CHAPTER- ONE
INTRODUCTION

1. 1 General Background:

Nepal is one of the least developing countries in the world, which is still in its crawling stage of industrial development. The sound-economic development of any nation depends upon the higher rate of growth of production activities in the different sector of the country's economy. About four decades age, when the country was under Rana rule for more than a hundred years no significant initiatives where taken to improve the economic condition. There were few Rana prime Ministers who had shown their interest in establishing some industries and public companies for the first time in the country. During the rule of Ranas, few industries were established, for example, Chandra Shamsher J.B.R had established means of "communication and rope-way transport". Likewise, Buddha Shamsher J.B.R had established the first financial institution in Nepal,like Nepal Bank Ltd in 1994 B.S, Morang Sugar Mills Ltd and Nepal Insurance & Transport Company Ltd in 2003 B.S & 2004 B.S respectively

Timely amendments in Industrial policy Industry enterprise Act & economic polices have been made over the period of the years with a view to industrialize the country. Inadequate industrial base of the country, it has made imperative to identify new industrial sectors, which are instrumental to attract & mobilize local manpower, material & scattered capital of the country.

Nepal has abundant natural resources, but still is backward in term of socio-economic development because of the inability in exploiting the resources. Exploitation of the available resources helps to make economy of a nation strong by flourishing various development works. Among the various resources available in the nation, water resource is the greatest one. It is the second richest country in the world in water resource. The physiography of Nepal facilities to mime water in three forms as snow, rainfall and ground water. These forms have generated more than 6,000 river and rivulets interlinked mainly in four major river systems carving to this tiny country Nepal. The perennial river systems carry out 225 billion cubic meter of water every year and flow down to Indian Ocean via India.

The water resource of Nepal can be considered as incomparable means of all round development if it is used wisely. From our rivers, we cannot only generate hydroelectricity but it can be multi purpose source of energy. This typical gift of nature has abundant potentiality of fresh water sources for drinking purpose and hydropower generation besides other uses.

Proper utilization of this resource mainly in drinking water, irrigation facility and electricity generation is required to meet the demand of water related services of annually increased population, to control the environment deterioration, to reduce water induced disaster and improve the socio economic condition of nation. The water resources strategy policy formulated by government of Nepal three years ago and a national water plan which is in preparatory stage has set a target of providing sustainable supply of drinking water all over the country, year round irrigation facility to 41% of total agricultural land.

Water is one of the most essential substances of human life, which is provided by nature. The existence of all living beings i.e. plants, animal and human depend in water. According to history, the civilization developed around the abundant supply of water, which is derived from different sources and unevenly distributed. Water is equally important for other development activities. First of all we need it for drinking purpose. It is as important as we need air for breathing. We use water for different purposes such as drinking, washing, protecting life and property against fire, bathing cleaning, irrigation, industrial purposes etc.

Therefore, the National water plan should focus on the utilization of water in two aspects as water resources development to fulfill the related service of domestic need and for commercial purposes. Thus the integrated water resources development projects for agriculture and vegetation growth, water induced disaster control, sustainable drinking water supply and electricity generation have the potential to overall development of the country.

Considering the multiple uses of water resources, Nepal government has established the public enterprises i.e. Water Supply and Sewerage Corporation (WSSC). It is an enterprise of public utility which is striving to achieve its objectives. The success and failure of this corporation in achieving its set goal depends on its strategy, planning of various budgets and financial performance.

1.2 Introduction of NWSC :

Nepal Water Supply Corporation is an organization which came into being in the month of February, 1990 under the NWSC Act. 1990 of Nepal Government. It operates as an important utility in providing its services in the field of drinking water and sewerage amenities in the urban centers of Nepal.

The first drinking water scheme in Nepal was called “Bir Dhara” in B.S. 1995. 'Pani Adda' or 'Pani Goswara' is one of the oldest offices in the history of Nepal. It was based in Katmandu. Later on, new schemes were also implemented in stages to provide drinking water in Patan and Bhaktapur and some augmented in Kathmandu with a new system popularly known as “Tri Bhim Line.”

The department of irrigation and water supply was responsible body for water supply unit 1972. Then the department of water supply and sewerage was created, to carry out more time bond programmer in the water supply and sewerage sectors throughout the country.

The water supply and sewerage board was constituted in July, 1973 under the Development Board Act, 1957 to implement the projects financed under the International Development Association to provide improved water and sewerage facilities in Katmandu Valley and Pokhara systematically.

Water supply and sewerage corporate was established in 1985 July under the corporation Act, 1965 with the objective of providing more autonomy in its operation and enabling it to function on a commercial basis by dissolving the “water supply and sewerage board. And, since 1990 Water Supply and Sewerage Corporation was converted in to “Nepal Water Supply Corporation”, a fully government owned public utility that established under the Corporation Act, 1990. Its main objectives are to provide pure drinking water and proper sewerage system to the areas specified by Nepal government.

The general objective of NWSC is to make certain that adequate supplies of water of good quality are maintained. It has come passing through different statutory provisions and various hardships to cope with water demand for urban cities of Nepal. The fiscal year 2004/2005 has been a year of success and achievement. The corporation has been successful to increase the income as compared to previous year, and has been able to reduce accumulated loss by 10.6 million. Many donor agencies under estimated NWSC's technical and, managerial capability. Kamaladi Model Branch has exhibited good performance by increasing revenue collection by 21 percent and reducing operating cost by 6 percent during one year period i.e. from 2003 to 2004.

NWSC has defined mainly 3 stages of future project to meet the growing demand for water supply in kathmandu valley.

1. Short Term:-

(A) Distribution improvement programmers:

1. Total pipe line length 15.35 Km
2. Pipe size and Material 3"- 6"
3. Estimated cost Rs 37300000

(B) Production Improvement Program:

1. Total pipeline length 24.85 Km
2. Pipe size and material 6"- 16"
3. Dug well 17 nos.
4. Tube well 5 nos.
5. Reservoir capacity increase 700 M^3
6. Construction of treatment plant 1

The short term programmers are expected to increase water production by 30MLD and distribution service improvement for about 1,00,000 additional population. Estimated cost for immediate production, improvement programmers is Rs 3,73,00,900. The programmers for dry season has been designed to increase water production by 16 MLD and distribution service improvement for about additional population of 1,20,000. Thus Kathmandu valley production and distribution improvement programmers has been designed for improvement of production by adding 46 MLD and improvement in distribution system for additional population of 2,20,000. Total estimated cost is about Rs 22,64,07,000.

2. Mid Term (On going)

Project	Capacity	completion Period
1. Shaibhu Reservoir Construction and Pipe line extension	10MLD	2005
2. Sundarijal Rehabilitation & others	10MLD	2005

Existing total capacity of Balaju and Sundarijal is 30MLD after the completion of rehabilitation project, the production in the wet season will increase by another 15 MLD and the quantity of water production will be better.

3. Long Term

1. Melamchi Water Supply Project (Capacity 170 MLD Completion period 2010 A.D.)

A long term water supply development project for kathmandu valley town was initiated at the late eighties under which pre-feasibility and feasibility studies identified (in 1991) The Melamchi river outside valley in the north east, 45 Km away from the valley and lying in the neighboring Sindhupalchowk district. It is one of the important tributaries of Indrawati River and the run of river Diversion scheme was proposed near Melamchi Village, near Helambu. The system under proposed is a 26 KM tunnel, 12.16 sq.m. Cross sectional area carrying 10 cum. Of raw water treatment plant is to be constructed to treat 170 MLD raw water that will be served to five Municipal towns including the capital and the adjoining villages in and around the valley. Other works will include constructions of 16 big services reservoirs at high points, bulk transmission (Distributing trunk mains), urban distribution net work system rehabilitation inside the core areas, etc. The feasibility study gave the project cost estimate to be around US $275 million (in 1991) now up dated to be around US$ 464 million. Detail engineering design is currently under way on the mega project. Many countries/ bilateral / multilateral lending agencies, development banks are ready to finance Nepal Government for this Melamchi project till the completion stage, which should bring in additional 170 MLD of drinking water. The full development of the long term water supply project, in three stages e.g. Melamchi river (170MLD), Yangri River (170 MLD)

& Larke river (170MLD) will bring in a total of 510 MLD water to the capital, which will be sufficient till 2030.A.D.

However, there are various challenges which are being faced by NWSC. Some of the main challenges are as under mentioned:-

1. Shortage of water for rapidly growing population, especially in Kathmandu valley urban areas including the capital.
2. Very old network system in place but still in use, contributing to a high leakage percentage, demanding immediate up-grading.
3. Financial resources constraints to meet ever growing demand/ aspirations of the public.
4. Strengthen institutional capacity to fulfill customers' expectation in the new millennium.
5. Need to compete with private utilities in the coming years.

1.3 Focus of the Study:

The study is mainly focused in evaluating the use of different types of functional budgets and corporate planning system of Nepal Water Supply Corporation. The study is centralized towards the purpose of preparing various types of budgets at different level, responsibility of preparing them, role of various kinds of budgets in profitability will be analytically discussed in detail. Generally the following budget are focused.

1. Sales Budget

To achieve the set goal of the corporation, effective formulation of sales budget plays a crucial role. It is based on the effectiveness of managerial performance and generally includes:

- Strategic sales plan
- Tactical sales plan

2. Production Budget

3. Expenses Budgets

It includes overhead budget incurred in production, management and distribution. The impact of this budget in profitability will be discussed.

In additional to these, capital expenditure budget, cost volume profit analysis are also examined.

1.4 Statement of the Problem:

The development of a nation depends upon the proper exploitation of the resources available in the county. In Nepal there are various public enterprises established in many sectors to utilize the resources for the overall development of a country with effective goal and objectives, but majority of the public enterprises have not been able to operate their activities without loan grant and donation from the foreign government and donor agencies because of their poor financial performance. Many public enterprises have been found preparing long range and short range plans on the adhoc basis. The main causes of the failure of such PEs are the lack of integration of activities, less utilization of capacity and lack of motivated skilled manpower.

Nepal Water Supply Corporation, one of the major public enterprises functioning in public sector has not been able to manage and supply pure drinking water in required amount in both urban as well as rural areas of Nepal. Production of water is the main constraint of NWSC, which directly affects to the distribution of water. It has not many ongoing projects yet. Moreover, no enterprise can survive without profit. The success or failure of any enterprise is measured on the basis of profitability or surplus. The profit depends on the systematic budgeting and financial performance.

1.5 Objectives of the Study:

The general objective of this study is to see the impact of budgeting on profitability of NWSC with the following specific objectives:-

1. To examine the present condition of NWSC relating to production and distribution of water in the country.
2. To analyze the various functional budgets of NWSC
3. To review the financial status of NWSC.
4. To point out the major shortcomings and recommend suggestive measures.

1.6 Need of the Study:

Profit planning is the key of financial planning and control. Profit is the essence of any business organization. Business organization should not run without profit. This study will be completely concentrated to assess the profitability of water supply corporation by analyzing various functional budgets prepared at different levels. Profit is lifeblood of any enterprise which doesn’t happen all of sudden. Profits are managed when a management plans its activities. It is a part of overall planning process of an organization. The process of preparing budget to achieve management objective is called budgeting.

Profit is the most important indicator for judging managerial efficiency. No organization can exist without profit which happens through the efficient application of various types of budgets. So, it is necessary to analyze the various types of functional budgets for comprehensive profit planning. This study is concentrated to analyze and examine the impacts of budgets in profitability in Nepal Water Supply Corporation.

This study will be important for the following groups, organization and individual:-

1. Future researchers
2. Board of directors and management body of NWSC
3. University student who will be interested about NWSC
4. NGO's and INGO's
5. Personnels of NWSC
6. All other interested individuals and parties

1.7 Limitations of the Study:

The study is confined within the detailed analysis of various functional budgets of NWSC and its impact on profitability of this corporation. The limitations of this study are as follows:-

1. This study is concentrated on budgetary system and its effect on comprehensive profit planning of NWSC
2. All the numerical data have been taken from secondary sources.
3. The study covers the analysis of 5 year data covering the. FY 2059\2060 to2063\2064.
4. The analysis is based on planning document provided by the top management of NWSC and published books and booklets.

1.8 Design of Study:

The study report is designed into five chapters. They are as follows:-

Chapter 1:- Introduction

It is a the 1st chapter of research work and includes general background introduction of NWSC, focus of the study, statement of the problem, objective of the study, need of the study, limitations of the study and design of the study.

Chapter 2:- Review of Literature

This chapter includes two main aspects; conceptual framework and review of previous related study. The conceptual framework includes fundamental concept and component of managerial budgeting. It mainly deals with theoretical analysis and brief reviews about the concept related to the study and it also deals with literature review of previous research work done in managerial budgeting of NWSC.

Chapter 3 Research Methodology

This chapter includes general meaning of research methodology, research design, data collection procedure, methods of presentation and analysis of data, period covered, research questions and research variable.

Chapter 4 Presentation and Analysis of data

This chapter includes the presentation and analysis of collected data by using various financial and statistical tools and major findings.

Chapter 5 Summary, Conclusion and Recommendations

It is the last chapter of research work and consists of summary, conclusion and recommendations of the study.

Besides this, Bibliography, Appendices are attached at the end of the study report.

CHAPTER- TWO
REVIEW OF LITERATURE

2.1 Conceptual Review

2.1.1 Concept of Profit:

Profit is the primary objectives of a business. In view of the heavy investment which is necessary for the success of most enterprises, profit tends to become a long term objectives, which measure not only the success of a product but also of the development of the market for it. The word profit implies a comparison of the operation of business between two specific dates, which are usually separated by an interval of one year. In order to optimize those corporate source of wealth on which national prosperity depend, the basic financial objectives of companies is to maximize, within socially acceptable limits, profit from the use of the fund employed by them. No company can survive long without profit for; profit is the ultimate measure of its effectiveness, and in a capitalist society, there is no future for a private enterprise which always incurs losses. Profit is a signal for the allocation of resources and a yardstick for judging managerial efficiency. In fact, it is the growth of profit which enables a firm to pay higher dividend to its ordinary shareholder. Profit results from transactions. Profit is the dominant goal in business, and profit making should be the main objectives in term of which the general effectiveness of an organization is measured. Profit is also defined as a surplus of revenues after the deduction of all the expenses incurred on earning it. Usually, profits do not just happen they are managed (*Kulkarni, 1992:310,311*).

Profit is the income received by the organizer. It is the reward for the services of an entrepreneur. A firm makes profit when it receive a surplus after it has paid interest on capital, wage to labour which is equal to the difference between the total revenue and total cost of production. Profit earned by the entrepreneur may be broadly divided into two categories viz. the gross profit and net profit. Gross profit of the entrepreneur refers to whole of the income earned by him. It consists of the reward for the factors of production supplied by the organizer himself, reward for management and reward for the organization of production (*Chitrakar&Devkota, 2004:331*).

