i.e. if cost of goods sold increases gross profit decreases and vice-versa. Following table shows cost of goods sold and gross profit of NEA.

Table 4.8
Cost of Goods Sold of NEA (In Rs. millions)

Year	Sales	Gross profit	Cost of sales	
			Amount	Percentage of sales
2001	8160.80	3680.10	4480.70	54.91
2002	9476.2	3589.50	5886.70	62.12
2003	11012.60	5664.60	5348.00	48.56
2004	11874.70	5109.30	6765.40	56.97
2005	12605.20	5142.79	7462.40	59.20
2006	13331.90	4999.20	8332.70	62.50
2007	14449.73	5415.18	9034.55	62.52
2008	15041.49	5510.66	9530.83	63.36
2009	14405.93	4470.66	9935.27	68.97
2010	17164.59	4689.24	12475.35	72.68
Mean	12752.30	4827.12	7925.19	62.15
SD	2574.75	690.18	2300.88	6.57
CV	20.19	14.29	29.03	10.57

Source:- Annual Report of NEA from 2001 to 2010.

The table 4.8 shows that sales, cost of goods sold and gross profit show the production efficiency of an enterprises. Cost of goods sold of the company has increased during the year and also increased sales over the periods. The trend of gross profit is variation in the study periods.

More of the company's sales are taken away by the cost of production that is in an average of the total sales, cost of goods sold occupies 62.15 percent of total sales. Consistency measured by the CV of states that of all above three figures cost of goods sold fluctuates more than other. CV of cost of sales is higher than that of sales and gross profit.

4.4 Estimation of Cost of Goods Sold

Regression equation is overly accepted as a best tool to forecast given dependent variable based on the independent variable. On this ground, cost of goods sold is estimated using by regression analysis. Regression equation is Cost of goods sold (CGS) = $a + b_1 \times \text{sales}$. The regression results are presented in the table below.

Table 4.9
Regression Results of CGS on Sales

Regression equation	A	b_1	R^2	F	F-sign.
CGS = $a + b_1 \text{ sales}$	-3089.151	0.864 (10.654) [0.000]	0.934	113.514	0.000

Note: (i) Figures in parenthesis () and [] represent t-value and level of it being significance.

Source:- Appendix 3

The above table 4.9 shows that Coefficient of determination, R^2 of the above model is 0.934 indicate that out of total variation in sales, CGS can explain 93.4 percent. Value of regression coefficient, b_1 is 0.864 indicates that for every rupee value change in sales CGS changes by Rs. 0.864. The positive sign indicates the positive relationship. This result is significant as t-value is

significant at 1 percent level of significance. Likewise this model can best explain the CGS as f-value is also significant at 1 percent level.

Since company has estimated to achieve sales revenue Rs.18881.05 million from the analysis of time series. If the sales happen to be true then its cost of goods sold for the year to come would be:

$$\begin{aligned}\text{CGS} &= a + b_1 \times \text{sales} \\ &= -3089.15 + 0.864 \times \text{Sales} \\ &= -3089.15 + 0.864 \times 18881.05 \\ &= 19402.77 \text{ Rs. million}\end{aligned}$$

4.5 Expenditure Budget of NEA

Expenses are the vital part of the every organization. Expenses are affected in budgeting system. Profit is function of expenses. In this regard planning of profit includes expenses also. In planning process, the knowledge of costs or expenses for each responsibility centres should be determined. Generally costs of the NEA can be subdivided into following heading:

- a. Generation expenses
- b. Transmission expenses
- c. Distribution expenses
- d. Administrative expenses

Generation expenses are the expenses required to generate electricity and services which also includes purchases of power. A transmission expense is also important expenses of NEA. Likewise cost structure of NEA also includes distribution and administrative expenses. Distribution expense is related with power supply among various consumers. The administration expenses are refers salary of staff, stationary and office. Following table shows the cost of NEA with various cost heading.

Table 4.10
Expenses of NEA

(In Rs. in millions)

Year	Expenses			
	Generation	Transmission	Distribution	Administrative
2001	4343.40	137.30	982.22	529.24
2002	5137.65	158.00	1174.40	447.40
2003	4509.18	178.60	1308.60	536.10
2004	5959.80	199.50	1376.10	489.10
2005	6402.37	215.93	1484.20	622.40
2006	7203.07	232.13	1703.70	419.50
2007	7823.21	240.88	1834.39	479.59
2008	8416.80	274.85	2110.01	683.98
2009	8810.99	328.16	2575.09	651.69
2010	11287.84	337.74	3091.21	789.52
Total	69894.31	2303.09	17639.92	5648.43
Mean	6989.43	230.31	1763.99	564.84
SD	2062.99	63.97	627.9	106.37
CV	29.52	27.76	35.59	18.83

Source:- Annual Report of NEA from 2001 to 2010.

From the above table we can observe that Generation expenses of NEA are more than all other expenses averaging to Rs. 6989.43 million for over the 10 year periods. This cost is the main cost of the company and covers more than 70 percent of all the costs of the enterprises. Another important cost is distribution expenses which average to Rs. 1763.99 million. Administrative overheads bear its third position in terms of the costs of the company. Likewise transmission expenses of the enterprises are Rs. 230.31 million on an average. A generation expense of the enterprises is more inconsistent showing CV of 29.52. Followed by distribution expenses (C.V. =35.59), transmission expenses (27.76) and administrative expense (18.83). In an absolute term, generation expenses is dispersed more from its average costs as it has highest S.D. of

2062.99. By the observing that generation expenses are also increasing trend. Other expenses are same way. The enterprises should be control extra cost which is not generated profit for the firms.

4.6 Analysis of Receipt and Payment Account of NEA

To objectives of provide service to consumer that is non trading concern. NEA is also non trading concern organization. It is not earning profit but service provide to society. Such type of organization, they keep financial transaction in cash basis. To keeping record of cash transaction which is devoted in providing service in society, those types of account is receipt and payment account. Last of fiscal year, on the basis of cash book to provide summery of annual receipt and payment transaction is knows as receipt and payment account. It is summery of cash book. It includes cash and bank transaction. It is real account. In this account we can keep revenue and capital nature receipt and payment of cash. We can't find depreciation, doubtful debtor and other which not related with cash. To analyses surplus and deficit between receipt and payment the related account is prepare in below.

Table no.11

Receive and Payment for the year 2010 (in thousands)

Receipt	Amount
opening balance	609844
sales electricity	18451520
additional fees	300000
other service	825000
dividend and interest	250000
Insurance of employee	80000
Amount receive from NG	890000
development budget	12347310
Total	33753674
Payment	Amount

Repair and maintenance	5697000
interest of LTD	600000
interest of power bond	147575
purchase of electricity	10500000
payment of Royalty	811702
capital expenses	1330000
source of NEA investment	5966760
source of Nepal government	3253350
source of foreign	9093960
payment of LTD principal' installment	500000
short loan principal's interest	1335200
borrow fund of employee	10000
purchase budget	400000
last year liabilities	300000
Investment of power bond	375000
Insurance of employee	200000
Retired fund	50000
Total	40570547
Surplus (deficit)	(6816873)
Minimum bank balance	(600000)
Net surplus (deficit) amount	(7416873)

Source:- Annual Report of NEA.

4.7 Forecasting of Financial Statements: Percentage of Sales Method

It involves the study of two key financial statements: balance sheet and income statement as these provide a good picture of the firm's operations.

It has seen that sales to assets turnover is an important control variable and indicate basically important proposition in planning – that the volume of firm's sales is a good predictor of the required investment in assets.

The widely used percent of sales method provides a practical method of forecasting financial statement. There is a fundamental logic behind sales and the behaviour of individual asset items. For example, to increase the sales, a

firm must have an investment in plant and equipment to produce goods in time. Inventories of work-in-progress and finished goods are needed to make sales when sales are made, there is usually an interval before payments are received. By results of them generation of debtors or accounts receivable is increase. Note that investments in fixed assets and inventories can be lead sales, if there is properly managed, while investment in receivables lags sales. With sales fluctuations, these lead and lag relationships result in complex situation that are understood only when the underlying logic of the relationships.

Table 4.12

Income Statement for the year 2010 (in millions)

Sales Revenue		17164.59
Less: Cost of goods sold		12475.35
Gross profit		4689.24
Less: Operating expenses		
Distribution	3091.21	
Administration	789.52	3880.73
Operating profit		808.51
Add other income		188.27
Total operating income		1996.78
Less: Interest	3668.65	
Depreciation	2902.92	
Provision	2246.01	
Loss of foreign exchange	28.67	
Deferred revenue	112.35	8958.60
Profit (loss)from operating		(6961.82)
Less prior year (income)exp		(38.29)
Net profit before tax		(6923.53)
tax		-
Net profit after tax		(6923.53)
Add balance of profit as per last account		(14098.83)
Profit (loss) transferred to balance sheet		21022.36

Table 4.13**Balance Sheet of NEA for the Year 2010 (in millions)**

Liabilities and Equity	Amount(Rs.)	Assets	Amount(Rs.)
Share capital	38651.76	Cash	1244.66
Loan	58231.66	Inventory	2431.99
Provision	5576.80	Account receivable	6097.74
Def. Tax	693.2	Prepaid	2733.68
Accumulated profit	(19391.05)	<i>Current assets</i>	12508.07
A/c payable	33651.36	<i>Fixed assets</i>	105120.07
		Def.exp. and inter	(214.41)
Total liabilities and equity	117413.73	Total asset	117413.73

Source:- Annual Report of NEA.

To begin with above actual financial statements of NEA are demonstrated. To forecast the company's financial statement for coming year following assumption has been made:

-) Company's all the expenses vary directly with sales except interest, depreciation, provision.
-) Forecasted sales as forecasted by the company coming year is 10 percent additional from base year (17164.59) is 18881.05 million have been taken as a basis for projection purpose.
-) A provision, depreciation and interest is unchanged because of, it is not directly with the sales.
-) Fixed assets and current assets and inter unit balance vary directly with change in sales and also current liabilities show same type of behaviour. Besides these all the balance-sheet items remain unaffected.
-) NEA is running in the full capacity.

) COGS is increased by 11 percent from the base year

) Operating expenses is also increase with the respect of sales.

Now, given the above assumption forecasting precedes in the following manner.

First: Preparation of forecasted income statement:

Table No. 4.14
Performa Income Statement

(Rs. In millions)

Sales Revenue		18881.05
Less: Cost of goods sold		13847.64
Gross profit		5033.41
Operating profit		1085.84
Add other income		1206.32
Total operating income		2292.16
Less: Interest	3668.65	
Depreciation	2902.92	
Provision	2246.01	
Loss of foreign exchange	28.67	
Deferred revenue	112.35	8958.60
Net income		(6666.44)

$$\text{Percentage change in sales} = \frac{18881.05 - 17164.59}{17164.59} = 10 \text{ percent}$$

Second: Preparation of forecasted balance sheet

Table 4.15
Performa Balance Sheet

(Rs. In millions)

Liabilities and equity	Amount(Rs.)	Assets	Amount(Rs.)
Share capital	38651.76	Current assets	13705.32
Loan	58231.66	Net fixed assets	115705.78
Reserve and Acc. Profit	(26057.49)	Deferred Exp.& int.	(214.41)
Current liabilities	40789.57		
Def. Tax	693.2		
External fund needed	16887.99		
Total liabilities and equity	129196.69	Total asset	129196.69

Observing the above Performa income statement and Performa balance sheet (financial statement) it is clear that firms operating profit will increase to Rs. 2292.16 million from base year's operating profit of Rs.1996.78. The sales forecasted by the company and above assumptions are valid. Net loss will decrease to Rs.6666.44 million.

From the forecasted balance-sheet of the company it is clear that asset will increase by Rs.11782.96 million and accumulated loss will be Rs.6666.44. This incremental asset and loss are financed spontaneously with current liabilities of Rs. 1561.41, and balance of Rs. 16887.99 should be financed with external funds shown in forecasted balance-sheet as balancing figure.

Here,

$$\begin{aligned}
 \text{External fund needed} &= [\text{Increase fixed assets} + \text{Increase current asset} \\
 &\quad \text{including inter unit balance} + \text{Increased loss}] - \\
 &\quad \text{Increased Current Liabilities} \\
 &= [10585.71 + 1197.25 + 6666.44] - 1561.41 \\
 &= \text{Rs. 16887.99}
 \end{aligned}$$

Thus NEA needs Rs. 18449.4 million to finance incremental assets and losses. Out of these Rs. 1561.41 million will be available to the NEA through

incremental current liabilities and the balance it should raise from external source.

4.8 Financial Ratio Analysis

Financial ratio analysis is designed to determine the relative strengths and weakness of business operation. It is provide a framework for financial planning and control. It involves a study of the relationship between income statement and balance sheet account, how the relationship changes over the time and how a particular firm compares with her firms in its industry. Financial ratio analysis is the arithmetical relationship between two or more variables of financial statements. Information provided by the ratio analysis is very useful to evaluate financial performance of a firm. This section focuses on the financial performance of the enterprise on terms of liquidity, profitability, efficiency and solvency.

Table 4.16
Financial Ratio of NEA

Ratio	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	Mean
$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	0.37	0.38	0.44	0.46	0.47	0.51	0.56	0.66	0.82	0.85	0.55
$\frac{\text{Quick Assets}}{\text{Current Liabilities}}$	0.30	0.31	0.37	0.40	0.40	0.42	0.49	0.58	0.71	0.75	0.47
$\frac{\text{Sales}}{\text{Total Assets}}$	0.15	0.13	0.15	0.16	0.16	0.16	0.17	.016	0.15	0.15	0.155
$\frac{\text{Total Debt}}{\text{Total Assets}}$	0.78	0.77	0.765	0.76	0.79	0.79	0.778	0.76	.724	0.710	0.76
$\frac{\text{Net Profit}}{\text{Sales}}$	(.40)	(.35)	(.15)	0.02	(0.10)	(.10)	(0.15)	(.18)	(.09)	(.112)	(0.16)
$\frac{\text{Net Profit}}{\text{Total Assets}}$	(.06)	(.047)	(.023)	.003	(.015)	(.017)	(.025)	(.030)	(.015)	(.016)	(.025)
$\frac{\text{Net profit}}{\text{No. of equity}}$	(.18)	(.151)	(.08)	0.01	(.055)	(.065)	(.097)	(.115)	(.052)	(0.07)	(.080)
$\frac{\text{Net working capital}}{\text{Total assets}}$.1060	.1039	.1112	.1112	.1077	.1095	.1116	.1147	.1148	.1150	0.110

Source:- Annual Report of NEA from 2001 to 2010.

Observing the table we can conclude that the company's liquidity has been decreasing each year and it has been more serious in the latter years. Current

ratio, in an average for the 10 years periods is 0.55. These decreasing current ratios indicate that the company's ability to pay its debts obligation has seriously been injured over the study periods. Another measures of liquidity quick ratio is most important of the enterprises is far below then traditional standard of 1:1. Enterprise's position of liquidity can be unsatisfactory. Total assets turnover of the firm is more or less uniform for all the years averaging of (0.16) times. The ability of the enterprise's assets to generate sales is not good as the turnover of assets is worse and is also decreasing at latter years. This also shows the company's inability to manage its assets. Company employed more of debt capital as indicated by debt- assets ratio. This ratio for the company is also more or less uniform for all the periods and averages to 76 percent. That means capital restructuring is immediately needed for the organization.

Net profit margin and total assets turnover give the return on assets if multiplied together. ROA is negative for all the periods. Net profit margin divided by total equity that means ROE is also negative. These all the ratio, in absolute term indicates that the NEA is in a difficult stages.

4.9 Discrimination Analysis: Measure of Company's Overall Performance

To measure performance of any business organization discrimination analysis is necessary. For that, calculation Z is essential because it is indicate the future of organization. Discriminate analysis is developed by Altmand and is also called Altman model. This model can be employed to discriminate whether or not a company in consideration likely to fail in the near future. Analysis of each of the individual ratios sometimes is contradiction so z-score model developed by Altman. Z-score above 2.99 represents healthy firm. Z-score below 1.81 always represents unhealthy firms.

The equation of Z-score is:

$$Z = 1.2 x_1 + 1.4 x_2 + 3.3 x_3 + 0.6 x_4 + 1.0 x_5$$

Where,

x_1 = Net working capital to total assets (NWC/TA)

x_2 = Current asset to current liabilities (CA/CL)

x_3 = Net profit to total assets (NP/TA)

x_4 = Net profit to sales (NP/Sales)

x_5 = Sales to total assets (Sales/TA)

NEA z-score is calculated for each of the 10 years and average of the score is computed in the last row and presented in below.