Profits are the excess of income over cost of production. The expenses made on raw material, labour, interest, fuel, power are included in cost. There is controversy as to the definition of the term profit itself. Ordinarily, the term profit is defined in terms of accounting concept. According to accounting definition “profit is the residual of sales revenue minus the explicit cost of doing business.” This profit is the amount available for ownership or equity after payment is made to all other factors used by the firm. J.M.Keynes held the view that profits resulted from favorable movement of the genera price level. Mr. John Robinson Chamberlin opined that greater the degree of monopoly power, the greater the profits made by the entrepreneur (*Joshi, 2004:276&277*)

Thus economic theories of profit have been categorized into three broad groups. The first look on profit as the reward for bearing risk and uncertainty. The second view look on profit as the consequence of friction and imperfection in the competitive adjustment of the economy to dynamic changes, the third sees profit as the reward for successful innovation. The word profit has different meaning to business, accountants, tax collector, and economist, and it is often used in a loose, polemical sense that buries its real significance and destroys the basis for discussion. In appraising a company, we must first understand how profit arise before we can decide improve the company’s profit position (*Joeldean, 1997:3*). Usually, profit do not just happen, profit are managed (*Lunch and willamson, 1984:99*)

Hence, profit is the amount after deducting cost from revenue. It is determined from cost and revenue. It is the reward of bearing risk, innovation. Every business enterprise invest huge amount and take a higher degree of risk and they expect higher rate of return. Profit is as important to a firm as water to the fish. Each business firm is primarily established with a view to earn profit. So, profit is necessary for any type of business.

2.1.2 Concept of Planning:

Translating goal and objectives into the specific activities and resources required, achieving those goal and objective is called planning. Every organization should be develop three types of plans, short term, intermediate term and long term.

Managers at every level of management perform planning. It is a decision in advance, about what to do, when to do, how to do and who will do a particular task. Thus, it is an intellectual process, which involves looking ahead and preparing for the future. Generally, planning involves the following steps. (a) Determining the objectives (b) Formulating policies, procedure and programs (c) Scheduling (d) Budgeting.

According to R. Robbins "planning in the modern jargon involves government control of production in some form or others." Likewise, according to At Bert Waters on "planning is an organized, conscious and continual attempt to select the best available alternatives to achieve specific goal. It has been used for variety of end, by different societies and in different ways."

Planning is the process of developing enterprises objectives and selecting a future course of action to accomplish them. It includes

- Establishing enterprises objective.
- Developing premises about the environment in which they are to be accomplished.
- Selecting a course of actions for accomplishing the objectives.
- Initiating activities necessary to translate plans into actions.
- Current replanning to correct current deficiencies. (Welsch, et.all,2001:3)

2.1.3 Concept of Profit Planning:

Profit planning is viewed as a process designed to help management effectively perform significant phases of the planning and controlling function. It is defined as a systematic and formalizes approach for preparing signification phase of the management planning and control functions. Specifically, it involved: -

(1) The development and application of broad and long range objective for the enterprises,

(2) The specification of enterprise goals,

(3) A long range profit plan develop in broad term,

(4) A short range profit plan detailed by assigned responsibilities,

(5) A system of periodic performance reports detailed by assigned responsibilities and,

(6) Follows up procedure.

Profit planning is a component of overall planning process of an organization when a management plans its profit performance that is as known as profit planning. The managerial process and profit planning are interrelated to each other. Success of management is always depended on well planning.

Profit planning in fact is a managerial technique and profit plan is such a written plan in which all aspect of business operation with respect to definite future period is included. It is a formal statement of policy plan objectives and goal established by the top management in respect of some future period profit planning is pre determined detailed plan of action developed and distribution as guide to current operation and as a partial basis for the subsequent evaluation of performance. Thus we can say that profit planning is a tool which may be used by the management in planning the future course of action and controlling the actual performance (*Gupta, 1992: 521*).

The primary aim of Profit planning 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 additions inventories and the cash position. The adoption of a correctly constructed profit plan provision provide opportunity for a regular an 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 supervision of individual operations and practical administration of the business as a whole.

Profit planning is a comprehensive plan expressed in financial term by which an operations program id effective for a given period of time it includes the estimated of

a) The services activities and project comprising the program.
b) The resultant usable for their support. (*Garth N. Jones,1990:45)*

Managerial budgeting is directed final objective of the organization and generally includes all of its important elements (*Matz and Mitan , 1985: 471,472*).

2.1.4 Planning Vs Forecasting:

Forecasting and planning are not the same meaning. Forecasting related to expected future conditions. These expectations depend upon the some assumption, which are very useful. Forecasting is our best thinking about what will happens to us in future. Planning can only do with forecasting.

Planning entails regular measurement of progress toward objectives and goals and the execution of strategic and action program. Yet it is clearly recognized that plans often have to be altered in the light of new circumstances. It should be continuous process and not a once a year experience. It should involve all these, whose jobs have a significant effect on the for tames of the company.

It is clear distinct from forecasting. Forecasting, one of the essential elements of planning is a predication of what will happen on the basis of certain assumption, planning is an attempt to determine what should happen and then to take steps that will make it likely to happen.

Forecasting is not a plan rather it is a statement and\ or a quantified assessment of future condition about a particular subject based on one or more explicit assumptions. A forecasting should always state the assumption upon which it is based. A forecasting should be viewed as only one input into the development of a plan. The management of a company may accept, modify or reject the forecast. Planning incorporates management decisions that are based on the forecasting, other inputs, and management judgment about such related item as sales volume, prices, sales efforts, production, and financing. It is important to make a distinction between the forecast and plan. Plan primarily because the internal technical staff should not be expected or permitted to make the fundamental management decision and judgments implicit in every plan. Forecasting as only one step in planning is that forecasting is conditional (Welsch,et.all, 2001:172).

Forecasting is the best tool to be used for proper planning when company policy and forecasts have been formulates, planning can start. This means planning, the tactical to be used in achieving the objectives, should be based on forecasts and policy (Halsall, 1974:4).

2.1.5 Process of Profit Planning:

Profit plan process should involve periodic consistent and depth re planning so that all aspect of operation are carefully reexamined and re- evaluated. This prevents a budget planning approach that involves only justification of increases over the prior period. The concept o revaluation and the necessity to justify all aspect of the plan periodically find its strongest support in what has been called zero base budgeting.

2.1.5.1 Identification and Evaluation of External Variable:

Management planning must focus on how to manipulate the controllable variables. Moreover, there must be managerial planning of how to work with the non controllable variables. That is for both kinds of variable, how can management take advantage of potential favorable impacts and minimize potential unfavorable impacts and minimize potential unfavorable impacts on the enterprise? By relevant variable we mean those that will have a direct and significant impact on the enterprise.

A particularly significant phase of this analysis includes an evaluation of the present strength and weakness of the enterprise. Planning must necessarily status with on objective and returns understanding of the present status of products, service, market, profit and returns on investment cash flow, availability of capital, productive capabilities, and the competence of both management and non management personnel *(Welch, et. all,2001:75).*

2.1.5.2 Development of Broad Objective of the Enterprise:

Development of the broad objective of the enterprise is a responsibility of executive management. Based on a realistic evaluation of the relevant variable and an assessment of the strengths and weakness of the organization, executive management can specify or restate this phase of the management budgeting or pap process:

The statement of broad objective should express the mission, vision and ethical character research study listed the purposes of the statement essentially as follows:

1. To define the purpose of the company
2. To clarify the philosophy- character of the company
3. To create a particular “climate” with in the business
4. To set down a guide for manager so that the decision they make will reflect the best interests of the business with fairness and justice to those concerned *(Welsch et. all, 2001:75, 76)*

2.1.5.3 Development of Specific Goal for the Enterprise:

The purpose of the “goal phase” of the PPC or managerial budgeting process is to bring the statement of broad objective into sharper focus and to more from the realm of general information to more specific planning information. It provides both narrative and quantitative goals that are definite and measurable. These are specific goals that relate to the enterprise as a whole and to the major responsibility centers. These goals should be developed by executive management as the second component of the substantive plan for the upcoming budget year *(Welsch et. all, 2001: 77).*

2.1.5.4 Development and Evaluation of Company Strategies:

Company strategies are the basis thrusts, ways, and tactics that will be used to attain planned objective and goal. A particular strategy may be short term or long term. The purpose of developing and disseminating enterprise strategies is to find the best alternative for attaining the planned broad objectives and specific goals. Strategies focus on “how”; therefore, they outline a plan of action for the enterprise. Executive management must be creative and directly involved in the development of new strategic and in the adoption of currently ongoing strategies in harmony with the relevant variable with which management must cape *(Welsch, et. all, 2001: 78).*

2.1.5.5 Executive Management Planning Instructions:

The executive planning instruction, issued by top management, communicates the planning foundation that is necessary for the participation of all levels of management in the development of the strategic and tactical profit plan for the upcoming budget year. Executive leadership is fundamental in developing and articulating this planning foundation including the formulation of relevant strategies (*Welsch, et. all, 2001:78, 79)*

2.1.5.6 Preparation and Evaluation of Project Plan:

Project plan encompass variable time horizon because each project has a unique time dimension. Project plans encompass such item as plans for improvement of present product, new and expanded physical facilities, and entrance into new industries, exit from products and industries, new technology and other major activities that can be separately identified for planning purposes. The nature of project is such that they must be planned as separate units. During the formal planning cycles management must evaluate and decide upon the plan status of each project in process and select any new projective to be initiated during time dimensions converted by the upcoming strategic and tactical profit plan *(Welsch, et. all, 2001:79).*

2.1.5.7 Development and Approval of Strategic and Tactical Profit Plan :

The strategic long range and tactical short range profit plans normally should be developed concurrently for all practical purpose and that the executives in charge of each of the responsibility centers through out the firm should participate in their development in harmony with planning premises. Meaningful participation in the planning process generates positive behavioral effects. A manager of each responsibility center has to initiate immediate activities within his own functional sphere to develop a strategic long range profit plan as soon as he receive the planning premises and procedural instructions *(Welsch, et. all, 2001:82).*

2.1.5.8 Implementation of Managerial Budgeting:

Implementation of management plan that have been developed and approved in the planning process involves the management function of leading subordinates in attaining enterprise objective, goal. Thus, effective management at all levels required that enterprise, objective, goal, strategies, and policies be communicated and understood by subordinates. There are many facts involved in management leadership. However a comprehensive ppc or managerial budgeting program may aid substantially in performing this function plans, strategies and policies developed through significant participation establish the foundation for effective communication. Preceding discussion emphasized that objective and goal should be realistic and attainable; to the overall enterprise and to each responsibility center *(*Welsch,et.all*, 2001: 84)*

2.1.5.9 Use of Periodic Performance Report:

As profit plan are being implemented during the period of time specified in the tactical plan, periodic performance reports are needed. These performance reports are prepared by the accounting department on a monthly basis. Also some special performance reports are prepared more often on an "as needed" basis. These performance reports (a) compare actual performance with planned performance and (b) show each different as a favorable or unfavorable performance variation *(*Welsch, et. all*, 2001:85)*

2.1.5.10 Use of Flexible Expenses Budgets:

The flexible expenses budget is also referred to as the variable budget, sliding scale budget; expenses control budget, and formula budget. The flexible budget concept applies only to expenses. It is completely separate from the profit plan, but it is used to complement it. Many companies do not use flexible budget procedures. Other companies integrate profit panning and flexible budget procedures (Welsch, ect. all*, 2001: 86).*

2.1.5.11 Implementation of Follow-up:

Follow up is an important part of effective control. Because performance reports are based on assigned responsibilities, they are the basis for effective follow up actions. It is important to distinguish between cause is primary a responsibility of line management. Analysis to determine the underlying causes of both favorable and unfavorable performance variances should be given immediate priority. In the case of unfavorable performance variances after identifying the basis causes, as apposed to the results, are selected. Then the corrective action must be implemented *(*Welsch, et. all*, 2001: 88)*

2.1.6 Budgeting as a Tool of Profit Planning:

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

A concept of comprehensive budget covers its use in planning, organizing and controlling all the financial and operating activities of the firm in the forthcoming 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 results of completed transactions*(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 of the basic objectives that the organization will pursue and fundamental polices that will guide it. In operation term, it involves the step of setting objectives, specifying goals, formulating strategies, and expressed in financial terms, for the operation and resources of an enterprise for some specified period in the future *(Khan & Jain, 1989: 296).*

Budgeting is a comprehensive plan of action prepared for achieving objectives. Budget is a plan quantified in monetary term prepared and approved to defined period of time usually showing planned income to be generated, expenditure to be incurred during that period, of the capital to be employed to attain the given objective (CIMA official terminology). It express an organization's commitment to planned activities and resource acquisition and use. It is vital part of good planning. It is a formal statement of future plan usually expressed in monetary terms. Therefore, a budget is,

1. Essentially a plan (quantified in monetary terms) to attain a given objective,
2. Prepared and approved,
3. Prior to defined period of time,

4. Usually showing planned income to be generated,
5. Expenditure to be incurred, and
6. Capital to be employed during the period.

The process of preparing budget is known as budgeting. This is, the process of planning future business action and expressing that plan in a formal manner is called budgeting *(Munankarmi, 2002: 215).*

2.1.6.2 Objectives of Good Budgeting :

The main objectives of budgeting are as follows:-

1. It is a plan, which reflects the policy of a business in financial terms. It is a plan of action and serves as a declaration of policies.
2. It is a control document by which management can monitor actual performance.
3. It is the plan to forecast for future to avoid losses and to maximize profits, i.e. to help in planning.
4. It is a plan and state the firm’s expectation in clear, formal term to avoid confusion and to facilitate their attainability. It defines the objectives for the entire executive’s communication.
5. It is a plan to bring about co-ordination between different function of an enterprise, i. e. to help in co-ordination.
6. It is a plan to communicate expectations to all concerned with the management of the firm so that they are understood, supported and implemented.
7. It acts as a motivator of employees.
8. It provides a means of co ordination and communication.
9. It is a measure against which to evaluate the quality of management.
10. Budget facilitates centralize control with delegated authority and responsibility *(Rathman, 1974: 20)*

2.1.6.3 Classification of Budgets:

The classifications of budgets 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 Flexibility:

1. Static budget
2. Flexible budget

D) On the Basis of Nature of Business Activities:

1. Capital expenditure budget
2. Operating expenditure budget

2.1.6.4 Problems and Limitations of Budgeting:

The major problems of budgeting system are as follows:-

1. Developing meaningful forecasting and plans, especially the sales plan.
2. Seeking the support and involvement of all levels of management.
3. Establishing realistic objectives, policies, procedures and standards of desired performance.
4. Maintaining effective follow up procedures and adopting the budgeting system whenever the circumstance changes.
5. Applying the budgeting system in a flexible manner.
6. Educating all individual to be involved in the budgeting process and joining their full participation (Welsch, et. all, 2000: 56).

The following are the limitation of budgeting system:

1. Budgeting is not an exact science. Its success hinges upon the provision of estimates.

2. The installation of a perfect system of budgeting is not possible in a short period. Budgeting has to be a continuous exercise. It is a dynamic process.
3. The success of the budgeting program is to understand by all and concerned effort for accomplishing the budget goals.
4. Budgeting will be ineffective and expensive if unnecessarily detailed and complicated. It should be flexible and rigid in application.
5. The presence of a budgeting system should not make management complacent. To get best results of management; management should use budgeting with intelligence and foresight. Budgeting can not replace management.
6. The purpose of budgeting will be defeated if carelessly budget goals are determined and conflict with enterprise objectives.
7. Budgeting will hide inefficiencies if a proper evaluation system lacks. It should be re examined regularly.
8. Budgeting will lower morale and productivity if a realistic targets are not set and if it is used as pressure tactic *(*Welsch, et. all, *2000: 57-60).*

2.1.7 Development of Profit Planning:

2.1.7.1 Sales Budget or Plan:

Sales budget provides as estimate of goods to be sold and revenue to be derived from sales. It is a starting point in the budgeting procedure. Sales plan or budget is one of the functional budgets and is essentially, a forecast of sales to be effected in a budget period. It defines the quantities and values of expected sales in total as well as product wise and area wise during definite future period. The preparation of sales budget is based upon the sales forecast for the planning period.

The sales plan is the foundation for periodic planning in the firm because practically all other enterprise planning is built on it. In harmony with managerial budgeting, both strategic long term and tactical short term sales plans must be developed. The sales planning process is a necessary part of managerial budgeting or profit planning and control because it provides for the basic management decision about marketing. If the sales plan is not realistic, most if not all of the other parts of the overall profit plan also are not realistic *(*Welsch, et. all, *2001:172).*

The primary purposes of a sales plan are:-

(a) To reduce uncertainty about future revenue,

(b) To incorporate management judgments and decisions into the planning process,

(c) To provide necessary information for developing other element of a comprehensive profit plan, and

(d) To facilitate management control of sales activities *(*Welsch, et. all *2001: 172).*

The sales budget itself is an estimate of main three figures. They are as follows:-

1. the income that will be earned from sales,
2. The cost and expenses of making these sales, and
3. The sales surplus. The income from sales depends on the quantity and the price of the goods, which will be sold (Halshall, 1974: 40).

The sales budget or plan is said the beginning stone of profit plan. It is a forecast of total sales of all the product or services expressed in term of physical quantities and values in respect of each product of a future budget period (Rathman, 1974: 14).

Hence, sales plan is the strategizing point is the preparation of the managerial budgeting. All the other plan and budgets are dependent up on the sales budget. The budget is usually presented both in units and in rupees of sales revenue or sales volume. The preparation of sales plan is based up on the sales forecast for the planning period.

2.1.7.1.1 Sales Planning and Forecasting:

Sales planning and forecasting often are confused. Although related, they have distinctly different purpose. A forecasting is not a plan: rather it is a statement and \ or a particular subject (e. g. sales revenue) based on one or more explicit assumptions. A forecasting should always state the assumptions upon which it is based. In contrast, a sales plan incorporates management decisions that are based on the forecast, other inputs, and management judgment about such related items as sales volume, prices, sales effort, production and financing. 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 forecasting *(*Welsch, et. all*, 2001:172).*

A sales forecast, as distinguished from a sales plan, is a technical projection of the potential customer demand for a specified time horizon and with specified underlying assumptions. Sales forecast and a sales plan may or may not project the same volume of business. When this distinction is made, the sales forecast represents one of the important analytical step or activities to be taken in developing a sales plan. Likely, sales forecast are prepared at the staff level by technically trained individuals employing numerous sophisticated analysis, such a trend fitting, correlations hip analysis, mathematical model, exponential smoothing and operations research techniques.

The sales forecasting represent the primary contribution of the technical staff to the important managerial activity of developing a sales plan. The sales forecast is feed into the planning process so that the imprint of management judgment and strategy is brought out to bear. The forecast is revised in the planning process to take into account the management objectives, strategies, and resources commitment, so that a realistic sales plan results.

2.1.7.1.2 Strategic and Tactical Sales Planning:

A sales plan can be developed of two types in accordance with period. Those are long term planning and short term planning. The planning prepared for more than one year is long term planning. Commonly, five years strategic sales planning is categorized as long rang planning. The planning prepared for one year or les than one year is short range planning. It is also known as strategic and tactical sale plan.

Strategic long term sales plan is one of the first step in the overall planning process. Long- term sales plans are usually developed as annual amounts. The long term sales plan uses broad grouping of product (product lines) with separate consideration of major and new products and services. Long term sales plan usually involve in depth analysis of future market potentials, which may be built up from a basic state of the economy, industry projections, and finally company objectives. Long term managerial strategies would effect such areas as long term pricing policy, development of new product and innovations of present products, new directions in marketing efforts, expansion or changes in distribution channels, and cost patterns. The influence of managerial strategy decision is explicitly brought to bear on the long term sales plan primarily on a judgment basis, *(*Welsch, et. all *2001:174)*

Likewise, a common approach used for short time horizons in a company is to plan sales for twelve month into 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 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 detail plan for each major product and for grouping of minor product. Short-term sales plans are usually developed in terms of physical unit and in sales and\or services dollars. Short-term sales plan must also be structured by marketing responsibility for planning and control purposes. Short-term sales plans may involve the application of technical analysis; part in their determination. To establish policy about detail in the short ranges sales plan the main question is use of the results. First, the major consideration is to provide detail by responsibility for planning and control purposes. Second, the short-range sales plan must provide detail, needed for completing the profit plan components by other functional managers. Third, the amount of details also depends on the types of industry, size of the firm, availability of resources, and use of the result by management *(*Welsch, et. all, *2001:175).*

2.1.7.1.3 Purpose of a Sales Plans\ Budget:

The main purpose of a sales plan is to express future sales revenue for a specific period. It is based upon:

- Present knowledge of the company,
- The environment and
- Management strategy.

The main purpose of a sales planning are as follows:-

1. To reduce uncertainty about future revenue,
2. To provides necessary information for developing other elements of managerial budgeting.
3. To facilities management judgment and decision into the planning process.

2.1.7.1.4 Component of Comprehensive Sales Planning:

A comprehensive sales plan should satisfy the requirement of, and be consistent with, the overall managerial budgeting program. The components of comprehensive sales planning are as follows:-

(A) Components of the foundation for comprehensive sales planning:-

1. External variable identified and evaluated.
2. Broad enterprise objective and goal formulated.
3. Strategic play for the company developed.
4. Planning premises specified.

(B) Components of a comprehensive sales plan:-

1. Management policies and assumptions.
2. Marketing plan (Sales and services revenues).
3. Advertising and promotion plan.
4. Distribution (selling) expenses plan.

*(*Welsch, et. all, *2001: 175,176)*

2.1.7.1.5 Developing a Comprehensive Sales Plan or Budget:

Basic steps of developing a comprehensive sales budget are as follows;

Step-1 Develop management guidelines specific to sales planning including the to sales planning process and planning responsibility.

Step-2 Prepare one sales forecast consistent with specified forecasting guidelines including assumption. Forecasting method is broadly classified as:

1. quantitative
2. technological
3. judgmental

Step-3 Assemble all the other relevant data

1. manufacturing capacity

2. sources of raw material and a labour force
3. availability of key people and a labour force
4. capital availability
5. availability of alternative distribution channel

Step-4 Based on above steps apply management evaluation and judgment to develop comprehensive sales plan. There are four different participation approaches widely used in the process of developing sales plan:-

1. Sales forces composite
2. Sales division managers composite
3. Executive decision
4. Statistical approach

Step-5 Secure managerial commitment to attain the goals specified in the comprehensive sales plan.

Above steps must be revised and implemented in various ways depending on the characteristics of the business and the expertise of the management (Welsch, et. all, 2001: 176).

2.1.7.1.6 Method of Projecting Sales:

1. Judgmental Methods:

A. Sales force composite

B. Sales division supervision composite

C. Executive opinion methods.

2. Statistical Methods:

A. Economic rhythm method.

B. Cyclical sequence method.

C. Special historical analogy.

D. Cross –use analysis.

3. Special Purpose Methods:

A. Industry analysis

B. Product time analysis

C. End- use analysis

4. Combination of Methods:

2.1.7.2 Production Plan or Budget:

2.1.7.2.1 Meaning:

The production budget deals with the scheduling of operations, the determination of volume, and the establishment of maximum and minimum quantities or raw material and finished goods inventories. Its summaries details and provide the basis for preparing the budget of material, labour and factory overhead. These three elements selection of the income statement and their totals are estimated in the manufacturing budget.

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 of inventory levels. The next step is to plan the total quantity of each product that is to be manufactured during the budget period. The third step is to schedule this production by interim periods. A complete production plan should show budget data classified by (a) products to be manufactured, (b) interim time periods, and (c) activities of each responsibility center in the manufacturing process. The production budget is the initial step in budgeting manufacturing operations. In addition to the production budget, the other principal budgets relevant to manufacturing are: (1) the direct material and purchased component budget, which specifies the planned material and components requirements, (2) the labour budget, which shows the planned quantity and cost of direct labour;(3) the manufacturing expenses or factory overhead budget, which includes the plan for all factory costs other than direct material and direct labour *(*Welsch, et. all*, 2001: 212,213).*

Once sales and inventory requirement have been established, the logical first step in the production plan is a facility survey. This survey should determine that all planned products can be produced on existing or contemplated equipment and that they can made the volumes required. In this initial stage, availability of labour supply and skill are considered, bottlenecks caused by lack of kill or equipments are frequently uncovered. At this point decisions must be made either to eliminate bottlenecks or reduce planned volume (Thomsa: 1998:58).

The production plan involves determining the number of unit of each product that must be manufactured to meet planned sales and maintaining planned inventory levels of finished goods. The production budget is prepared in units only. The determination of production units can be shown in following way:-

Budgeted Production= Sales (in unit) + Closing inventory – Opening volume

Thus, production is based on budgeted sales volume and desired inventory level. The responsibility for the preparation and operation of production budget lies with production manager.

2.1.7.2.2 Responsibility for Production Planning:

Production manager are responsible for the development of production plan. The complete and detailed marketing plan is given to the production manager translating it into a production program the consistent with managerial policies and subject to certain constraints. Managers have first hand 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:

1. Inventory levels,
2. Stability of production and
3. Capital additions.

With respect to production planning, the manager must plan an optimum co-ordination between sales, inventory and production levels. An efficient and co-coordinated production plan is necessary for economical manufacturing. Lower production costs usually result from standardization of products and from stable production levels. Sales manager are casually aggression in requesting new products and change in the old products.

2.1.7.2.3 General Considerations in Planning Production and Inventory Levels:

Following basic facts should be considerations while planning the production:-

(1) Total production requirement (by product) for the budget period.

(2) Inventory policies about levels of finished goods, work in process and the cost of carrying inventory.

(3) Plant capacity policies, such as the limits of permissible departures from a stable production level throughout the year.

(4) Adequacy of manufacturing facilities [expansion or contraction of plant capacity.]

(5) Availability of direct material, purchased components and labour.

(6) Length of the processing time.

(7) Economic lots or runs.

(8) Timing of production through out the budget period, by product and responsibility centers. (Welsch,et. all, 2001:214)

The approach used by a particular company should depend upon its size and the characteristics of its manufacturing processes.

2.1.7.2..4 Developing the Production Plan:

The sales unit estimated in the sales budget must be translate in production units with considering inventory policy considering management inventory policy production manager must translate the quantities in the sales budget into unit production requirement for the budget perused for each product. Basically there are three major steps to be followed while developing a production plan:-

1. Establishing policies for inventory levels.
2. Planning the total quantity of each product that is to be manufactured during budget period.
3. Scheduling this production by interim period.

Symbolically, the following formula is generally used to determine the production planned:-

Particular	Amount
Required for sales (units)	xxxx
Add, Desired final levels of finishedoods (based on managerial policy)	xxx
Total Required	xxxx
Less, Beginning inventory of finished goods	xxx
Total production for the year	xxx

When the budgeted production for the budget period has been determined, the next problem is prorating this production by interim period during the budget year. Interim production must be planned to (1) provide sufficient goods to meet interim sales requirements, (2) keep interim inventory levels with in policy constraints, and (3) manufacture the goods as economically as possible. These three objectives may not always be in complete harmony *(*Welsch, et. all*, 2001: 215).*

2.1.7.2.5 Developing Inventory Policy:

In most business, inventories represent a relatively high investment and may have a significant impact on the major function of the enterprise and its profit. Each of the related function cause different, and frequently inconsistent, inventory demands, such as the following:-

1. Sales - large inventories of finished are needed to meet market needs readily.

2. Production - large inventories of raw material and purchase components are needed to ensure availability for manufacturing activities. Also, a flexible inventory policy for finished goods is needed to facilitate the attainment of stable production levels.

3. Purchasing - large purchases minimize unit cost and overall purchasing expenses; therefore, a flexible inventory policy for material and purchased components is desirable.

4. Finance - low inventory levels minimize investment requirement (cash) and reduce inventory carrying costs (storage, obsolescence, risk, etc).

2.1.7.2.6 Setting Inventory Policies for Finished Goods:

Factors to be considered in determining inventory policies for finished goods are as follows:-

1. Quantities (in units) needed to meet sales requirement.
2. Perish ability of items.
3. Length of the production period.
4. Storage facility.
5. Adequacy of capital to finance inventory production some time in advance of sales.
6. Distribution time requirements.
7. Cost of holding inventory.
8. Protection against direct material and components shortages.
9. Protection against labour shortage.
10. Protection against materials and parts price increases.
11. Risk involved in inventory.
    - Price declines
    - Obsolescence of stock
    - Casualty lose and theft
    - Lack of demand
    - Customer return polices.

The inventory policies depending upon suitability of its nature, a firm may adopt any of the following inventory policies:-

1. Stable inventory policy- an equal inventory is kept at every time, so the planned production fluctuates with the size of planned sales units.

2. Fluctuating inventory policies- an equal production is maintained through out the year, so the size of inventory fluctuates with the size of planned sales units.

3. Inventory production co-ordination policy- production and ending inventory unit are adjusted as per the change in sales units.

4. Just –in –time inventory policy- production is made when the out put is in demand, so inventory is not keep except a very small quantity for sample display.

2.1.7.3 Material Plan or Budget:

Planning and controlling of material purchase and material usages is a comprehensive managerial budgeting of raw material involved in production process. Raw material budget is prepared after the determination of production. It is depended upon production volume. The material budget is the responsibility of the purchasing manager, since it will be he or she who is responsible for obtaining the planned quantities of raw material to meet the production requirement. The objective is to purchase these materials at the right time at the right planned purchase price. In addition, it is necessary to take into account the planned raw material stock levels.

A compressive material budgeting includes planning and controlling of raw material and components used in the manufacturing of finished product. Adequate co- ordination and balance should be planned and controlled in between (a) factory requirements for raw materials, (b) raw material inventory levels, and (c) purchase of raw materials.

To ensure that the appropriate amount of raw material and component part will be on hand at the time required and to plan for the costs of such material, the tactical short term, profit plan should include (1) a detailed budget that specifies the quantity and cost of such materials (2) a related budget of material and part purchase.

Hence, planning raw material usually requires the following sub budgets:-

(1) Materials Budget:

After production needs have been computed, a material budget should be prepared to show the material that will be required in the production process. Sufficient aw material will have to be available to meet production need and to provide for the desired ending raw materials inventory. This budget specifies the planned quantities of each raw material, by time, by product, and by using responsibility.

(2) Purchase Budget:

Direct materials are essential for production and must be purchased in each period in sufficient quantities to meet production needs and to confirm to the company's ending inventory policies. The material budget specifies the quantities and timing of each raw material needed, the reform a plan for material purchase must be developed. The purchase budget specifies the estimated quantities to be purchased, and the estimated cost for each raw material and the required delivery dates.

(3) Material and Inventory Budget :

This budget specifies the planned cost of the material that will be used in the productive process. This budget reports the estimated cost of the materials planned for in the material budget. Materials budget is prepared by responsibility, by interim period, and by type of finished goods.

Cost of material used= Planned production unit x Standard material usage per unit x price per unit of raw material.