Table 4.17
Calculation of Z-Score

Year	NWC/TA	CA/CL	NP/TA	NP/S	S/TA	Z score
2001	.1065	.370	-0.06	-0.40	0.150	0.1665
2002	.1039	.380	-0.047	-0.353	0.133	0.2169
2003	.1112	.440	-0.023	-0.0154	0.150	0.5242
2004	.1112	.470	0.003	0.02	0.157	0.7622
2005	.1077	.470	-0.015	-0.10	0.160	0.6227
2006	.1095	.500	-0.017	-0.104	0.163	0.6515
2007	.1116	.570	-0.025	-0.148	0.168	0.6766
2008	.1147	.660	-0.030	-0.177	0.164	0.7317
2009	.1148	.830	-0.015	-0.091	0.149	0.9878
2010	.1150	.850	-0.016	-0.112	0.153	0.990
Average						0.630

Source:- Annual Report of NEA from 2001 to 2010.

The table 4.17 indicated the value of Z score of NEA which is regarded as a failure company and could go in insolvency in near future if it were not in a position to improve its profitability, liquidity and turnover. The value of Z score is 0.630 significantly lower than the standard of 2.99. Lower z-score is mainly due to the losses and unmanaged of the company. So it should improved by different cost-cutting measure to improve profitability.

4.10 Major finding of the study:-

Based on above analysis, the study pointed the following major finding of NEA in relation to its budgeting practices is presented below.

) Observing the study period from 2001 to 2010, actual sale is unfavourable or variance with the budgeted sales each study period. The

highest deviation is 18.21 percent in 2009 in units and lowest deviation is 3.57 percent in 2005.

-) Actual sales in rupees is also huge variance because of actual sales is less than budgeted sales. It seems high variance in 2009 with 17.84 percent in 2009.
-) As indicated by mean, SD, and CV, the company's budgeted sales fluctuate more than actual sales. The budgeted sales in high inconsistent. The trend of increasing and decreasing of sales for the period seems to be unpredictable lack of analysis of external and internal barriers.
-) Trend of sales is gradually increases on budgeted and actual figure in study period 2001-2010, but NEA is unsuccessful to meet its budget.
-) To analysis of actual and budgeted sales as dependent variable and budgeted sale as independent variable for the purpose of forecasting sales for coming year 18881.05 million.
-) Budgeting is affecting how sale is distribution among the various segments of enterprises. The main three consumer groups of NEA seem in internal are domestic consumer, industrial consumer and commercial consumer. Although, domestic sales is high than other. The trend of consuming is increasing level over the period for the all segment the domestic sales range 36.87 percent to 39.70 percent in study period.
-) The sales range of industrial segment is 32.21% to 36.21% and commercial sales range is 5.78% to 9.18% in over the study period. It seems the commercial sales of NEA is very low than other.
-) In the study period, the number of consumer growth is increasing in high scale. The domestic consumer cover about 95 percent and non commercial, commercial and industrial consumer are cove about 5 percent only. Separately non commercial consumer growth rate is 1 percent, number of consumer in industrial is 2 percent, commercial and other consumer growing 1, 1 percent each. The average year consumer growth is 11.58 percent in year wise.

-) The analysis of cost of sales, we can found that cost of goods sold covered 62.15 percent in average of total sales. The CV of cost of goods sold is 29.03 percent and gross profit's CV is 14.29% and also CV of sales 20.19 %. The CV of cost of sales is higher than sales and gross profit.
-) In NEA, the main four cost are seems that is generation expense, transmission expense, distribution expenses and administration expenses. Generation expense is more than all other expense (cost). Averaging 6989.43 million expenses is incurred in generation in 10 year period. It covers around 72% of all the cost of enterprises. The second cost is distribution with average to 1763.99 million. The administration cost is in third position. Transmission cost seems 4th position with averaging to 230.31 million. The CV of generation, distribution, administration and transmission is 29.52%, 27.76%, 35.59%, and 18.83% resp. The standard deviation of generation cost is more than other cost which is 2062.99 million.
-) Financial ratio analysis show that the company's financial performance. It has seems more serious in the past year. Current ratio in average for the study period is 0.55. It deceasing current ratio indicate that the company is not preferable. It shows solvency position is not better. Generally a current ratio 2:1 is considered satisfactory. Quick ratio of the enterprises is for below than standard of 1:1. The quick ratio is only 0.47 times, thus it shows the poor short term solvency position of the NEA.
-) The company's total assets turnover is only .155 it indicate the overall utilization of firm's assets is very low. Debt ratio is 76% and net profit margin is on sales, return on assets and return on equity is all seems negative due to negative income.
-) The z score of can be regarded as a failure of company and insolvency in near future if it were not in a position to improve its profitability liquidity and turnover. This 0.63 Z score is significantly lower than the

standard of 2.99. Lower Z score is mainly due to the losses of the company.

-) NEA non trading concern types of organization so it prepare of receipt and payment account so in the analysis of that receipt and payment account the payment is more than receipt amount with 7416873 in thousand so it company is being difficult.
-) The income and expenditure budget show the income and expenditure of every company. The healthy company must be higher income than the expenses but NEA's income is less than its expenditure so it seems negative balance.
-) Regression result analysis of actual and budgeted sales show the relation of actual and budgeted sales is positive. Increased actual sales contribute to budgeted positive. Here the condition of increasing and decreasing of trend is similar direction. The t- test and f- sing is being significance.
-) Regression result of net profit on cost of sales show that the relation of cost of sales and net profit is negative. Furthermore increase cost of sales contribute to profit negatively and it spells that the cost management of the company is not effective because increased cost of sales must contribute positively to net profit in order for the cost management to be effective and , here the condition is just opposite.
-) There is no good performance evaluation system in NEA. NEA is not considered practices of systematic and scientific planning and budgeting.

CHAPTER V

SUMMARY CONCLUSION AND RECOMMENDATIONS

This chapter includes summarising the whole study. After summarising the study, a conclusive and suggestive framework has been built. The conclusion and suggestion would be great help for the budgeting practicing process in any organization and company. This chapter is divided into major three parts which is summary, conclusion and recommendation.

5.1 Summary

Nepal is richest country in water in the world, although Nepal has pretty condition of water resources organization like Nepal Electricity Authority (NEA). We can produce 83000 megawatt electricity. Budgeting is the most importance for every business or non business organization because it is a tool of profit planning. In this thesis chapter one is initial step. It describes about background of the study, role of public enterprises, budgeting as a tool of profit planning, introductions of Nepal electricity authority, statement of the problem, objective, significance, limitation and organization of the study. Main objectives of the study are: to analyses the variation between actual and budgeted sales, to analyses the various functional budget of NEA, to evaluate the financial index, to examine the present practise and effectiveness of premise adopted by the NEA on the basis of budgeting.

This research paper has tried to examine and evaluate that to what extent NEA is adopting budgeting practices. The practices and effectiveness of budgeting is reviewed in the enterprises with the help of financial and statistical tools. Data collected from several sources are analysed employing the financial and statistical tools. Statistical tool is important to evaluate the condition of business it include percentage, mean, standard deviation, regression analysis, coefficient of variance, f- test and t- test, whereas financial tools include financial ratio analysis and Z-score analysis etc.

The enterprise's actual sale is less than budgeted sales in amount and units for all the study period. It seems unfavourable in any study periods. Observing year wise sales, highest sales achievement was recorded 2010 but the deviation

highest is in year 2009 which was 18.21% deviation. On the other hand the lowest sales deviation with actual and budgeted in 2005. Observing the trend, standard deviation and C.V., of budgeted sales fluctuate more than actual sales. On the other way budgeted sales is more inconsistent. The trend of fluctuation in budgeted and actual sales for the periods seem to be unpredictable due to the lack of clear policies and program of the NEA. Comparison of actual and budgeted sales figures reveals that there is considerable variance between budgeted and actual sales. The huge variance creates more difficult for NEA to controlling activities and forecast sales. Such huge gap must be addressed through the coordination and integration of efforts of all related stakeholder.

The vital part of statistical tools regression model is developed taking actual sales (AS) as dependent variable and budgeted sales (BS) as independent variable for the purpose of forecasting sales for following year. The sales revenue so forecasted has come to be Rs.18344.31 million likewise time series analysis result of which is statistically more significant gives the forecasted sales as Rs.19735.53 million.

Budgeting practices is also affected by how sales is distributed among the different segments the enterprises is operating. Analysis of the sales reported by consumer group among different consumer groups shows major three groups in internal sales are domestic, industrial and commercial.