2.1.7.3.1 Material and Parts Inventory Policies:

The primary consideration in setting inventory policies for materials and parts are:-

1. Timing and quantities of manufacturing needs.
2. Economy in purchasing through quantity discount.
3. Availability of material and parts.
4. Lead time.
5. Perishability of material and parts.
6. Storage facilities needed.
7. Capital requirement to finance inventory.
8. Expected changes in the cost of material and parts.
9. Cost of storage.
10. Risks involved in inventories.
11. Opportunity costs.

2.1.7.3.2 Purchasing Policy:

Management policy with respect to purchase and inventory should be specified. The two basic factors are (1) how much to purchase at a time (2) when to purchase it. A well known approach to compute the purchasing quantity is the Economic Order quantity Model.

EOQ Formula,

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

Where,

A= Total quantity to be purchased

O= Average cost of placing an order

C= Annual carrying cost of one unit in inventory.

The second question when to purchase in determine by reorder point. The reorder point is reached when the inventory levels is equal to the quantity needed to sustain production for a period to the time to reorder and receive the replenishments.

Re Order Point= Average Usage x Average lead time + Safety inventory.

2.1.7.3.3 Just in Time Purchase:

A recent development in material and parts inventory control is called just in time purchasing and manufacturing. Its primary objective is to minimize inventory levels and the resulting cost. In this approach, materials are not purchased until needs for production, there by minimizing inventory holding costs. In such an approach, it is critical to anticipate exactly when the material will be needed for production so, that the acquisition can be reflected in the material and parts budget for PPc purpose *(*Welsch, et. all*, 2001:248).*

2.1.7.4 Planning and Controlling Direct Labor Cost:

The direct labour budget is also developed from the production budget. Direct labour requirements must be computed so that the company will know whether sufficient labour times are available to met production needed. By knowing in advance, the company can develop a plan to adjust the labour force as the situation may require. Direct labour requirements can be computed by multiplying product to be produced in each period by the number of direct labour hours required to produce a single unit. Many different types of labour may be involved. If so, then the computation should be made of the types of labour needed. The hours of direct labour resulting from these computations can then be multiplied by direct labour cost per hour to obtain the budgeted total direct labour cost.

Planning and controlling labour costs involve major and complex area: (1) personnel needs, (2) recruitment, (3) training, (4) job description and evaluation, (5) performance measurement, (6) union negotiation, and (7) wage and salary administration. A comprehensive managerial budgeting program should incorporate appropriate techniques and approaches applicable to each problem area. Careful planning and realistic control of long term and short term labour costs will benefit both the company and its employee.

Labor costs in the broad sense, are composed of all expenditures on those employees by the firm: top executives, middle management personnel, staff officers, supervision, foremen, skilled workers, and unskilled workers. It is necessary to consider separately the different types of labour costs *(Singh, etc.all, 2004).*

There are two types of labour costs. There are as follows

(a) the direct and (b) indirect labour.

Direct labour consists of those costs that can be specifically traced to or identified with a particular product. Direct labours costs include the wage of operatives who assemble part into the finished product, or machine operation engaged in the product process. By contrast, the salaries of factory supervisors or the wage paid to the staff in the stores department cannot be specifically identified with the product, and thus form the part of the indirect labour costs. The direct labour budget includes the planned direct labour requirement necessary to produce the types and quantities of outputs planned in the production budget. Although some companies prepare a total labour budget but it is preferable to prepare a separate direct labour budget and to include indirect labour in the factory overhead budget.

The responsibility for preparing the direct labour budget should be assigned to the executive responsible for the manufacturing function. The cost accounting and personnel departments provide support and supplementary information. When the direct labour budget is completed by the manufacturing managers, it should be given to the budget manager for review and next submitted to the executive committee. When the direct labour budget is tentatively approved, it becomes part of the profit plan (Welsch, et. all, 2001:281).

2.1.7.4.1 Approaches used in Planning Direct Labor Costs :

The approach used to develop the direct labour budget depends primarily on the (1) method of wage payment, (2) type of production processes involved, (3) availability of the cost accounting records relating to direct labour costs.

Basically, three approaches are used to develop the direct labour budget:-

1. Estimate the standard direct labour hours required for each unit of each product; then estimate the average wage rate by department, cost center, or operation. Multiply the standard time per unit of product by the average hourly wage rate, giving the direct labour cost per unit of output for the department, cost center, or operation. Multiply the unit of output planned for the department, cost center, or operation by the unit direct labour cost rate to obtain the total direct labour cost by product.
2. Estimate ratios of direct labour cost to some measure of output that can be planned realistically.
3. Develop personnel table by enumerating personnel requirement (including costs) for direct labour in each responsibility center (Welsch, et. all, 2001: 281,282).

2.1.7.4.2 Planning Direct Labor Hour and Wage Rate :

An important function of industrial engineers is to develop standard labour times for various operations and products. In some producing departments, reliable labour time standards can be developed. In some cases, it is impractical to estimate direct labour time expected in term of average based on experience. Four approaches commonly used in planning standard labour times are the following:-

1. Time and motion studies.
2. Standard costs.
3. Direct estimate by supervision.
4. Statistical Estimates by a staff group.

If it is possible to relate planned production to direct labour hours and to plan wage rate realistically for each productive department. Computation of planned direct labour cost involves multiplying planned labour hours by planned wage rates. Determination of average direct labour wage rates in a productive department or cost center frequently may not be serious problem. The preferred approach is to plan such rates by enumerating the direct labour employees in the department or operation and their expected individual wage rates, and then compute an average.

2.1.7.5 Planning and Controlling Expenses :

The expenses planning and controlling is very necessary for supporting the objectives and planned programmers of the firm, as expenses is related with profit. It should not be forget that the minimization of cost is maximization of profit. Management should view expenses planning and control as necessary to maintain reasonable expense levels to support the objectives and planned programs of the enterprise. Expenses planning should not focus on decreasing expenses, but rather on better utilization of limited resources. Expenses planning and control should force on the relationship between expenditures and the benefit derived from those expenditures. The desired benefits should be viewed as goals, and sufficient resources must be planned to support the operating activities essential for their accomplishment.

2.1.7.5.1 Cost Behavior:

1. Fixed Expenses:

An expense that remains constant in total within the relevant range of activities is considered a fixed expense. Such expenses vary inversely on a per unit basis with changes in level of activity. In other words, fixed costs are those supers, which do not vary but remain constant within a given period of time and range of activities in spite of fluctuation in production volume. This expense is not controllable. For example, depreciation, salary, property taxes, insurance and rent etc.

2. Variable Expenses :

An expense that varies in total in direct proportion to change in activity is a variable expense. It must be a constant amount per unit. In other words, variable expenses are those expenses which vary in total with a variation in production volume without affecting cost per unit. This expires is controllable expense. These expenses are directly proportionate to the volume of output.

3. **Semi Variable Budget :**

Expenses that are not strictly variable or fixed are termed as semi variable expenses. A semi variable expense has both a variable and a fixed component on a per unit basis, a semi variable expense does not fluctuate in direct proportion with change in activities nor does it remain constant with change in activity.

2.1.7.6 Manufacturing Overhead Budget:

Manufacturing overheads are the part of the total production cost, which is not directly identifiable with specific products or jobs. Manufacturing overhead includes many dissimilar expenses; therefore, they cause problem in the allocation of these costs to products. There are two distinct types of responsibility centers in most manufacturing companies, production and service. Responsibility for the operation of each department should be classified separately in the chart of accounts used by the cost accounting department. Finally, the expenses of each department should be planned and controlled separately.

After the production budget has been completed, manufacturing expenses budget should be developed for each responsibility center in the organization. These expenses budget should be detailed by interim time period (month or quarters) for the three categories, direct material, direct labour, and manufacturing overhead. After the production plan is completed, these cost budgets normally are developed simultaneously and are then consolidated into a budget appropriately labeled as the planned cost of goods manufactured.

The manufacturing overhead budget provides a schedule of all costs of production other than direct material and direct labour. These costs should be broken down by cost behavior as variable and fixed for budgeting purpose and a predetermined overhead rate should be developed. This rate will be used to apply manufacturing overheads to the units of production through out the budget period. After all, the development of manufacturing overhead budget should be followed by the following consideration:-

1. Translate the requirement specified in the production plan with output or activity in each department.
2. Plan departmental overhead expenses.

3. Allocation the planned departmental expenses to the producing department.
4. Allocate the producing department’s expenses to the products.

2.1.7.7 Selling and Distribution Expenses Budget:

The selling and administrative expenses budget contains a listing of anticipated expenses for the budget period that will be incurred in areas other then manufacturing. The budget will be made up of many smaller, individual budget submitted by various person having responsibility for cost control in selling and administrative matters. If the numbers of expenses items are vary large, separate budgets may be needed for the selling and administrative functions. Selling and distribution expenses include all cost related to selling, distribution, and delivery of products to customers. In many companies, this cost is a significant percentage of the total expenses. Careful planning of such expenses affects the profit potential of the firm.

Fundamentally, the top marketing executive has a direct responsibility for planning the optimum economic balance between (1) the sales budget, (2) the advertising budget, and (3) 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. All these expenses must be systematically planned by the responsibility center.

2.1.7.8 Administrative Expenses Budget:

Administrative expenses budget includes those expenses other than manufacturing and distribution. They are incurred in the responsibility center that provide supervision of and service to all function of the enterprise, rather than in the performance of any one function. Because large portion of administrative expenses are fixed rather then variable, the notion persists that they cannot be controlled. Aside from certain top manager’s salaries, most administrative expenses are determined by management decisions.

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.

2.1.7.9 Capital Expenditure Budget:

Capital expenditure is often called capital budgeting. Capital refers to total assets of the firm while budgeting is the monetary presentation of a plan. But in capital budgeting the term capital refers to the fired asserts used in the production while budgeting is a detailed outline of planned capital expenditure. Generally, the capital budgeting is concerned with expansion, addition and replacement of fixed assets.

The capital budgeting decision, as already pointed out; pertain to fixed assets or long term assets which by definition refer to assets which by definition refer to assets which are in operation, and yield a return, over a period of time, usually exceeding one year. The capital budgeting decision, therefore, involves a current outlay or series of outlays of cash resources benefits (Quirin, 1967: 2).

In other words, the system of capital budgeting is employed to evaluate expenditure decisions which involve current outlays but are likely to produce benefits over a period of time longer than one year. These benefits may be either in the form of increased revenue or reduction in costs. Capital expenditure management, therefore, includes addition, disposition, modification and replacement of fixed assets. From the preceding discussion may be deduced the following basis feature of capital budgeting (1) potentially large anticipated benefits, (2) a relatively high degree of risk; and (3) a relatively long time period between the initial outlay and the anticipated return (Khan and Jain, 1988: 200).

A capital expenditure is the use of funds to obtain operational asset that will (a) help earn future revenue or (b) reduce future costs. Capital expenditure includes such fixed costs as property, plant, equipment, major renovation, and patent. Typically, capital expenditure, projects involve large amount of cash, other resources, and debt that are tied up for relatively long period of time. Capital expenditure is investments because they require the commitment of resources today to receive higher economic benefits in the future. Capital expenditure becomes expenses in the future as their related goods and service are being used to earn higher future profit from future revenues or to achieve future cost savings. The related future expenses, such as depreciation expenses, are identified with the future period when the capital additions are used for their intended purposes. Therefore, capital expenditure involves two planning and controlling phases; (1) investments and (2) expenses (Welsch, et. all, 2001: 394,395).

Hence, investment is long term assets for increasing the revenue of the firm is called capital budgeting. It is a decision to invest funds in long term activities for future benefits that increase the wealth of the firm and there increase the value of share of the firm. Capital budgeting plan to deploy the available resources for the purpose of maximizing the long term profitability of the firm. It involves the generation of investment proposals; the estimate of cash flows, the selection of projects based upon acceptance criteria's developed by the firm and continuous follow-up.

2.1.7.9.1 Process for Planning and Controlling Capital Expenditures:

Under capital expenditure budgeting following phases are followed;-

Phase	Component
1.	Identify and generate capital addition projects and other needs.
2.	Develop and refine capital addition proposal- collection of relevant data about each proposal, including any related alternatives.
3.	Analyze and evaluate all capital additions proposal, and alternatives. Emphasis should be given to the validity of the underlying financial and operation data.
4.	Make capital expenditure decisions to accept the best alternatives and the assignment of project designations to selected alternatives.
5.	Develop the capital expenditure budget; 1. Strategic plan- Replant and extend the long term plan by dropping The past year and adding one year into the future. 2. Tactical plan- Develop a detail annual plan capital expenditure budget, by responsibility center and time, that is consistent with a comprehensive profit plan.

6. Establish control of capital expenditure during the budget year by using periodic and special performance report by responsibility centers.
7. Conduct post completion audits and follow up evaluation of the actual result from capital expenditure in period after completion.

2.1.7.9.2 Capital Expenses Decision :

The crucial expenses decision is the choice of management from the computed capital expenditure alternative problems.

(1) Investment decision;-

Selecting the best alternative based on their economic worth to the company called investment decision.

(2) Financing decision:-

Determining the amount and sources of funds needed to pay for the selected alternatives. This cash constraint may necessarily limit the project and proposal that can be initiated. (Welsch, et. all, 2001: 401)

2.1.7.9.3 Evaluation of Investment Decision:

There are several method available for making such decision, usually following method are popular for evaluating investment proposals.

1. Net Present Value Method :

NPV method is a discounted technique which recognizes the time value of money. It is a classic economic method of evaluating the investment proposal. It consider that cash flow at different time period differ in their values.

$$NPV = \sum_{t=0}^{n} \frac{At}{(1+k)^{n}} - C$$

Where,

k= cost of capital

T= no. of year

A= Expected cash inflow

c= initial cash outlays

Decision rule;

1. Independent project: - All projects having positive net present (NPV) are accepted and project having negative NPV are rejected.

2. Mutually exclusive project: - Project having highest net present value is accepted.

2. Internal Rate of Return (IRR) :

IRR is the rate of return than an investment project earns. It is sometime referred to as time adjusted rate of return, yield of an investment, managerial efficiency of capital, rate of return over cost, time preference rate and break even rate. It is that rate which gives the project's NPV zero.

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

Where,

R= internal rate of return

A_o= initial investment at time zero

A_1, A_2, A_n= cash inflow at future.

Acceptance rule,

1. Independent project: - All projects that have IRR greater than required of return are accepted.

2. Mutually exclusive project; - Project that has higher IRR is accepted.

3. Payback Period :

It is a popular traditional method of evaluating investment proposal. It is also called pay off period. It calculates the time required for getting back the investment amount. So, it is the length of time needed to get back the original investment from the investment project.

a) Payback Period for Having Even Cash Flow :

$$\text{Payback period} = \frac{\text{Net investment (NCO)}}{\text{Annual net cash flow}}$$

b) Payback Period for Project Having Uneven Cash Flow :

$$\text{Payback period} = \begin{array}{c}\text{Numbers of years before} \\ \text{full recovery of NCO}\end{array} + \frac{\text{Amount not recovered at start of year}}{\text{Cash flow of the recovered year.}}$$

Decision rule,

1. Independent project: A project should be accepted if its payback period is less than or equal to a specified maximum period i.e. standard time fixed.
2. Mutually exclusive projects, project having lowest payback period is accepted.

4. Average Rate of Return \Accounting Rate of Return (ARR) :

Average rate of returns based upon accounting profit rather than cash flow. It represents the ratio of average annual net profit after tax to the average investment of the project.

$$\text{AAR} = \frac{\text{Average net profit after tax}}{\text{Initial investment}} \times 100$$

OR

$$\text{ARR} = \frac{\text{Average net profit after tax}}{\text{Average investment}} \times 100$$

Decision rule:

1. Independent project: Accept those project whose ARR is higher than the minimum rate established by the management and reject those projects which have ARR less than the minimum rate.

2. Mutually exclusive: Accept that project which has highest accounting rate of return.

5. Profitability Index (PI) :

Profitability index is sometime referred as Benefit Cost Ratio or excess present value index. It is the ratio of present value of net cash benefit to the present value of net cash outlay.

$$PI = \frac{\text{Total present value}}{\text{Net cash outlay}}$$

OR,

$$PI = \frac{(1+k)^{t}}{A_o}$$

Where,

K = cost of capital

T = no. of year

A_o = expected cash flow

Accepted rule,

1. Independent project: All project that have IP greater than 1 are accepted (IP>1).
2. Mutually exclusive: Project that has highest IP is accepted.

2.1.7.10 Completion and Application of the Profit Planning:

2.1.7.10.1 Completion of Profit Planning:

The development of an annual profit plan ends with the planned income statement the planed balance sheet; and the planned statement of cash flows. These three statements summarize and integrate the detail plans developed by management for the planning period. At this point in profit planning, the budget director has an important responsibility. Aside from designing and improving the overall system, the budget director has been described as adviser to each responsibility center. Now the parts must be assembled into a complete profit plan.

Prior to distributing the completed profit plan, it is generally desirable to restate certain budget schedules, so that technical accounting mechanisms, computations, and jargon can be avoided as much as possible. The redesigned budget schedules should be assembled in a logical order, reproduced, and distributed before the first day of the planned budget period. When assembled, the completed plan is variously referred to as the profit plan, the forecast budget, the financial budget, the operation plan, or the plan of operation. In arranging the schedule to be included in the final profit plan, the budget director should consider management preferences, as well as the principle of effective communication as no one arrangement is best in all situation. As a general rule, however it is preferable to place planned financial statements before the supporting sub budgets, such as the sales, expenses, cash and capital addition budgets.

The budget director should have a limited number of copies of the entire profit plan to control its distribution of specific schedules. It may be desirable to use loose leaf binding sp as to facilitate revision as circumstance warrant. Revision may involve one or more sub budgets, depending on the extent of the revision. The profit plan completion date is important, issuance of a profit plan after the beginning of the budget period is one sure way to destroy much of the budgets potential *(*Welsch, et. all*: 2001, 466,467).*

2.1.7.10.2 Implementing the Profit Planning:

The ultimate test of whether the effort and cost of developing a profit plan are worthwhile is its usefulness to management; this is a cost benefit test. We have emphasized that a profit plan should represent potentially attainable goals, yet the goals should present challenges to the enterprise. The plan should be developed with conviction that the enterprise is going to meet or exceed all major objectives.

After approval of a profit planning, the next step is its distribution to the center managers in the enterprise. Distribution instructions were illustrated as an important part of the budget manual. Recall that a limited number of copies of the plan should be prepared. Complete profit plan should be distributed to the vice-president and to the heads of certain staff groups. The guiding principle in establishing the distribution policy might be to provide one copy to each member of the management team according to his or her overall responsibilities while taking into account the problem of security.

After distribution of the profit plan, a series of profit conferences should be held. The top executives comprehensively discuss the plans, expectation, and steps in implementation. At this top level meeting, the important action, flexibility and continuous control should be emphasized. In particular, each manager must understand that the budget is a tool. The profit plan provides the manager of each responsibility center with this plan, the advertising function. Similarly, the finance executive has information about such thing as expected cash receipts cash payment, and capital expenditure. Thus, the planning budget becomes the basis for current operations and exerts important coordination and control effects (Welsch, et. all, 2001:472)

2.1.7.11 Ratio Analysis in Profit Planning:

2.1.7.11.1 Meaning:

Ratio refers to the numerical or quantitative relationship between two item or variable. It is one number expressed by dividing one items of the relationship with the other. Ratio analysis of business enterprise centers on efforts to drive quantitative measure or guides concerning the expected capacity of the firm to meet its future financial obligations or expectation. It is a very powerful tools of company's strength, weakness, opportunity and threat analysis. Hence, ratio analyses are the process of identifying the financial strengths and weakness of the firm by properly establishing relationship between the items of financial statement.

2.1.7.11.2 Types of Ratio:

There are several types of ratio used in managerial budgeting, some are as follows:-

1. liquidity Ratios
2. Leverage Ratios
3. Profitability Ratios
4. Activity Ratios

2.1.7.11.3 Ratio Analysis, Relation With profit Planning:

The ratio analysis can be of invaluable aid to management in the discharge of its basic functions of forecasting, planning, co- ordination, communications and control. By an analytical study of the past performance of the business, it helps in predicting and projecting the future. It assists in communication by conveying information, which is pertinent and purposeful to those for whom it is meant. It promotes co-ordination by a study of the efficiency of the business and paves the way for effective control of business operations by undertaking and appraisal for both the physical and monetary targets. Hence, ratio analysis becomes an integral part of targets. It becomes an integral part of managerial budgeting system *(Goyal, and M.M., 1997:496).*

2.1.7.12 Cost Volume Profit Analysis :

Cost volume Profit analysis is management tool to show the relationship between the elements of profit planning. Profit planning is the function of the selling price of product, demand, variable costs, fixed costs and taxes. The whole picture of profit planning is associated with cost volume profit inter relationship. CVP analysis assumes that under constant underlying conditions, CVP analysis can be used for the analysis of break even volume, break even analysis and contribution margin analysis for profit planning. This assumption of constant underlying condition and the short term relationship have been criticized by the many authory of financial management and accounting. Management require careful analyses of cost behavior in relationship to output volume.

CVP analysis summarizes the effects of changes in an organizations volume of activity on its costs, revenue and profit. CVP analysis can be extended to cover the effects on profit of changes in selling prices, service fees, costs, income tax rates, and the organization's mix of product or services. In short, CVP analysis provides management with a comprehensive overview of the effects on revenue and costs of all kinds of short run financial changes. Although the word profit appears in the term, cost volume profit analysis is not confined to profit seeking enterprise. Managers in nonprofit organization also routinely use CVP analysis to examine the effects of activity and other short run changes on revenue and costs *(Hilton, 1997:349,350).*

Cost volume profit analysis examines the behavior of total revenue, total costs, and operating income as changes occur in the output level, the selling price, and the variable cost per unit, and\ or the fixed costs of a product. (Horngren, et all, 2003:12)

2.7.12.1 Break-Even-Point Analysis :

Break even point analysis is widely used technique to study cost- volume- profit relationship. The narrower interpretation of the term break even analysis refers to a system of determination of that level of activity where total cost equals total selling price. The broader interpretation refers to that system of analysis which determines probable profit at any level of activity. It portrays the relationship between cost of production, volume of production and the sales volume.

Break even point is that point which break the total cost and the selling price evenly. The level of output or sales at which there shall be neither profit or loss, is regarded as break even point. At this point, the incomes of the business exactly equal its expenditure. It can be determine by three techniques. They are as follows:-

1. Equation technique
2. Contribution margin technique
3. Graphic technique

In Equation technique uses an algebraic equation to calculate the BEP. This is most general from of analysis which can be applied to any CVP situation. This approach of finding out the BEP is based on the profit equations.

Sales Revenue = Fixed cost + variable cost + profit

Contribution margin is the difference between the sales revenue and variable cost of production. Contribution margin consist the fixed cost and profit.

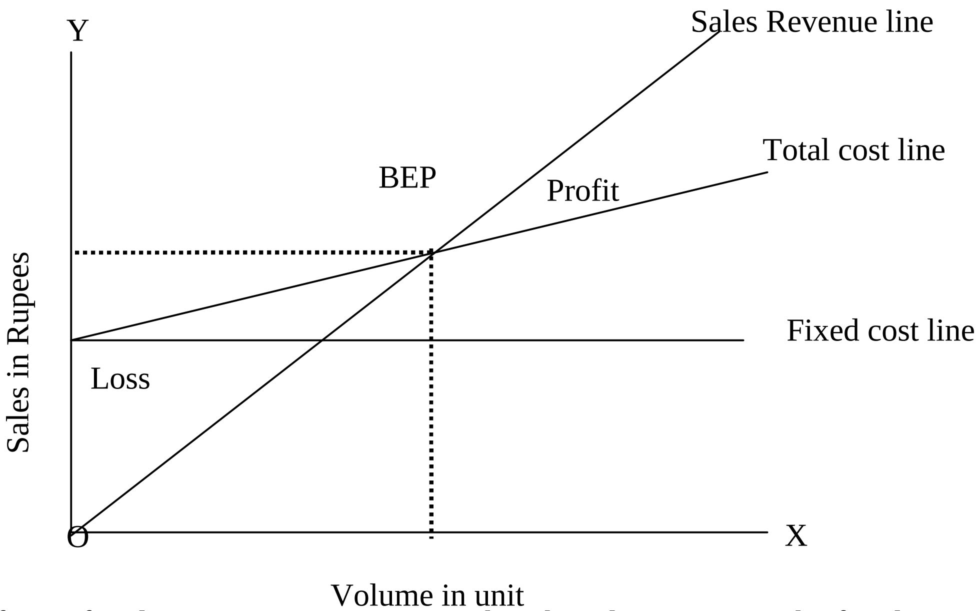
$$\text{BEP (in unit)} = \frac{\text{Fixed cost}}{\text{C. M.P.U.}} = \ldots\ldots \text{unit}$$

$$\text{BEP (in Rs)} = \frac{\text{Fixed cost}}{\text{C.M. ratio}} = \text{Rs} \ldots\ldots.$$

To depict the relationship between profit and volume of activity, a cost volume profit graph is commonly used. Graphical presentation of CVP is preferred:-

1. Where a simple overview is sufficient,

2. Where there is a need to avoid a detailed, of numerical approach. Avocation of numerical approach is specially required if, the recipients of the information have no accounting background (Munankarmi, 2002:144).



In this figure fixed costs remain constant within the relevant range; the fixed cost curve is parallel to OX axis. Variable costs slope upward from the origin to right but the slope depends on variable cost ratio. The total costs curve parallels the variable cost curve.

2.1.7.12.2 Application of Break Even Analysis in Profit Planning :

Break even concept can be used to formulate different policies in s business enterprise some of these applications are as follows:-

- Determination of profit at different levels of sales and margin of safety.
- To find the level of output to get the desired profit.
- Effect of price reduction on sales volume and changes in sales mix.
- Selection of most profitable alternative and make or buy decision and drop and \ or add decisions. *(Maheshwari,2000: 182)*

2.1.8 Performance Evaluation :

Performance reporting for internal management use in an important part of managerial budgeting systems. The performance reporting phase of a comprehensive PPC program significantly influences the extent to which the organization's planned goals and objectives are attained. To indicate the extensive reporting requirements a business needs to focus on performance reporting. The following overview of financial reports is presented and briefly explained:-

1. Special External Report : These are reports to government agencies, regulatory commission, creditor's investigative agencies, and other group's external to the active management.

2. Report to Owners : This is the traditional annual report to the owners and other special reports prepared for the owners. These reports, by and large, are based on "generally accepted accounting principles'' and generally report data that have been subject to an audit by an independent CPA.

3. Internal Reports : These confidential reports are prepared within the company for internal use only. This report is sub divided into three different sub classifications.

(a) Statistical Reports : These are accounting reports that show the historical statistic about all phases of operations. The data included in these reports constitute the detailed financial and operating history of the firm.

(b) Special Reports : These internal reports are not prepared according to any predetermined schedule. Each one relates to a specific management problem. Their design, scope, and comprehensiveness depend on the particular problem at hand.

(c) Performance Reports : These reports are usually prepared on a monthly basis and follow a standardized format from period to period. Such reports are designed to facilitate internal control by management. *(*Welsch, et. all*, 2001: 542-543)*

All companies, regardless of their size, have reporting requirements for all the categories listed above. Following are the essential features of performance reports : - (Welsch, et. all *2001: 544- 545)*

1. Tailored to the organizational structure and laws of controllability.
2. Designed to implement the management by exception principle.
3. Repetitive and related to short time periods.
4. Adopted to the requirement of the primary users.

5. Simple, understandable, and report only essential information.
6. Accurate and designed to pinpoint significant distinctions.
7. Prepared and designed to pinpoint significant distinctions.
8. Constructive in tone.

The extent to which the various manager use their performance reports depends on many factors, some behavioral and some technical. One important factor is the extent to which the performance reports serve the measurement and decision making needs of the users. Department supervision responds differently than a vice- president.

Top management: - personal need reports that give a complete and reading comprehensively summary of the overall aspects of operations and an identification of major events.

Middle management: - is usually defined as those members of management in charge of the major sub divisions of the business, such as sales, production, and finance. Middle management is responsible for carrying out the responsibilities assigned to the sub division within the broad policies and objectives established by top management.

Lower level management is principally concerned with coordination and control of day to day operations. Therefore, control reports should principally be concerned with production and cost control. Reports to supervisors should be detailed, simple, understandable, and limited to items that are directly related to the supervision's operational responsibilities. *(*Welsch, et. all *2001: 548)*

2.1.9 Analysis of Budget Variances:

Comparison of actual result with planned or budget goals has been emphasized as an integral part of the control process. Performance report is the reporting of variance between actual results and planned or budget goals. Performance report just indicates these variances and the meaningful analysis of them is possible through the technique of variance analysis. Variances indicated through performance reports have some managerial meaning. There are numerous ways to study or investigate variances to determine the underlying cause. Some of the primary approaches are as follows:-

1. Conferences with responsibility center manager and supervisor and other employees in the particular responsibility center involved.

2. Analysis of the work situation including the flow of work, coordination of activities, effectiveness of supervision, and other prevailing circumstances.
3. Direct observation.
4. On-the-spot investigation by line managers.
5. Investigations by staff groups.
6. Internal audits.
7. Special studies.
8. Variance Analysis.

Variance analysis involves a mathematical analysis of two sets of data in order to gain an in sight into the underlying cause of a variance. One amount is treated as the base, standard, or reference point. Variance analysis has wide application in financial reporting. It is frequently applied in the following situations:- (Welsch, et. all 2001: 570)

1. Investigation of variances between actual results of the current period and the actual results of a prior period.
2. Investigation of variance between actual result and standard costs.
3. Investigation of the variance between actual results and planned or budgeted or budget goals reflected in the profit plans. (Welsch, et. all 2001: 570)

Variances are analyzed in the following area which is as follows:-

- ➢ Sales Variance
- ➢ Material Variance
- ➢ Direct Labor Variance
- ➢ Manufacturing Overhead Variance

The deviation of actual from the standard in known as variance. Normally, following steps are involved in analyzing variance.

- ❖ Setting Standard
- ❖ Measurement of performance
- ❖ Analyzing variances
- ❖ Taking corrective action

Normally, variance can take two form, favorable variance and unfavorable variance. When actual results are better than expected, a favorable variance arises on the other hand, when actual result are not up to standard, unfavorable variance arise. Variance analysis is helpful in controlling the performance and achieving the profits that have been planned.

2.2 Review of Previous Research Work:

An attempt is made here to review some of the researches, which have been submitted in profit planning and control in public enterprise are presented below.