Observing the trends of sales reported by consumer groups have been increasing persistently over the periods. The trend of other consumer categories' sales also shows the same kind of trend over the periods. Out of total sales for each year domestic sales is higher in comparison to other types of sales. The domestic sales for each year from 2001 to 2010 are ranges from 36.65 percent to 39.42 percent out of total sales. The sales for industrial category are ranges from 32.21 to 36.21 percent out of total sales. The same for the commercial category ranges from 5.87 to 9.18 percent.

The trend of composition consumer group and growth of consumer shows that more than 95 percent of consumers are accounted from the domestic group. The second highest number of consumer for the enterprises is around 2 percent

for all the period is Industrial consumer. Around one percent is non commercial and other categories of consumers. The average consumer growth rate is 9 % in study and 11.58 % in fiscal year 2010. However for each of categories is increasing over the periods. This spells the future prospects of the enterprises is good and satisfactory in terms of growing consumer. It is important to note that though domestic consumers are more than 95 percent for all the periods, in terms of sales revenues they occupies only around 38 percent of total revenue. Moreover, consumers in the commercial categories are only around 1 percent however occupies sales revenue of around 7 percent. Likewise, consumers in industrial categories are around 2 percent occupying more than 34 percent of sales for the enterprises.

Analysis of regression of CGS is 93.4 percent out of total variation on sales. Cost of sales shows that more of the company's sales are taken away by the cost of generation that is in an average of the total sales, cost of goods sold occupies 62.15 percent of total sales. The consistency measure by C.V, it states cost of goods sold fluctuates more due to variation of production. The cost of sales is higher than that of sales and gross profit.

There are main four types of the cost which are generation expenses, transmission expenses, distribution expenses and administrative expenses. Generation expenses of NEA are more than all other costs averaging to Rs. 6989.43 million for over the listed periods. This cost is the main cost of the company and covers more than 70 percent of all the costs of the enterprises. Another main cost is distribution expenses which average to Rs. 1763.99 million. Administrative overheads bear its third position in terms of the costs of the company which averages to Rs 564.84 millions. Likewise transmission expenses of the enterprises are Rs. 230.31 on an average. The C.V of generation, distribution, administration and transmission is 29.52 %, 35.59 %, 18.83 % and 27.76 % respectively. Generation expenses of the enterprises are more inconsistent as it has highest S.D. of 2062.99 million.

NEA is also non trading concern organization. It is not earning profit but service provide to society. Such type of organization, they keep financial

transaction in cash basis. It also knows cash book. The receipt is less than the payment so the deficit cash is 7416873 million in fiscal year 2010.

It has seen that sales to assets turnover is an important control variable and indicates fundamentally important proposition in planning – that the volume of firm's sales is a good predictor of the required investment in assets. In this case, percent of sales method is introduced to come up with forecasted income. Main results of this are that asset will increase by Rs.11782.96 million and accumulated loss will be Rs.6666.44. This incremental asset and loss are financed spontaneously with current liabilities of Rs. 1561.41, and balance of Rs. 16887.99 should be financed with external funds.

Financial ratio analysis is designed to determine the relative strengths and weakness of business operation. It is provide a framework for financial planning and control. Ratio analysis shows that the company's liquidity has been decreasing each year and it has been more serious in the latter years. Current ratio, in an average for the 10 years periods is 0.55. These decreasing current ratios indicate that the company's ability to pay its debts obligation has seriously been injured over the periods. Another measures of liquidity quick ratio is most important of the enterprises is far below then traditional standard of 1:1. Enterprise's position of liquidity can be unsatisfactory. Total assets turnover of the firm is more or less uniform for all the years averaging to .155 times. The ability of the enterprise's assets to generate sales is not good as the turnover of assets is poor and is also decreasing at latter years. This also indicates the company's inability to manage its assets. The return on equity and return on assets is negative in study period, so NEA is seems very poor.

Another dismal aspect of the NEA is to have gross profit margin is negative, which is -0.16 in an average for the 10 years periods. Net profit margin and total assets turnover give the return on assets if multiplied together. ROA is negative for all the periods. These all the ratio, in absolute term indicates that the NEA is in a difficult stage. Company employed more of debt capital as indicated by debt- assets ratio. This ratio for the company is also more or less

uniform for all the periods and averages to 76 percent. It shows that capital restructuring is very necessary and urgent needed.

Z score measures the overall performance of the company and guidelines for future business life. Z score can be regarded as a failure company and could go in insolvency in near future if it were not improve the related variables sales, profitability, liquidity and turnover. NEA's Z score is 0.63 which is lower than the standard of 2.99. Lower z-score is mainly due to the losses of the company. So it should be maintain by different cost-cutting measures and profitability.

5.2 Conclusion

From the details descriptive and as well as analytical study of NEA's activities with the regarded to budgeting, following point can be conclude.

-) Nepal electricity authority is only leading enterprises in power to that is a facing the threats from independent power producers and losing its absolute monopoly, but there is huge gap between budgeted and actual sales. Moreover the gap happened to be inconsistent. This seems to be non satisfaction for the health of the NEA.
-) Company has no practice of forecasting sales on the basis of statistical methods rather it forecasts sales on the basis of guess and hunch may result into the irrecoverable error. Likewise what it produces and purchases are highly uncertain to forecast precisely. Sales level is forecasted on the basis of previous years' sales and by judgmental approach.
-) Analysis of the sales distribution among different consumer provides the fact to conclude that sales of all the groups have been increasing persistently over the periods. Out of total sales for each year domestic sales is higher in comparison to other types of sales.
-) It is important to note that though domestic consumers are more than 95 percent for all the periods, in terms of sales revenues they occupied only percent of total revenue. Moreover, consumers in the commercial categories are only around 1 percent however occupies sales revenue of around 7 percent. Likewise, consumers in industrial categories are

around 2 percent occupying more than 34 percent of sales for the enterprises. This shows that more sales revenue of the enterprises is concentrated to less number of consumers. So the enterprises must initiate the campaign to focus to the less consumer so that more revenue can be generated launching the different incentive plan.

-) Analysis of cost of sales shows that more of the company's sales are taken away by the cost of production that is in an average of the total sales, cost of goods sold occupies 62.15 percent of total sales. Thus enterprises have failed to initiate different cost reduction strategy.
-) NEA has not applied cost classification technique till now. It consolidates all expenditure relating to manufacturing, administration, selling and distribution under the single category as operation and maintenance expenditure budget.
-) It is seen that secured and term loan is the main source of cash and it is not a favourable condition because any firm must have sufficient cash generated from operation if it wants to be operated from own source of fund. Negative operating profit, investment in current asset constitute major cash outflow for the enterprise which is very dangerous.
-) The above study financial ratio analysis, conclude that firm liquidity is decline each year. Current ratio of NEA shows very worse liquidity ratio so not enough to pay current liabilities immediately. According to assets turnover ratio NEA is unable to utilize its assets properly and effectively. Moreover the company's profitability has been getting bad each year. Likewise capital structure of the company is also in a urgent need to be changed as it is not adding value to shareholders. Z score of NEA is 0.63 and significantly lowers than the standard of 2.99. It tells that the enterprises may bankruptcy in the future if not initiated major changes in the cost and capital structure, sales diversification, effectiveness of service etc.
-) As shown by the regression analysis increased cost of sales contributes to profit negatively and it spells that the cost management of the

company is not effective because increased cost of sales must contribute positively to net profit in order for the cost management to be effective and, here the condition is just opposite. Likewise the net profit on sales and fixed assets spells that increased sales revenue contributes to profit negatively and it spells again that the company bears more of cost than what is desirable as per the sales so as to come out with positive profit.

5.3 Recommendation and Suggestions

On the basis of the whole study following recommendations are relevant to made:

-) High variation of actual sales and budgeted sales must be maintain through co –ordination, integration, and functional communication of all branch and other unit.
-) Fluctuating of actual sales and budgeted sales must be control. NEA should try to minimize the power loss. The loss due to leakage, outage and theft should be controlled as much as possible.
-) Cost control program should be established and budgeted sales must be forecasting using trend analysis and statistical tool. Actual sales must be try to increase and budgeted sales also made be realistic.
-) NEA suggested to maintain its domestic sales and try to increase its: industrial, commercial, non commercial sales and other with the help of sales and profitability for this purpose NEA has to focusing advertising, promotional and incentive package for loyal customer. Discount of consumption made also maintaining its purpose.
-) NEA is recommended to adopt cost reduction which is realistic by the help of co-ordination, training to employee, restructuring, co-ordination being responsibility, conscious in proper planning, implementation and controlling of activities to maximize its profit.
-) Some of expenses such as generation, transmission, administration and distribution expenses are very high and no any impact in profit of the enterprises and sometime having negative impact upon profit as revealed by the society such cost is recommended to minimize by the help of cost

cutting measures if there possible. Enterprise should also try to estimate its expenditure using the statistical tools to come up with the more reliable forecasting.

-) NEA must be developed the various evaluating criteria in planning, implementation and control. Receipt of cash may try to increase and payment must be minimized. To present good profit for stakeholder the sales must be high in that case the sales and profit seems very poor so it maintain.
-) The growth rate of domestic customer must be maintained and other's growth rate tries to increase.
-) A main source of cash for NEA is long term loan and short term borrowing. On the other main outflows are for generation, administrative and distribution expenses. In this regard, NEA should maintain cash flow synchronization by which the outflow and inflow timed each other so that the company may not run out of cash.
-) As shown from the forecasted financial statements the enterprise will need Rs. 16887.99 as external funds to finance its incremental assets and losses. The enterprise is suggested to raise this amount through the source that does not push the capital structure to a further point of peril. The source must be the one that helps maintain the optimum capital structure of the enterprise.
-) Liquidity of the enterprise has been deteriorating each year. Proper management of cash, inventory and receivables helps to correct this problem. The turnover of assets also seems to be poor. NEA is suggested to acquire quality assets and to discard obsolete and non earning assets.
-) NEA, as shown by Z score, can be regarded as a failure firm and could go in insolvency in near future if it were not in a position to improve its profitability, liquidity and turnover. Lower Z score is mainly due to the continuous losses the enterprise has been facing over its history. So it should initiate different cost-cutting measures so as to improve its profitability.

-) NEA suggested maintaining motivation, communication, co-ordination, evaluation, punishment and incentive programme rapidly and it should develop efficient system of revenue collection with the help of define rule and regulation in regarded of revenue collection.
-) NEA must have clear policy and planning about the budget, sales, pricing, distribution, customer care, social responsibility and profit. To evaluating system must be development in top to lower level staff and lows of order is implemented fast.

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Appendix 1

Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Time ^a		Enter

- a. All requested variables entered.
b. Dependent Variable: Budget

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.967 ^a	.934	.926	866.60712

- a. Predictors: (Constant), Time

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	85413274	1	85413274.376	113.732	.000 ^a
	Residual	6008063.2	8	751007.903		
	Total	91421338	9			

- a. Predictors: (Constant), Time
b. Dependent Variable: Budget

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2026463	191345.56		-10.591	.000
	Time	1017.503	95.410	.967	10.654	.000

- a. Dependent Variable: Budget

Appendix 2

Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Budget ^b		Enter

- a. All requested variables entered.
 b. Dependent Variable: Actual

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.967 ^a	.935	.927	653.97439

- a. Predictors: (Constant), Budget

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	49091388	1	49091388.071	114.785	.000 ^a
	Residual	3421460.0	8	427682.504		
	Total	52512848	9			

- a. Predictors: (Constant), Budget
 b. Dependent Variable: Actual

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2584.812	988.984		2.614	.031
	Budget	.733	.068	.967	10.714	.000

- a. Dependent Variable: Actual

Appendix 3

Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Sale ^a		Enter

- a. All requested variables entered.
 b. Dependent Variable: CGS

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.967 ^a	.934	.928	660.05642

- a. Predictors: (Constant), Sale

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1 ^a	Regression	49454954	1	49454954.238	113.514	.000 ^b
	Residual	3485395.8	8	435674.472		
	Total	52940350	9			

- a. Predictors: (Constant), Sale
 b. Dependent Variable: CGS

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-3089.151	1054.657		-2.929	.019
	Sale	.854	.081	.967	10.654	.000

- a. Dependent Variable: CGS

Appendix 4
Calculation of mean, standard deviation and coefficient of variation of
Budgeted sales in units (In millions)

Year	X (Budgeted sales)	X = x - \bar{x}	X ²
2001	1523	-634	401956
2002	1642	-515	265225
2003	1805	-352	123904
2004	1906	-251	63001
2005	1989	-168	28224
2006	2145	-12	144
2007	2362	205	42025
2008	2421	264	69696
2009	2696	539	290521
2010	3073	916	839056
	$\bar{X} = 21562$	$(X - \bar{X}) = -8$	$\sum \frac{z}{X} = 2123752$

$$\begin{aligned} \text{Mean } (\bar{x}) &= \frac{\sum X}{n} \\ &= \frac{21562}{10} \\ &= 2157 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation (S.D.)} &= \sqrt{\frac{\sum x^2}{n}} \\ &= \sqrt{\frac{2123752}{10}} \\ &= 460.84 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of variance (C.V.)} &= \frac{\sigma}{\bar{x}} \times 100\% \\ &= \frac{460.84}{2157} \times 100 \\ &= 21.37 \end{aligned}$$

Appendix 5
Calculation of mean, standard deviation and coefficient of variation of
Actual sales in units (In millions)

Year	X (Actual sales)	X= $x - \bar{x}$	X ²
2001	1426	-549	301401
2002	1537	-438	191844
2003	1708	-267	71289
2004	1800	-175	30625
2005	1918	-57	3249
2006	2028	54	2916
2007	2203	228	51984
2008	2318	343	117649
2009	2205	230	52900
2010	2601	626	391876
	$\bar{X} = 19745$	$(x - \bar{x}) = -5$	$\sum_x^2 = 1215733$

$$\begin{aligned} \text{Mean } (\bar{x}) &= \frac{\sum x}{n} \\ &= \frac{19745}{10} \\ &= 1975 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation (S.D.)} &= \sqrt{\frac{\sum x^2}{n}} \\ &= \sqrt{\frac{1215733}{10}} \\ &= 348.67 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of variance (C.V.)} &= \frac{\sigma}{\bar{x}} \times 100\% \\ &= \frac{348.67}{1975} \times 100 \\ &= 17.65\% \end{aligned}$$

Appendix 6
Calculation of mean, standard deviation and coefficient of variation of
Budgeted sales in revenue (In millions)

Year	X (Budgeted sales)	X = x - \bar{x}	X ²
2001	10687	-3453	11923209
2002	10096	-4044	16353936
2003	11968	-2127	4717584
2004	12585	-1555	2418025
2005	13018	-1122	1258884
2006	13940	-200	40000
2007	15315	1175	1380625
2008	15891	1751	3066001
2009	17533	3393	11512449
2010	20365	6225	38750625
	$\bar{X} = 141398$	$(\sum (x - \bar{x})) = 43$	$\sum \frac{x^2}{n} = 91421338$

Mean \bar{x}

$$= \frac{\sum x}{n}$$

$$= \frac{141398}{10}$$

$$= 14140$$

Standard deviation (S.D.)

$$= \sqrt{\frac{\sum x^2}{n}}$$

$$= \sqrt{\frac{91421338}{10}}$$

$$= 3023.59$$

Coefficient of variance (C.V.)

$$= \frac{\sigma}{\bar{x}} \times 100\%$$

$$= \frac{3023.59}{14140} \times 100$$

$$= 21.38 \%$$

Appendix 7
Calculation of mean, standard deviation and coefficient of variation Actual sales in revenue (In millions)

Year	X (Actual sales)	X = x - \bar{x}	X ²
2001	9952	-2994	8964036
2002	9476	-3470	12040900
2003	11012	-1934	3740356
2004	11992	-954	910116
2005	12605	-341	116281
2006	13369	423	178929
2007	14447	1501	2253001
2008	15041	2095	4389025
2009	14405	1459	2128681
2010	17164	4218	17791524
	$\bar{X} = 129463$	$(\bar{x} - \bar{x})=3$	$\sum \frac{z}{\bar{x}} = 52512849$

$$\begin{aligned} \text{Mean } (\bar{x}) &= \frac{\sum x}{n} \\ &= \frac{129463}{10} \\ &= 12946 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation (S.D.)} &= \sqrt{\frac{\sum x^2}{n}} \\ &= \sqrt{\frac{52512849}{10}} \\ &= 2291.57 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of variance (C.V.)} &= \frac{\sigma}{\bar{x}} \times 100\% \\ &= \frac{2291.57}{12946} \times 100\% \\ &= 17.70\% \end{aligned}$$

Appendix 8
Calculation of mean, standard deviation, coefficient of variation of sales
(In millions)