2.2.1 MR. Puran Prasad Shrestha :

MR. Puran Prasad Shrestha has made research on “Comparative financial Analysis of Nepal Water Supply and Sewerage Cooperation and Nepal Electricity Authority,” submitted to faculty of management for the partial fulfillment of M.B.A. in 1990.. In this study Mr. Shrestha has pointed out following major finding and recommendation:-

Findings

1. The debt equity ratio revels that WSSC and NEA, both have not so high debt equity ratio. Even though WSSC has been slightly more rely on loan than that of NEA, but the increasing trend of debt is higher in NEA. So it has been becoming highly levered than that of WSSC.
2. The return on assets reveals that WSSC has been suffered by sound financial position so that the financial resources invested in its assets are not utilized properly and thus the financial position of WSSC has been worsening over the years. Where as the on assets of NEA have not been worsening and the financial resources invested in assets are utilized more properly than that of WSSC similarly, the return on capital implode of WSSC has been worst due to its heavy losses. So the operating position of WSSC is not good and it has not been able to utilize its creditors fund and NG equity and contributions properly. Where as in case of NEA, the return on capital employed is not worst but insufficient in order to maintain its operating efficiency. NEA has been able to utilize its creditors fund and owners equity some how efficiency than that of WSSC.
3. The interest coverage ratio indicates the worsening position of WSSC.It seems that WSSC has not utilized its funds in proper manner and there is no fund to pay interest charges. Where as in case of NEA; this ratio indicates the more desirable financial position.. NEA has utilized the funds properly in the some extent and it has few funds to pay the interest charges.

Recommendations

1. When there are temporary cash surplus,it should not remain idle but invested in some marketable securities. However a minimum balance is always essential for the corporation to meet unforeseen contingencies.
2. To control and reduce the high cost of production, distribution and operating expenses WSSC and NEA, as possible should utilize their production capacity. These PEs should improve theirs sales especially, WSSC should increase present tariff rate proportionately by the rate of inflation so that it can maintain its operation, pay employees, cost and other various expenses.
3. Sundry debtors should be converted in cash in time and the of sundry debtors should be improved by effecting recoveries as quickly as possible which should be done by taking recourses to legal procedures. And necessary provisions and reserves should be made to meet the doubtful and outstanding debts.
4. Deposits from customers, security deposits, and others deposits should also not remain idle, it should be invested in some marketable securities according to its nature. Payable to NG creditors and other payable should not remain idle for a long, its payment should be made on time and creditors fund should be utilized efficiently in order to maintain better operating efficiency.

2.2.2 MR. Surya Prasad Gurung :

MR. Surya Prasad Gurung has made research on “Financial Analysis of Nepal Water Supply.” submitted to faculty of management for the partial fulfillment of M.B.A. in 1998. In this study Mr. Gurung has pointed out following major finding and recommendation, which are as follows:-

Findings

1. NWSC has high amount of fixed cost.
2. Overhead budget in not prepared in a systematic and scientific manner by NWSC. All expenditures are shows in operating expenses.
3. The NWSE has ignored the concept of variance analysis.

4. The accumulated amount of account receivable in increasing trend, which shows that the corporation fails to collect its revenue in time. It shows, there ins no proper receivable management policy.
5. All of the employees of NWSC are to paid on time basis.

Recommendations

1. There must be formulating clear cut goals, objective, policies, long term plan, and strategic program by the corporation.
2. Capital and manpower assets ?
3. NWSC should emphasize the internal financing to minimize the burden of high payment of interest in long term loan. It can share and can refund the debt for this. So, NWSC must restructure its capital structure.
4. There should be controllers the operating as well as non operating expenses to increase the net profit of NWSC. The unproductive expenses should be reducing by management ands staffs of NWSC.
5. Formulation of polices are not nothing itself. So, their should be a scientific implementation of policies in order to achieve goal and objective in time.

2.2.3 Mr. Khagendra Prasad Ojha

MR. Khagendra Prasad Ojha has made research on "Profit planning of Manufacturing Enterprises, a case study of Royal Drugs Limited and Herbal Production and Processing Company and processing Company Limited." submitted to faculty of management for the partial fulfillment of M.B.A. in 1995. In this study Mr. Ojha has pointed out following major finding and recommendation, which are as follows:-

Findings

1. Inadequate planning of profit due to lack of skilled planners.
2. Inadequate authority and responsibility to planning department.
3. Failure in achievement due to inadequate evaluation of internal and external variable.
4. Failure due to inadequate forecasting system.

5. Lack of entrepreneurship and commercial concept in overall operation of the enterprises.

Recommendations

1. It seems necessary to develop implement and improve the process of profit planning form the beginning to the end.
2. Price cost volume relationship should be taken into consideration while developing sales plan and pricing strategic.
3. System of periodical performance reports should be strictly followed.
4. A systematic approach to comprehensive profit planning should be adopted.

2.2.4 Mr. Jogindar Goet :

MR. Jogindar Goet has made research on "Revenue planning and Management in Nepal a case study of Nepal Electricity Authority," submitted to faculty of management Shanker Dev Campus for the partial fulfillment of M.B.A on 1999, April. In this study Mr. Goet has pointed out following major finding and recommendation, which are as follows:-

Finding

1. NEA has not considered demand determinates such as family income, price of electricity, connection charges, cost of alternatives available, cost of auto generation of electricity, and reliability of NEA service while forecasting demand.
2. While setting the target sales for next year, NEA has not considered other factor such as growth of consumer and other relevant factor.
3. NEA has not adopted the practice of preparing monthly budget, which is necessary for planning and control.
4. NEA overdue amount of receivable is increasing year by year.

Recommendations

1. NEA planers should be properly trained about budgeting and revenue planning.
2. To achieve target growth rate in sales revenue, NEA should make realistic forecasts.

3. While preparing control budget of NEA it should take in to account all the suggestion made by branches and sub branches.
4. NEA should put more effort to manage the supply to the profitable sectors such as domestic, industrial, non commercial, commercial and temporary supply.
5. NEA should try to reduce overdue amount of receivable. NEA should provide incentive to staff to encourage them for collection of overall amount of receivable. In revenue collection, any kind of pressure, nepotism and biases should strictly be discouraged.
6. NEA should have proper coordination regarding budget formulation, implementation and evaluation of achievement.

2.2.5 Mr. Ghana Shyam Thapa :

MR. Ghana Shyam Thapa has made research on "Profit planning in Nepalese Public enterprise a case study of Nepal Electricity Authority," submitted to faculty of management Shanker Dev Campus for the partial fulfillment of M.B.S. on 2004, August. In this study Mr. Thapa has pointed out following major finding and recommendation, which are as follows:-

Findings

1. NEA prepares both tactical and strategic profit plan but strategic plan is confined only to the level executives.
2. NEA is not successes to achieve sales target during the study period expect in FY, 2055\056.
3. Achievement of capital expenditure budget is satisfactory.
4. Operating costs have not been controlled effectively during the study period.
5. NEA has not maintained sound liquidity during the study period.
6. NEA has not prepared plan and program for agriculture sector's consumption of electricity.
7. NEA has not considered demand determinates such as family income, price of electricity, connection charge, cost of alternatives available, cost of auto generation of electricity and reliability of NEA service while forecasting demand.

Recommendations

1. A systematic approach to comprehensive profit planning and control is essential. To adopt these approach existing planners should be trained and new planner should be hired. This can contribute to increase the profitability of NEA.
2. NEA should reduce the long term loan to reduce the high interest amount. At a result of which the amount of overhead will be reduced. Similarly, NEA should gives emphasis in internal financing to reduce excess internal economic burden. NEA should complete its projects timely so that they will return to repay long term loan in time.
3. Cost volume profit relationship should be considered while developing the sales plan and pricing strategy. To maintain the breakeven point, NEA should control fixed and variable cost and should increase sales volume.
4. It is suggested that NEA should invest in small hydro project to ensure profitability become such projects do not require much fund and they start to provide return in investment more quickly.
5. NEA should adopt discounted cash flow techniques to evaluate the large projects.

CHAPTER –THREE
RESEARCH METHODOGY

3.1 General:

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

3.2 Research Design:

Research design is the plan structure and strategy of investigation conceived so as to obtain answer to research questions and to control variance (Wolf and Pant, 2002: 74). The research design followed in this more is analytical descriptive.

3.3 Data Collection Procedure :

The significance of research depends on the nature, availability and accuracy of information. Data collection is the major task of the research work. The data is collection from the secondary sources. The sources of secondary data are

1. Published and unpublished relevant document of NWSC
2. Magazines and booklets published half yearly, yearly etc by NWSC
3. Official records and similar other dissertations.

3.4 Methods of presentation and Analysis :

The collected data are arranged and presented in proper tables and formants. After arranging relevant data, they are analyzed by applying financial and statistical tools; such as ratio analysis, CVP analysis, means, standard deviation, graphs, diagrams, correlation, time series etc. so, that the finding could be presented and interpreted properly and clearly.

3.5 Research Question :

This research study is concentrated to answer to the following questions to fulfill the objective of the study

1. What obstacles are being faced by NWSC for not getting its objective fulfilled?
2. To what extent the procedure of budgets formulation is followed by NWSC?
3. What step should be taken to improve the profitability of NWSC?

3.6 Period Covered:

This study covered a period of the fiscal year from 059/060 to 063/064. Data were taken from NWSC and the analysis was made on the basis of these five years data.

3.7 Research Variables:

Sales, production, overhead budget, capital expenditure, profit and loss, flexible budget, and balance sheet of NWSC are the research variable of the present study.

CHAPTER- FOUR

Data Presentation and Analysis

4.1 Introduction

Budgeting continues to be of time importance in virtually all organizations. Planning is a systematic method for the effective and efficient change of management. it includes determining where the company is to go and how to reach the destination.

The main purpose of this thesis is to examine the budgeting procedures in the context of profit planning in utility public sector enterprises and Nepal water supply corporation (as per NG/Nepal classification) has been taken as a reference enterprise. To accomplish this objective, this chapter will analyze the various functional budgets, their actual accomplishment and related variances.

4.2 Sales Budget of Nepal Water Supply Corporation (NWSC)

Preparation of sales budget is the first and important step in developing the overall budgeting process of the firm sales are the primary sources of revenue and other functional budgets are prepared on the basis of sales budget. It is prepared by product, time and territory. In this budget, sales revenue is estimated for certain period. If sales budget is wrongly prepared, all other budgets will be wrong. so, the preparation of sales budget requires the knowledge of aspects connected with that budget.

Normally, sales budgets are divided into two types on the basis of time coverage. If sales plan or budget is prepared for a year, the budget is called tactical sales budget and if it is prepared for more than one year it is called strategic sales budget. It is prepared by quarterly, monthly and yearly basis.

Nepal water supply corporation prepares long term plans. NWSC has been preparing sales budget in units and rupees from its earlier stages of budgeting.

The table 4.1 shows the budgeted sales and actual sales and its achievements in units and rupees from the fiscal year 2059/060to 2063/064.

Table No. 4.1

Sales Budget and Achievements

From FY 2059/060 to 2063/064

Fiscal year	Units (MLD)			Rs in Million		
	Budgeted	Actual	Achievement %	Budgeted	Actual	Achievement %
2059/060	122	120	98.36	428.6	421.6	98.36
2060/061	144	142	98.61	469.12	462.6	98.61
2061/062	150	145	96.66	531.00	513.3	96.67
2062/063	172	170	98.83	573.04	530.8	98.84
2063/064	160	159	99.37	666.56	662.4	99.38
Average	149.6	147.2	98.36	526.46	518.14	98.42

Source : Annual Report and Budget Books of NWSC.

The above table signifies the budgeted and the actual sales budget of NWSC. According to the table, in the FY 2059/060 budgeted sales of NWSC was 122 MLD and has gradually increased up to the FY 2062/063, which was 172 MLD but it decreased in the FY 2063/064 up to 160 MLD. On the other side actual sales of NWSC in the FY 2059/060 was 120 MLD which increased gradually up to 2062/063 and reached up to 170 MLD, but it decreased in the FY 063/064 which was only 159 MLD. The annual achievement was not less than 98.36 percent. The Targeted sales units were more than the actual sales units. The achievement of sales units was in the increasing ratio except the final year of this study period.

Similarly in the FY 2059/060 the budgeted sale was Rs. 428.6 million. Annual targeted sales budget was increasing from the FY 2059/060 up to the FY 2063/064. In the FY 2063/064 budgeted sales was Rs. 666.56 million. Actual sales amount was also in increasing trend. In the FY 2059/060 the actual sales was

421.6 million, which is the 98.36 percent of budgeted sales. Likewise, in the FY 2063/064 the actual sales was Rs. 662.4 million which is 98.7 percent of budgeted sales.

The attempt begins to present the NWSC's sales performance and their achievement to know the relationship between planned and actual sales. During the study period, NWSC's sales performance is not so good as in all the FY actual sales are less than budgeted sales. To achieve the effective sales revenue on the basis of budgeted sales, NWSC should not prepare sales plan on an adhoc basis.

Now, we can present the above (targeted sales and actual sales)figure more effectively through the following diagram. The diagram presentation shows the gap between budgeted sales and actual sales.

Figure No.-4.1

Budgeted and Actual Sales

2059/060 to 2063/064

(Figure in MLD)

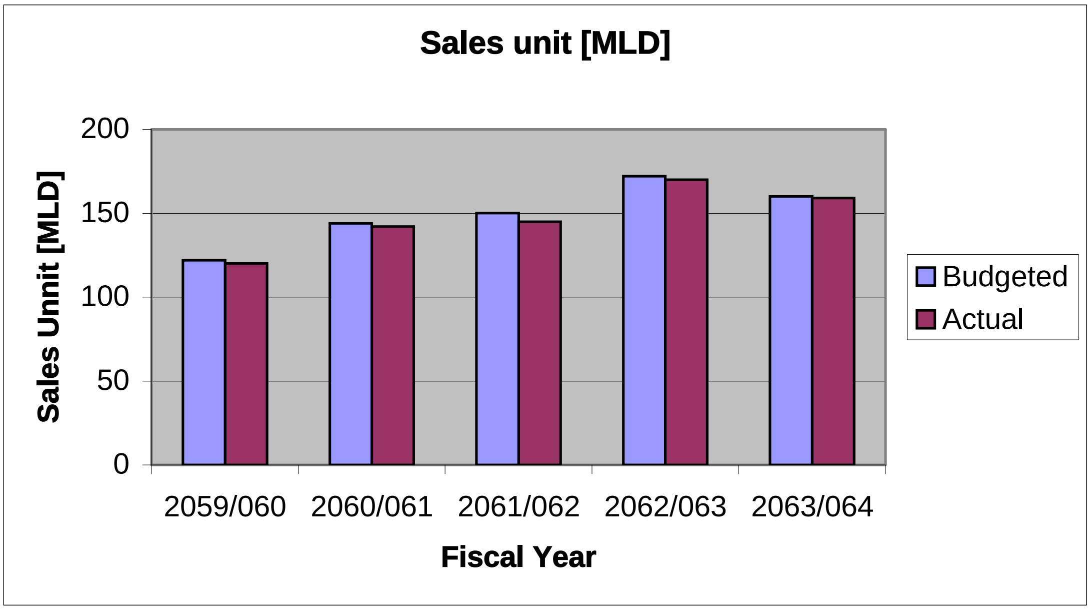
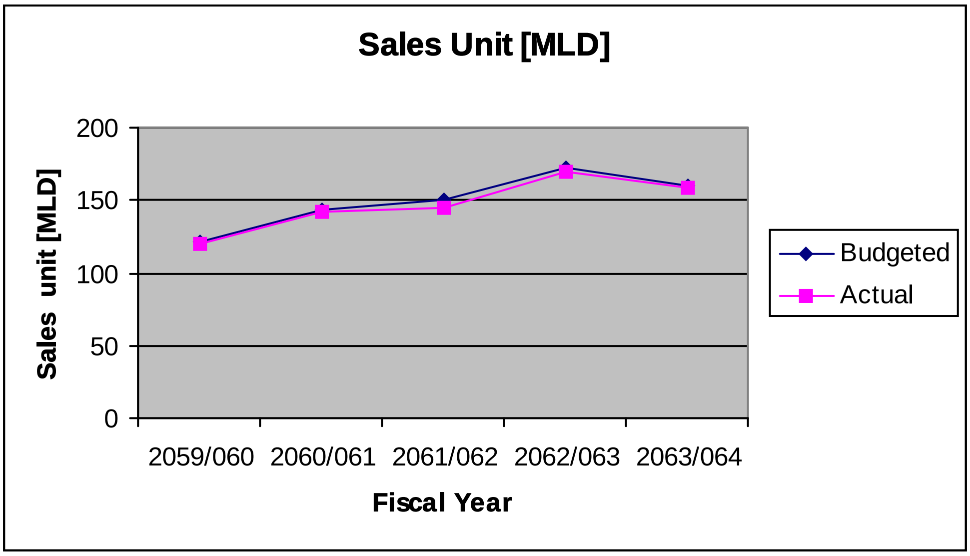


Figure No.-4.2

Budgeted and Actual Sales Revenue of NWSC.