Year	X (Sales)	X= x - \bar{x}	X ²
2001	8160.80	-4591.49	21081780.42
2002	9476.20	-3276.09	10732765.69
2003	11012.60	-1739.69	3026521.30
2004	11874.70	-877.59	770164.21
2005	12605.20	-147.09	21635.47
2006	13331.90	579.61	335947075
2007	14449.73	1697.44	2881302.55
2008	15041.49	2289.20	5240436.64
2009	14405.93	1653.64	2734525.25
2010	17164.59	4412.30	19468391.29
	$\bar{X} = 127523.14$	$(\bar{x} - \bar{x}) = .24$	$\sum \frac{z}{\bar{x}} = 66293470.57$

$$\begin{aligned} \text{Mean } (\bar{x}) &= \frac{\sum X}{n} \\ &= \frac{127523.14}{10} \\ &= 12752.30 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation (S.D.)} &= \sqrt{\frac{\sum x^2}{n}} \\ &= \sqrt{\frac{66293470.57}{10}} \\ &= 2574.75 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of variance (C.V.)} &= \frac{\sigma}{\bar{x}} \times 100\% \\ &= \frac{2574.75}{12752.3} \times 100\% \\ &= 20.19\% \end{aligned}$$

Appendix 9
Calculation of mean, standard deviation and coefficient of gross profits (In millions)

Year	X (Gross profit)	X= x - \bar{x}	X ²
2001	3680.10	-1147.02	1315654.88
2002	3589.50	-1237.62	1531703.26
2003	5664.60	837.48	701372.75
2004	5109.30	282.18	79625.55
2005	5142.79	315.67	99647.55
2006	4999.20	172.08	29611.52
2007	5415.18	588.06	345814.56
2008	5510.66	683.54	467226.93
2009	4470.66	-356.46	127063.73
2010	4689.20	-137.92	19021.93
	$\bar{X} = 48271.19$	$(x - \bar{x}) = -0.01$	$\sum \frac{z}{x} = 4763469.59$

$$\begin{aligned} \text{Mean } (\bar{x}) &= \frac{\sum X}{n} \\ &= \frac{48271.19}{10} \\ &= 4827.12 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation (S.D.)} &= \sqrt{\frac{\sum x^2}{n}} \\ &= \sqrt{\frac{4763469.59}{10}} \\ &= 690.18 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of variance (C.V.)} &= \frac{\sigma}{\bar{x}} \times 100\% \\ &= \frac{690.18}{4827.12} \times 100 \\ &= 14.29\% \end{aligned}$$

Appendix 10
Calculation of mean, standard deviation and coefficient of cost of sales (In millions)

Year	X (cost of sales)	X= x - \bar{x}	X ²
2001	4480.70	-3444.49	11864511.36
2002	5886.70	-2038.49	4155441.48
2003	5348.00	-2577.19	6641908.29
2004	6765.40	-1159.79	1345112.84
2005	7462.40	-462.79	214174.58
2006	8332.70	407.51	166064.40
2007	9034.55	1109.36	1230679.61
2008	9530.83	1605.64	2578079.81
2009	9935.27	2010.08	4040421.60
2010	12475.35	4550.16	20703956.03
	$\bar{X} = 79251.90$	$(x - \bar{x})=0$	$\sum \frac{z}{x} = 52940350$

$$\begin{aligned} \text{Mean } (\bar{x}) &= \frac{\sum X}{n} \\ &= \frac{79251.90}{10} \\ &= 7925.19 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation (S.D.)} &= \sqrt{\frac{\sum x^2}{n}} \\ &= \sqrt{\frac{52940350}{10}} \\ &= 2300.88 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of variance (C.V.)} &= \frac{\sigma}{\bar{x}} \times 100\% \\ &= \frac{2300.88}{7925.19} \times 100 \\ &= 29.03\% \end{aligned}$$

Appendix 11
Calculation of mean, standard deviation and coefficient of % of sales (In millions)

Year	X (% of sales)	X = x - \bar{x}	X ²
2001	54.91	-7.24	52.42
2002	62.12	-0.03	0.0009
2003	48.56	-13.59	184.69
2004	56.97	-5.18	26.83
2005	59.20	-2.95	8.70
2006	62.50	0.35	0.123
2007	62.52	0.37	0.137
2008	63.36	1.21	1.464
2009	68.97	6.82	46.51
2010	72.68	10.53	110.88
	$\bar{X} = 621.5$	$(x - \bar{X})=0$	$\sum \frac{x^2}{n} = 431.76$

$$\begin{aligned} \text{Mean } (\bar{x}) &= \frac{\sum X}{n} \\ &= \frac{621.5}{10} \\ &= 62.15 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation (S.D.)} &= \sqrt{\frac{\sum x^2}{n}} \\ &= \sqrt{\frac{431.76}{10}} \\ &= 6.57 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of variance (C.V.)} &= \frac{\sigma}{\bar{x}} \times 100\% \\ &= \frac{6.57}{62.15} \times 100 \\ &= 10.57\% \end{aligned}$$

Appendix 12
Calculation of mean, standard deviation, coefficient of generation expenses
(In millions)

Year	X (Generation expenses)	X = x - \bar{x}	X ²
2001	4343.40	2646.03	7001474.76
2002	5137.65	-1851.78	3429089.17
2003	4509.18	-2480.25	6151640.06
2004	5959.80	-1029.63	1060137.94
2005	6402.37	-587.06	344639.44
2006	7203.07	213.64	45642.05
2007	7823.21	833.78	695189.09
2008	8416.80	1427.37	2037385.12
2009	8810.99	1821.56	3318080.83
2010	11287.84	4298.41	18476328.53
	$\bar{X} = 69894.31$	$(\bar{X} - \bar{X}) = 0.01$	$\sum \frac{z}{\bar{X}} = 42559606.99$

Mean (\bar{x}) = $\frac{\sum X}{n}$
= $\frac{69894.31}{10}$
= 6989.43

Standard deviation (S.D.) = $\sqrt{\frac{\sum X^2}{n}}$
= $\sqrt{\frac{42559606.99}{10}}$
= 2062.99

Coefficient of variance (C.V.) = $\frac{\sigma}{\bar{x}} \times 100\%$
= $\frac{2062.99}{6989.43} \times 100\%$
= 29.52%

Appendix 13
Calculation of mean, standard deviation, coefficient of transmission expenses (In millions)

Year	X (Transmission expenses)	X= x - \bar{x}	X ²
2001	137.30	-93.01	8650.86
2002	158.00	-72.31	5228.74
2003	178.60	-51.71	2673.92
2004	199.50	-30.81	949.25
2005	215.93	-14.38	206.78
2006	232.13	1.82	3.3124
2007	240.88	10.57	111.725
2008	274.85	44.54	1983.81
2009	328.16	97.85	9574.62
2010	337.74	107.43	11541.20
	$\bar{X} = 2303.09$	$(\bar{x} - \bar{x}) = -0.01$	$\sum \frac{x^2}{x} = 40924.22$

$$\begin{aligned} \text{Mean } (\bar{x}) &= \frac{\sum x}{n} \\ &= \frac{2303.09}{10} \\ &= 230.31 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation (S.D.)} &= \sqrt{\frac{\sum x^2}{n}} \\ &= \sqrt{\frac{40924.22}{10}} \\ &= 63.97 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of variance (C.V.)} &= \frac{\sigma}{\bar{x}} \times 100\% \\ &= \frac{63.97}{230.31} \times 100\% \\ &= 27.76\% \end{aligned}$$

Appendix 14
Calculation of mean, standard deviation, coefficient of distribution
expenses (In millions)

Year	X (Distribution expenses)	X= x - \bar{x}	X ²
2001	982.22	-781.77	611134.33
2002	1174.40	-589.59	347616.37
2003	1308.60	-495.39	207380.05
2004	1376.10	-387.89	150458.65
2005	1484.20	-279.79	78282.44
2006	1703.70	-60.29	3634.88
2007	1834.39	70.40	4956.16
2008	2110.01	346.02	119729.84
2009	2575.09	811.10	657883.21
2010	3091.21	1327.22	1761512.93
	$\bar{X} = 17639.92$	$(\bar{x} - \bar{x}) = -39.98$	$\sum \frac{x^2}{n} = 3942618.86$

$$\text{Mean } (\bar{x}) = \frac{\sum x}{n} = \frac{17639.92}{10} = 1763.99$$

$$\text{Standard deviation (S.D.)} = \sqrt{\frac{\sum x^2}{n}} = \sqrt{\frac{3942618.86}{10}} = 627.9$$

$$\text{Coefficient of variance (C.V.)} = \frac{\sigma}{\bar{x}} \times 100\% = \frac{627.9}{1763.99} \times 100\% = 35.59\%$$

Appendix 15
Calculation of mean, standard deviation, coefficient of administration expenses (In millions)

Year	X (Administration expenses)	X = x - \bar{x}	X ²
2001	529.24	-35.60	1267.36
2002	447.40	-117.44	13792.15
2003	536.10	-28.74	825.98
2004	489.10	-75.74	5736.54
2005	622.40	57.56	3313.15
2006	419.50	-145.34	21123.71
2007	479.50	-85.34	7282.90
2008	683.98	119.14	14194.33
2009	651.69	86.85	7542.92
2010	789.52	224.68	50481.10
	$\bar{X} = 5648.43$	$(\sum (x - \bar{x})) = 0.03$	$\sum \frac{x^2}{n} = 113147.14$

Mean (\bar{x}) = $\frac{\sum x}{n}$
= $\frac{5648.43}{10}$
= 564.84

Standard deviation (S.D.) = $\sqrt{\frac{\sum x^2}{n}}$
= $\sqrt{\frac{113147.14}{10}}$
= 106.37

Coefficient of variance (C.V.) = $\frac{\sigma}{\bar{x}} \times 100\%$
= $\frac{106.37}{564.84} \times 100\%$
= 18.83%

Appendix 16

Balance sheet and financial ratios of fiscal year 2001 (in millions)

Assets	Amount	Liabilities and equity	Amount
Cash	630.24	A/c payable	8486.16
Inventory	857.10	Provision	1231.57
A/c receivable	2534.88	Long term debt	35657.39
Prepaid	3216.48	Def. exp	(688.53)
Current assets	7238.70	Profit (accumulate)	1849.97
Fixed assets	55805.06	Equity	16508.15
Total	63043.76	Total	63043.76

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{7238.70}{8486.16} = 0.853$$

$$\text{Quick assets} = \frac{\text{CA} - \text{Inventories} - \text{prepaid}}{\text{Current Liabilities}} = \frac{7238.70 - 857.10 - 3216.48}{8486.16} = 0.373$$

$$\text{Total Assets Turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{9952}{63043.76} = 0.153$$

$$\text{Total Debt Ratio} = \frac{\text{short term} + \text{long term debt}}{\text{total assets}} = \frac{8486.16 + 35657.39}{63043.76} = 0.710$$

$$\text{Net profit margin} = \frac{\text{Net Profit}}{\text{Sales}} = \frac{(1020.23)}{9952} = (0.102)$$

$$\text{Return on Assets} = \frac{\text{Net Profit}}{\text{Total Assets}} = \frac{(1020.23)}{63043.76} = (0.016)$$

$$\text{Return on equity} = \frac{\text{Net income}}{\text{common equity}} = \frac{(1020.23)}{16508.15} = (0.071)$$

Appendix 17

Balance sheet and financial ratios of fiscal year 2002 (in millions)

Assets	Amount	Liabilities and equity	Amount
Cash	664.60	A/c payable	8852.79
Inventory	1058.10	Provision	1244.20
A/c receivable	2284.90	Long term debt	37325.61
Prepaid	3314.40	Def. exp	(926.70)
Current assets	7322.00	Profit (accumulate)	696.51
Fixed assets	56471.71	Equity	16601.30
Total	63793.71	Total	63793.71

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{7322}{8852.79} = 0.827$$

$$\text{Quick assets} = \frac{\text{CA} - \text{Inventories} - \text{prepaid}}{\text{Current Liabilities}} = \frac{7322 - 1058.10 - 3314.40}{8852.79} = 0.333$$

$$\text{Total Assets Turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{9476.2}{63793.71} = 0.149$$

$$\text{Total Debt Ratio} = \frac{\text{short term} + \text{long term debt}}{\text{total assets}} = \frac{8852.79 + 37325.61}{63793.71} = 0.724$$

$$\text{Net profit margin} = \frac{\text{Net Profit}}{\text{Sales}} = \frac{(860.70)}{9476.2} = (0.091)$$

$$\text{Return on Assets} = \frac{\text{Net Profit}}{\text{Total Assets}} = \frac{(860.70)}{63793.71} = (0.015)$$

$$\text{Return on equity} = \frac{\text{Net income}}{\text{common equity}} = \frac{(860.70)}{16601.30} = (0.052)$$

Appendix 18

Balance sheet and financial ratios of fiscal year 2003 (in millions)

Assets	Amount	Liabilities and equity	Amount
Cash	1076.15	A/c payable	11593.69
Inventory	1017.22	Provision	753.31
A/c receivable	3380.20	Long term debt	39637.11
Prepaid	<u>2216.91</u>	Def. exp	(637.39)
Current assets	7690.48	Profit (accumulate)	(1269.87)
Fixed assets	59363.24	Equity	16976.87
Total	67053.72	Total	67053.72

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{7690.48}{11593.69} = 0.663$$

$$\text{Quick assets} = \frac{\text{CA} - \text{Inventories} - \text{prepaid}}{\text{Current Liabilities}} = \frac{7690.48 - 1017.22 - 2216.91}{11593.69} = 0.384$$

$$\text{Total Assets Turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{11012.60}{67053.72} = 0.164$$

$$\text{Total Debt Ratio} = \frac{\text{short term} + \text{long term debt}}{\text{total assets}} = \frac{11593.69 + 39637.11}{67053.72} = 0.764$$

$$\text{Net profit margin} = \frac{\text{Net Profit}}{\text{Sales}} = \frac{(1953.70)}{11012.60} = (0.177)$$

$$\text{Return on Assets} = \frac{\text{Net Profit}}{\text{Total Assets}} = \frac{(1953.70)}{67053.72} = (0.029)$$

$$\text{Return on equity} = \frac{\text{Net income}}{\text{common equity}} = \frac{(1953.70)}{16976.87} = (0.115)$$

Appendix 19

Balance sheet and financial ratios of fiscal year 2004 (in millions)

Assets	Amount	Liabilities and equity	Amount
Cash	1036.42	A/c payable	13856.61
Inventory	1048.01	Provision	681.48
A/c receivable	3735.71	Long term debt	41103.14
Prepaid	<u>2063.27</u>	Def. exp	(228.28)
Current assets	7883.41	Profit (accumulate)	(2997.69)
Fixed assets	62747.70	Equity	18215.85
Total	70631.11	Total	70631.11

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{7883.41}{13856.61} = 0.569$$

$$\text{Quick assets} = \frac{\text{CA} - \text{Inventories} - \text{prepaid}}{\text{Current Liabilities}} = \frac{7883.41 - 1048.01 - 2063.27}{13856.61} = 0.344$$

$$\text{Total Assets Turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{11874.70}{70631.11} = 0.168$$

$$\text{Total Debt Ratio} = \frac{\text{short term} + \text{long term debt}}{\text{total assets}} = \frac{13856.61 + 41103.14}{70631.11} = 0.778$$

$$\text{Net profit margin} = \frac{\text{Net Profit}}{\text{Sales}} = \frac{(1760.30)}{11874.70} = (0.148)$$

$$\text{Return on Assets} = \frac{\text{Net Profit}}{\text{Total Assets}} = \frac{(1760.30)}{70631.11} = (0.249)$$

$$\text{Return on equity} = \frac{\text{Net income}}{\text{common equity}} = \frac{(1760.30)}{18215.85} = (0.097)$$

Appendix 20

Balance sheet and financial ratios of fiscal year 2005 (in millions)

Assets	Amount	Liabilities and equity	Amount
Cash	1322.60	A/c payable	16768.69
Inventory	1372.70	Provision	697.70
A/c receivable	3697.70	Long term debt	44537.51
Prepaid	<u>2098.60</u>	Def. exp	(376)
Current assets	8491.60	Profit (accumulate)	(4294.14)
Fixed assets	69003.96	Equity	20161.80
Total	77495.56	Total	77495.56