From FY **2059/060 to 2063/064**



To find out the nature of variability of budgeted and actual sales of different years, it is necessary to calculate the arithmetic mean, standard deviation and co-efficient of variance of both budgeted and actual sales figure of NWSC for the five years from the FY 2059/060 to 2063/064. The detail results of these statistical tools are presented in Appendix-1. The summaries of result are as follow.

Table No. 4.2

Budgeted and Actual Sales Relationship

S.No.	Particulars	Budgeted Sales (unit in MLD)	Actual Sales unit in (MLD)
1	Mean (X)	149.6	147.2
2.	Standard Deviation	16.75	16.92
3.	C.V.	11.2%	11.5%

Source: Appendix - 1

The above analysis shows that the Budgeted sales mean (x) is greater than the Actual Sales mean (x) and the standard deviation of budgeted sales is smaller than Actual sales. There is no great difference between co-efficient of variation of budgeted sales and actual sales. It slightly differ from each other.

A distribution with smaller C.V. is said to be more homogeneous or less variable than the other, and the greater C.V. is said to be heterogeneous or more variable than other. According to this principle, NWSC's Actual Sales are not so consistent and homogeneous as budgeted sales.

Another statistical tool to analyze the relationship between actual sales and budgeted sales is correlation of co-efficient. It can be found with the help of Karl person co-efficient of correlation and it is denoted by (r). The co-efficient of correlation measures the degree of association between budgeted and actual sales figures. If an actual sale is as like as budgeted sales, it proves that there are positive correlations but if it is not as like as budgeted sales, it has negative correlation. To find out the value of (r), the budgeted sales is assumed as independent (X) and the actual sales as dependent variable (Y) (see Appendix-1)

Let us see by using the following formula.

We have,

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

$$= \frac{1412.28}{\sqrt{1403.2 \times 1432.21}}$$

$$= \frac{1412.28}{\sqrt{2009677.072}}$$

$$= \frac{1412.28}{1417.63}$$

$$= 0.992$$

The value of r is 0.99 which shows that there is positive correlation between budgeted sales and actual sales. It means actual sales are sat is factory on budgeted sales. The significance of r can be tested by the help of 'PE' of 'r'

Now,

$$PEr = \frac{0.6745(1 - r^2)}{\sqrt{N}}$$

$$= \frac{0.6745\{1-(0.9962)^2\}}{\sqrt{5}}$$

$$= \frac{0.6745\times(1-0.9924)}{2.236}$$

$$= \frac{0.6745\times(0.0076)}{2.236}$$

$= 0.2293$

We have probable error of r – 0.2293. Since r is greater than PEr of r (0.9962 > 0.2293), the values of r is definitely significant. So, it can be said that the actual sales will go on the same direction that of the budgeted sales.

Another statistical tool, regression analysis determines the nature of the relationship that exists among budgeted and actual sales. It can help to estimate the possible actual sales for coming year with given sales for the year. For this purpose, actual sales figure is known as dependent variable which is denoted by (Y). like wise, budgeted sales figure is independent, which is denoted by (X). The regression line of actual sales on budgeted sales (y on x) is as below.

$$(Y-\overline{Y}) = \frac{rxy(x-\overline{x})\pm y}{\pm x}$$

Where,

$\overline{Y} = 147.2$ (MLD)

$\overline{X} = 149.6$ (MLD)

$\overline{\pm X} = 16.92$ (MLD)

$\overline{\pm Y} = 16.75$ (MLD)

$r\times y = 99.62\%$

or, $Y = 147.2 = \dfrac{0.9962\ (x-149.6)\times 16.92}{16.75}$

or, $Y = 147.2 = 0.9962\ (x - 149.6) \times 1.01$

or, $Y = 147.2 = 1.006x - 150.5$

or, $Y = 1.006x - 3.2976$

Above regression equation shows that there is perfect correlation between actual and budgeted figure. The equation shows that actual sales are not greater than budgeted figure. 1.006 shows the increment in the value of dependent variable (Y) when the values of independent variable (x) is changed by one unit.

With the help of this regression equation, it can be estimated the actual sales with given value of budgeted sales. If the budgeted sales in the FY 2062/063 is 181 MLD, the Actual sales will be as follow :

$$(Y) = 1.006 \times 181 - 3.2976$$
$$= 179 \text{ (MLD)}$$

Likewise, another statistical tool, least square can also be used to analyze the trend of actual sales. A straight-line trend will show the relationship between years and actual sales of the relevant years. To fit this straight line trend the time factor should be considered as an independent factor and sales is considered as a dependent factor of this time. This straight line of actual sales (Y) is expressed in the following way:

$$Yc = a + bx$$

Where,

Y = Actual sales figure

x = Time

a = fixed value

b = variable value.

Fitting Straight Line Trend by Using Least Square Method.

(Figure in MLD)

Fiscal Year (FY)	Actual Sales (Y) MLD)	X year's mid time	X^2	XY
2059/060	120.00	– 2.00	4.00	–240.00
2060/061	142.00	– 1.00	1.00	– 142.00
2061/062	145.00	0.00	0.00	0
2062/063	170.00	1.00	1.00	170.0

2063/064	159.00	2.00	4.00	318.00
	ϕy = 736.00	ϕx = 0.00	ϕx^2 = 10	ϕxy = 106.00

It is assumed that 2061/062 a base year, so the value of 'X' is negative before 2061/062 and positive after 2061/062 Year.

We have,

Straight line trend (Yc) = A + bx.

Where,

$$a = \frac{Y}{N} X \frac{736}{6} = 147.2$$

$$b = \frac{xy}{x^2} \quad X \quad \frac{106}{10} \quad X \quad 10.6$$

Now, substituting the value of a and b in straight-line equation.

Yc = 147.2 + 10.6x

This trend line shows the favourable sales figure for the future. According to this calculation, the sales will be increased by 10.6 MLD every year if the trend of the past years continues in the future.

With the help of this equation, we can estimate the actual sales units for the FY 2063/064. The value of x for the year 2063/064 is 3.

Now, the actual sales for 2063/064 is,

Y 063/064= 147.2 + 10.6 × 3

= 179 MLD

It can be said that if the trend doesn't change, the possible sales for the Fiscal year 2063/064 will be 179 MLD.

4.3 Production Budget of NWSC

Preparation of production budget is the second step in the process of comprehensive profit planning and control. Without production budget profit planning never becomes complete. The sales plan is to be compulsorily translated in production plan in case of manufacturing concern. NWSC is the utility concern. Utility concerns also estimate their demand for the production in practice. While long run and make their preparing the production plan, the government policy should be considered by NWSC. Besides this, existing projects and projects near about of completion are adjusted by NWSC.

Water production is one of the most considerable things of NWSC. The water produced by the corporation is sold. The water is directly related with the people. There is a positive relationship between water and people. Increasing on of people require high volume of water. Unless and until the leakage of water can not be controlled, the corporation can not provide the water required for consumers. According to the annual report of 2063/064, average 35% of total produced water has been leakage in the corporation. The water pipes are too old that can not be changed easily and it requires a huge amount of capital. So the corporation should commit a large priority to control the leakage of water.

4.4 Situation of Water Production in Kathmandu Valley.

NWSC has not been able to deliver or fulfill the demand of water in kathmandu valley. The population of kathmandu valley has been increasing highly due to various reasons. The main reasons may be the facilities provided in kathmandu valley by govt., the entire ministrie are located in KTM valley, facilitated hospitals and schools, campuses and so many other things. The demand of drinking water in KTM valley has not been fulfilled by the corporation still now.

NWSC has very limited raw water resources within Kathmandu valley, high percentage of treated water is lost in the distribution system as leakage and wastage system, further deteriorating the system of supply. High percentage of leakage from distribution system due to the presence of very old pipes which have already lost their life physical and technical barriers make it difficult for equitable supply in all distribution areas. Thus, much remains to be done for better supply conditions.

4.5 Sources of Water Production:

The main sources of water production in Kathmandu valley consists of surface water as well as ground water sources, which is shown in the following.

A) Surface Water

- Sundarijal (Old)
- Sundarijal (New)
- Shivapuri / Bishnumati
- Balaju
- Nakhu
- Dudhpokhari
- Lunkot
- Sim Jowahity.

B) Ground Water

- Manohara well field - Balkumari
- Gorkha well field - Baniyatar, Mahadevtar
- Khovikhola - Mulpani
- Bansbari well field - Gongabu
- Mahadev khola well field -
- Insolated (Sinamangal, Kuleshwor, Kalanki, Kalimati, Tahachal, etc.)

From the above mentioned sources water production capacity in wet season is 151 MLD and 97 MLD in dry season. But the demand of water in Kathmandu valley at present is 224 MLD. Even in the utilization of total production capacity, the need of water in Kathmandu valley can not be fulfilled.

4.6 Water Demand and Supply:

Demand forecasting in Kathmandu has always been a difficult task. The difficulty exists particularly because water supply has always been short. At present about 140,934 connections are registered in Kathmandu. And the total population served in valley is 18,35000 thousand with the total capacity of 151 MLD and 97 MLD respectively in wet and dry seasons and estimated 35% leakage wastage, actual available quantity in the two seasons become 98.15 MLD and 63.05 MLD. Thus there is a high gap between demand and supply in both seasons.

NWSC has a policy of supplying water two times during wet season and alternative day or one time in two days during dry season. This is done as an attempt to supply equitable at suppressed demand level. Average supply hour ranges between 1 or 2 hours, but there are areas getting less or more than this average duration.

4.7 Distribution System

The system is a combination of old and mew systems. Balaju was the first system developed for the demand. Later on settlement increased for which new supplies were necessary. Therefore, to meet the demand Maharajgunj system was developed. The water was boosted by interconnecting these two systems and laying new distribution mains to new areas Again settlements increased and people residing in larger geographically elevated areas suffered from water. To meet the demand of water at higher elevated areas and serve new settlement as well, Maharajgunj system was developed. The system water was also connected to places where supply was low.

1) Insufficient or no sypply.
2) Odd time supply.
3) Inequitable supply.
4) Irregular supply.
5) Poor quality supply.
6) Delay in works.
7) High rate of leakage.

Water supply system of Kathmandu needs a lot of improvements. First of all the production capacity is to be increased by considerable amount. NWSC is facing a lot of problems to improve service delivery customers, no doubt, are facing trouble to improve the situation. As stated earlier, the first work is to increase production and the other work is massive rehabilitation of distribution network, from where high percentage of clean water leaks and goes waste.

4.8 Water Production Projects.

To fulfill the high demand of water, NWSC stepped out for water production. NWSC has completed some projects of water production, some are on going projects and some future projects too inside Kathmandu valley and outside valley. So, many people are benefited from the completed projects inside as well as outside Kathmandu valley.

The following table shows the detailed production target and achievement of NWSC from the Fy 2059/060 to 2063/064.

Table No. 4.3

Budgeted Production and Actual production.

From Fy 2059/060 to 2063/064

Fiscal year	Budgeted Prod^n	Actual Prod^n	Achievement%
2059/060	217	203	93.55
2060/061	259	243	93.82
2061/062	273	247	90.48
2062/063	293	269	91.81
2063/064	254	244	96.06
Average	259.2	249.2	93.14

Sources: Annual Report and Budget books of NWSC. from 2059/060 to 2063/064

Table No 4.6 shows the production plan and achievement of NWSC for the Fy 2059/060 to 2063/064 in average production unit (MLD). This table shows that actual production is below the budgeted production. But percentage of achievement is different in different year. Production achievement is not more than 93 percent. According to the above table, in the Fy 059/060 the budgeted production is 217 MLD where as the actual production is 203 MLD. In this Fiscal year the achievement of NWSC was 93.55 percent. Like wise in the Fy 2060/061 budgeted production was 259 MLD, but the actual production was only 243 MLD, and the achievement was 93.82 percent. In the Fy 061/062 budgeted production was 273 MLD Whereas the actual production was 247 MLD, which was 90.48 of NWSC's planning in producing water.

Similarly, in the Fy 2062/063 the budgeted production is 293 MLD, but actual production was 269 MLD with 91.81 percent achievement. In the same way at the last fiscal year actual production is less than budeted production. From the overal evaluation of budgeted production and actual production both are in the increasing trend except in the Fiscal year 2063/064. The budgeted production of all the fical years is higher than the actual production. The corporation has not been able to meet its targeted production during the study period with a slight fluctuation in the final year.

Budgeted and actual production can be presented in the following figures more effectively.