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{8491.60}{16768.69} = 0.506$$

$$\text{Quick assets} = \frac{\text{CA} - \text{Inventories} - \text{prepaid}}{\text{Current Liabilities}} = \frac{8491.60 - 1372.70 - 2098.60}{16768.69} = 0.299$$

$$\text{Total Assets Turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{12605.20}{77495.56} = 0.163$$

$$\text{Total Debt Ratio} = \frac{\text{short term} + \text{long term debt}}{\text{total assets}} = \frac{16768.69 + 44537.51}{77495.56} = 0.791$$

$$\text{Net profit margin} = \frac{\text{Net Profit}}{\text{Sales}} = \frac{(1312.81)}{12605.20} = (0.104)$$

$$\text{Return on Assets} = \frac{\text{Net Profit}}{\text{Total Assets}} = \frac{(1312.81)}{77495.56} = (0.017)$$

$$\text{Return on equity} = \frac{\text{Net income}}{\text{common equity}} = \frac{(1312.81)}{20161.80} = (0.065)$$

Appendix 21

Balance sheet and financial ratios of fiscal year 2006 (in millions)

Assets	Amount	Liabilities and equity	Amount
Cash	1258.60	A/c payable	19144.39
Inventory	1354.80	Provision	709.80
A/c receivable	4088.00	Long term debt	46487.91
Prepaid	<u>2293.90</u>	Def. exp	(359.80)
Current assets	8995.30	Profit (accumulate)	(5545.32)
Fixed assets	74554.78	Equity	23113.23
Total	83550.08	Total	83550.08

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{8995.30}{19144.39} = 0.470$$

$$\text{Quick assets} = \frac{\text{CA} - \text{Inventories} - \text{prepaid}}{\text{Current Liabilities}} = \frac{8995.30 - 1354.80 - 2293.90}{19144.39} = 0.175$$

$$\text{Total Assets Turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{13331.90}{83550.08} = 0.160$$

$$\text{Total Debt Ratio} = \frac{\text{short term} + \text{long term debt}}{\text{total assets}} = \frac{19144.39 + 46487.91}{83550.08} = 0.786$$

$$\text{Net profit margin} = \frac{\text{Net Profit}}{\text{Sales}} = \frac{(1267.80)}{13331.90} = (0.098)$$

$$\text{Return on Assets} = \frac{\text{Net Profit}}{\text{Total Assets}} = \frac{(1267.00)}{83550.08} = (0.0152)$$

$$\text{Return on equity} = \frac{\text{Net income}}{\text{common equity}} = \frac{(1267.80)}{23113.10} = (0.055)$$

Appendix 22

Balance sheet and financial ratios of fiscal year 2007 (in millions)

Assets	Amount	Liabilities and equity	Amount
Cash	1447.58	A/c payable	22119.00
Inventory	1498.45	Provision	693.13
A/c receivable	5151.41	Long term debt	47616.15
Prepaid	<u>2225.53</u>	Def. exp	848.40
Current assets	10322.97	Profit (accumulate)	(5651.12)
Fixed assets	81809.00	Equity	26382.18
Def. & inter	(124.23)		
Total	92007.74	Total	92007.74

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{10322.97}{22119.00} = 0.467$$

$$\text{Quick assets} = \frac{\text{CA} - \text{Inventories} - \text{prepaid}}{\text{Current Liabilities}} = \frac{10322.97 - 1498.45 - 2225.53}{22119.00} = 0.298$$

$$\text{Total Assets Turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{14449.73}{92007.74} = 0.157$$

$$\text{Total Debt Ratio} = \frac{\text{short term} + \text{long term debt}}{\text{total assets}} = \frac{22119 + 47616.15}{92007.74} = 0.760$$

$$\text{Net profit margin} = \frac{\text{Net Profit}}{\text{Sales}} = \frac{240.06}{14449.73} = 0.02$$

$$\text{Return on Assets} = \frac{\text{Net Profit}}{\text{Total Assets}} = \frac{240.06}{92007.74} = 0.003$$

$$\text{Return on equity} = \frac{\text{Net income}}{\text{common equity}} = \frac{240.06}{26382.18} = 0.01$$

Appendix 23

Balance sheet and financial ratios of fiscal year 2008 (in millions)

Assets	Amount	Liabilities and equity	Amount
Cash	1337.15	A/c payable	25482.01
Inventory	1800.13	Provision	2085.38
A/c receivable	5721.08	Long term debt	51368.84
Prepaid	<u>2319.72</u>	Def. exp	(231.17)
Current assets	11178.08	Profit (accumulate)	(7577.78)
Fixed assets	89350.18	Equity	28609.97
		Def. tax	791.01
Total	100528.26	Total	100528.26

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{11178.08}{25482.01} = 0.44$$

$$\text{Quick assets} = \frac{\text{CA} - \text{Inventories} - \text{prepaid}}{\text{Current Liabilities}} = \frac{11178.08 - 1800.13 - 2319.72}{25482.01} = 0.277$$

$$\text{Total Assets Turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{15041.47}{100528.26} = 0.15$$

$$\text{Total Debt Ratio} = \frac{\text{short term} + \text{long term debt}}{\text{total assets}} = \frac{25482.01 + 51368.84}{100528.26} = 0.765$$

$$\text{Net profit margin} = \frac{\text{Net Profit}}{\text{Sales}} = \frac{(2315.47)}{15041.47} = (0.154)$$

$$\text{Return on Assets} = \frac{\text{Net Profit}}{\text{Total Assets}} = \frac{(2315.47)}{100528.26} = (0.023)$$

$$\text{Return on equity} = \frac{\text{Net income}}{\text{common equity}} = \frac{(2315.47)}{28609.97} = (0.081)$$

Appendix 24

Balance sheet and financial ratios of fiscal year 2009 (in millions)

Assets	Amount	Liabilities and equity	Amount
Cash	1724.76	A/c payable	29221.35
Inventory	2159.12	Provision	3330.78
A/c receivable	4854.02	Long term debt	53788.45
Prepaid	<u>2495.13</u>	Def. exp	693.30
Current assets	11233.03	Profit (accumulate)	(12600.98)
Fixed assets	96928.88	Equity	33659.46
Def.exp& enter	(69.65)		
Total	108092.26	Total	108092.26

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{11233.03}{29221.35} = 0.384$$

$$\text{Quick assets} = \frac{\text{CA} - \text{Inventories} - \text{prepaid}}{\text{Current Liabilities}} = \frac{11233.03 - 2159.12 - 2495.13}{29221.35} = 0.384$$

$$\text{Total Assets Turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{14405.93}{108092.26} = 0.133$$

$$\text{Total Debt Ratio} = \frac{\text{short term} + \text{long term debt}}{\text{total assets}} = \frac{29221.35 + 53788.45}{108092.26} = 0.77$$

$$\text{Net profit margin} = \frac{\text{Net Profit}}{\text{Sales}} = \frac{(5093.22)}{14405.93} = (0.353)$$

$$\text{Return on Assets} = \frac{\text{Net Profit}}{\text{Total Assets}} = \frac{(5093.22)}{108092.26} = (0.047)$$

$$\text{Return on equity} = \frac{\text{Net income}}{\text{common equity}} = \frac{(5093.22)}{33659.46} = (0.151)$$

Appendix 25

Balance sheet and financial ratios of fiscal year 2010 (in millions)

Assets	Amount	Liabilities and equity	Amount
Cash	1244.66	A/c payable	33651.36
Inventory	2431.99	Provision	5576.80
A/c receivable	6097.74	Long term debt	58231.66
Prepaid	<u>2733.68</u>	Def. exp	693.2
Current assets	12508.07	Profit (accumulate)	(19391.05)
Fixed assets	105120.07	Equity	38651.76
Total	117413.73	Total	117413.73

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{12508.07}{33651.36} = 0.371$$

$$\text{Quick assets} = \frac{\text{CA} - \text{Inventories} - \text{prepaid}}{\text{Current Liabilities}} = \frac{12508.07 - 2431.99 - 2733.68}{33651.36} = 0.218$$

$$\text{Total Assets Turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{17164.59}{117413.73} = 0.15$$

$$\text{Total Debt Ratio} = \frac{\text{short term} + \text{long term debt}}{\text{total assets}} = \frac{33651.36 + 58231.66}{117413.73} = 0.78$$

$$\text{Net profit margin} = \frac{\text{Net Profit}}{\text{Sales}} = \frac{(6923.53)}{17164.59} = (0.4033)$$

$$\text{Return on Assets} = \frac{\text{Net Profit}}{\text{Total Assets}} = \frac{(6923.53)}{117413.73} = (0.06)$$

$$\text{Return on equity} = \frac{\text{Net income}}{\text{common equity}} = \frac{(6923.53)}{38651.76} = (0.179)$$