Figure No. 4.3

Budgeted Production and Actual Production from Fy 2059/060 to 2063/064

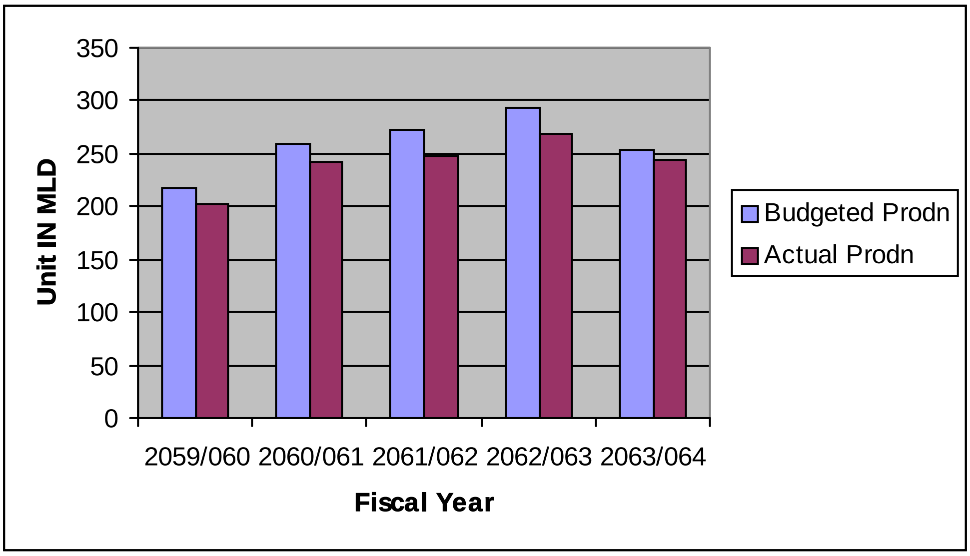
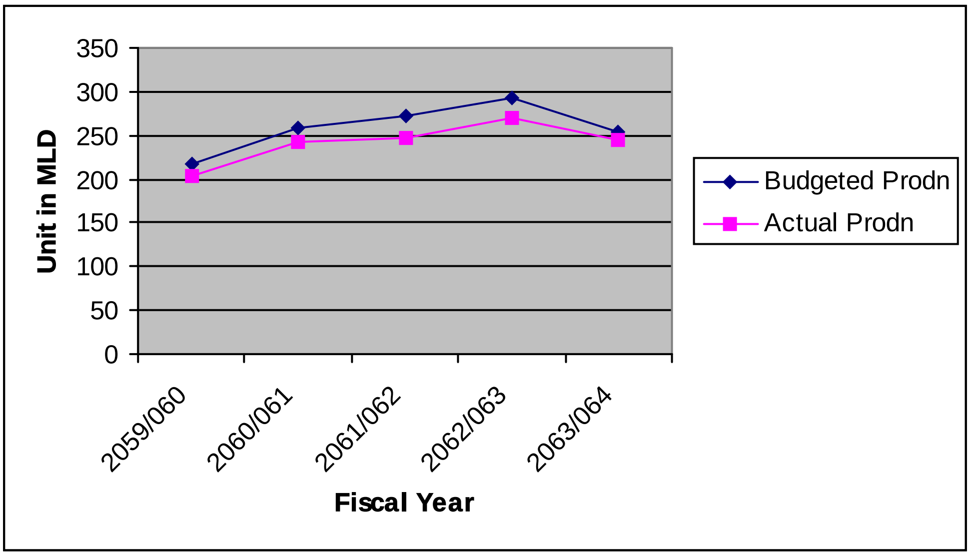


Figure No. 4.4

Budgeted Production and Actual Production

***from Fy* 2059/060 to 2063/064**



Plotted the data in the above graphics shows that the budgeted and actual production are in the increasing trend up to the fiscal year 062/063, but both are decreasing in the Fy 2063/064. It shows fluctuation. Though both budgeted and actual production are gradually increasing, there is a wide gap between budgeted and actual production.

To find out the nature of variability of budgeted and actual production of different years it is necessary to make different statistical calculation which are arithmetic mean, standard deviation and co-efficient of variance of actual and planned production figure of NWSC for the five years from 2059/060 to 2063/064. The detail calculations of these statistical tools are presented in Appendix-2.
The Summaries of this result are as follow.

Table No.- 4.4

Budgeted and Actual Production Relationship.

Statistical Tools	Budgeted Production Unit in (MLD)	Actual production unit in (MLD)
Mean ($\overline{X}$)	259.2	241.20
Standard deviation (σ)	25.063	21.2
C.V.	9.67%	8.85%

The above table shows the average budgeted production and actual production. This analysis shows that the budgeted production mean ($\overline{X}$) is greater than actual production mean $(\overline{Y})$ and the standard deviation of budgeted production is greater than the actual production. The coefficient of variance of actual production is smaller than the budgeted production. The basis of the distribution of C.V. it is said that there is greater fluctuation in budgeted production than actual production.

Another statistical tool to analyze the relationship between actual production and budgeted production is co-relation of coefficient. It can be determined of correlation and it is denoted by (r). For this purpose let us consider budgeted production (X) as independent variable and actual production (Y) as dependent variable. By calculating (r) we can examine whether there is positive correlation between budgeted production and actual production or not.

Let us see by using the following formula

We have $\sum uv$

$$r = \sqrt{\sum u^2 \times \sum v^2}$$

$$= \frac{2480.84}{\sqrt{3140.8 \times 2276.8}}$$

$$= \frac{2480.84}{\sqrt{7150973.44}}$$

$$= \frac{2480.84}{2674.13}$$

r = 0.9277

The value of r is 0.9277, which shows that there is positive correlation between budgeted production and actual production. The significance of r can be tested by the help of 'PE' of 'r'

Now,

$$PEr = \frac{0.6745(1-r^2)}{\sqrt{5}}$$

$$= \frac{0.6745\{1-(0.9277)^2\}}{\sqrt{5}}$$

$$= \frac{0.6745\{1-0.8606)}{2.236} = \frac{0.0940253}{2.236}$$

$$= 0.4205$$

By above all calculation, co-efficient of correlation (r) is 0.7652 which is greater than probable error i.e. (0.9277>0.4205). It shows that the value of r is definitely significant. So it can be said that the actual production will go on the same direction that of budgeted production.

Another statistical tool is called regression analysis which determines the nature of the relationship between budgeted and actual production. It can also help to estimate the possible actual production for coming year with given production for the year. For this purpose, actual production is known as dependent variable (Y) and budgeted production independent (X). Thus the regression line of actual production on budgeted production (Y on X) is as follow:

$$(Y - \overline{Y}) = \frac{r \times y(X - \overline{X})\sigma y}{\sigma x}$$

Where,

$\overline{X}$	=	259.2	(MLD)
$\overline{Y}$	=	241.2	"

$\sigma x \quad = \quad 25.063$ "

$\sigma y \quad = \quad 21.21$ "

$$\text{or, } Y - 241.2 = \frac{0.9277(X - 259.2)21.2}{25.063}$$

or, $Y - 241.2 = 0.9277\ (X - 259.2)\ 0.8459$

or, $y - 241.2 = 0.7847X - 203.39$

$\ldots Y = 0.7847X + 37.81$

This regression equation shows that there is perfect correlation between actual and budgeted figure. The equation shows that actual production is not greater than budgeted figure. 1.085 shows the increment in the value of dependent variable (Y) when the value of independent variable (X) is changed by one unit.

With the help of this regression equation it can be estimated the actual production with given value of budgeted production. If the budgeted production in the Fy 2062/063 is 300.48 MLD, the actual production will be as follow.

$Y = 0.7847 \times 300.48 + 37.81$

$Y = 273.6$ MLD

Another statistical tool, called least square can also be used to analyze the trend of actual production. A straight – line trend will show the relationship between years and actual production of the relevant year. To fit this straight-line trend, the time factor should be considered as an independent factor and production is considered as a dependent factor of this time. The straight – line of actual production (Y) is expressed as follow:

$Yc = a + bx$

Where

$$a = \frac{\sum Y}{N} = \frac{1246}{5} = 249.20 \quad \text{MLD}$$

$$b = \frac{\sum xy}{\sum y^2} = \frac{108}{10} = 10.8 \quad \text{MLD}$$

Now, Substituting the value of a and b in straight-line equation.

$Yc = 241.20 + 10.8X$

Above calculation shows that 10.8 MLD will be increased every year if the past trend of production will be continued in future also. Otherwise it is not possible.

With the help of this equation, it can estimate the value of production for the fiscal year 2064/065. The value of X for the year 2064/065 is 3 Actual Production for 2064/065 is,

$$
\begin{aligned}
Y\ 062/063 &= 241.20 + 10.8\times 3 \\
&= 241.20 + 32.4 \\
&= 273.6 \text{ MLD}
\end{aligned}
$$

If the past trend is not changed, the actual production of 2064/065 will 273.6 MLD.

Production budget always depends upon sales budget, Normally production is to be enough to meet sales. To test if production meets sales or not, correlation between sales and production should be analyzed with the help of the following table:

Table No. 4.5

Actual Sales and Actual Production from FY 2059/060 to 2063/064

(Unit in MLD)

Fiscal Year	Actual sales (X)	Actual production (Y)	loss %
2059/060	120	203	40.89
2060/061	142	243	41.56
2061/062	145	247	41.30
2062/063	170	269	36.80
2063/064	159	244	34.84

Source: Annual Report of NWSC, 2063/064

Table No. 4.8 signifies the overall units of actual sales and actual production of NWSC during the study period i.e. from Fy 2059/060 to 2063/064. In the Fy 2059/060 the actual production was 203 MLD. According to the assumption there must be equal between the actual production and actual sales, but here is a vast gap between production and sales due to high leakage percentage. Likewise, in the Fy 2060/061 the actual production was 243 MLD but the actual sales was only 142 MLD. Similarly in the Fy 2061/062 the actual production was 247 MLD and the supply after leakage was just 145 MLD. The actual production in the Fy 2062/063 was 269 MLD whereas the actual sales was only 170 MLD. In the last fiscal year of the study period the actual production was 244 MLD but the actual sales was 159 MLD only. while analyzing the above date, it is known that NWSC is bearing loss due to the high rate of leakage of water. The averag loss percentage is 39% which is very high.

The above data can be depicted in the following figure.

Figure No. 4.5

Actual production and actual sales From Fy 2059/060 to 2063/064

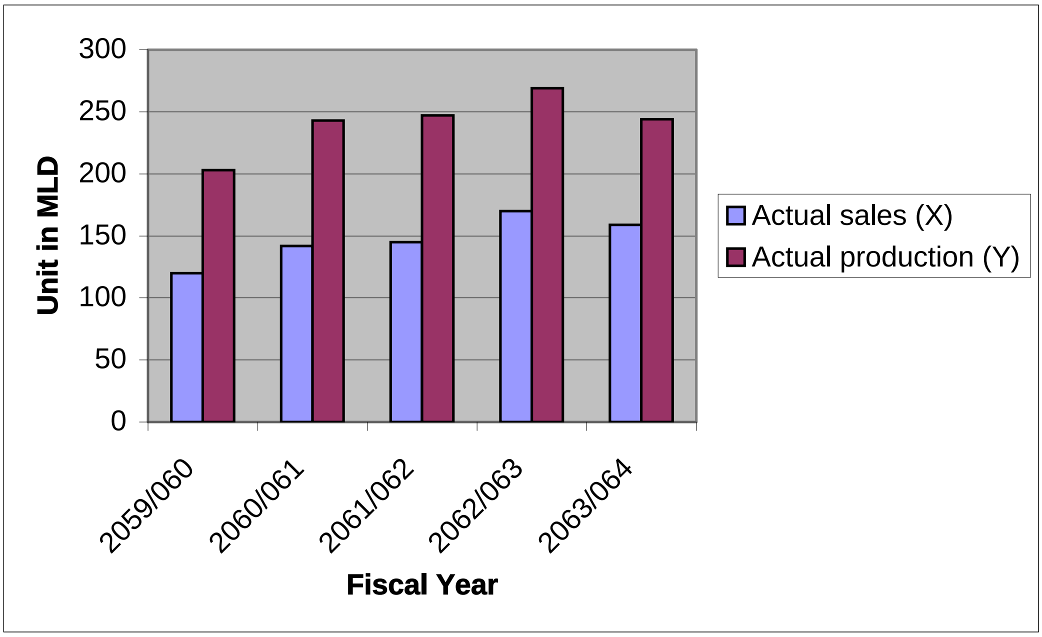
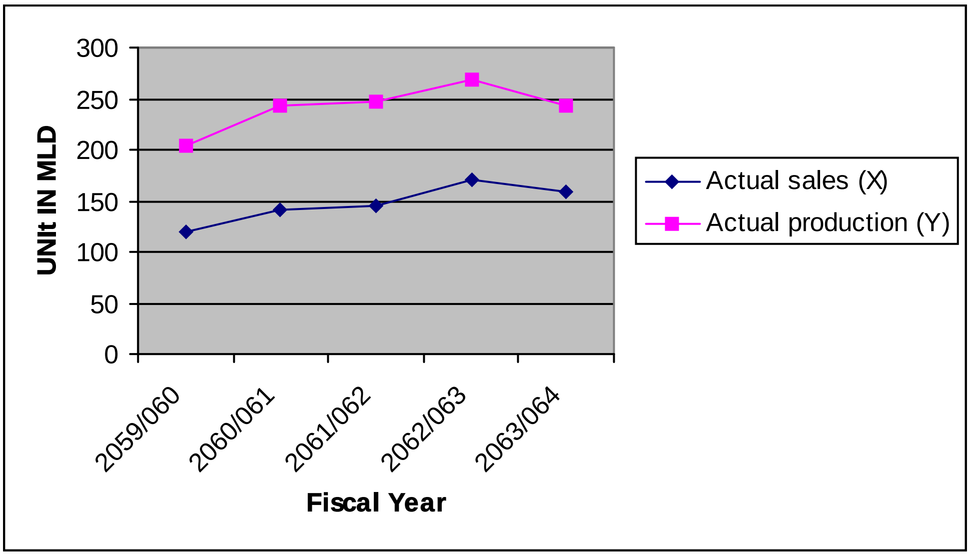


Figure No. 4.6

Actual production and actual sales From Fy 2059/060 to 2063/064



This figure shows that the actual production is always greater than the actual sales. Normally, production is always equal to sales but in study period there is vast difference due to the high rate of water leakage. On the other hand actual production and actual sales are in the increasing trend except the in FY 2063/064.

In order to find out the nature of variability of actual production and actual sales of different years, different statistical tools are to be used analytically. Such tools are, arithmetic mean, standard deviation and co-efficient of variance of actual sales and actual production figure of NWSC for the five years from 2059/060 to 2063/064. The detail calculations of these statistical tools are presented in Appendix = 3. The summaries of this result are as follow.

Table No. – 4.6

Actual sales and Actual productions Relationship.

Statistical Tools	Actual sales in X (MLD)	Actual production Y (MLD)
Mean ($\overline{X}$)	147.2	241.2
Standard deviation (σ)	16.92	21.34
C.V.	11.49%	8.85

Source: Appendix – 3

According to table No. 4.9 the average actual sales of the study period was 147.2 MLD and actual average production was 241.2 MLD. The table shows the greater deviation on actual production than that of actual sales. The covariance of actual sales unit is 11.49 percent higher than actual production shows more variation between them. The correlation value is 0.9079 (Appendix – 3) which means 90.79 percent of both variables are related positively. But the probable error item observed 0.0529 which (less than co-efficient of correlation (0.9079>0.0529) shows the value of r is definitely significant. So it can be said that actual sales will go to the same direction that of actual production.

After analyzing the overall production of NWSC the fallowing conclusion can be drawned

1) NWSC prepares both short - term and long-term production plan and production budget is entirely based on sales budget. Long – term plan is always dependent on government rule.
2) Small per item shows that there is positive correlation between budgeted and actual production.
3) The regression analysis shows the positive relationship between budgeted and actual production.
4) Actual sales are less than actual production which indicate that there is high rate of leakage. NWSC has not been able to control it.
5) There is a positive correlation between actual sales and actual production.

4.9 Income Statement of NWSC

NWSC has various sources of income which shows an increasing trend is each fiscal year during the study period, and is presented below.

Table No. 4.7

Summary of Income Statement of NWSC

FY 2059/060 to 2063/064

(Fig. in '000'.)

Particulars	Fiscal Year				
	2059/060	2060/061	2061/062	2062/063	2063/064
Govt Taps Metered	30866	34480	36112	37641	42546
Private Taps Metered	251350	286390	321792	336375	412726
Govt Taps unmetered	8515	89318	9254	8963	1229
Private Taps unmetered	44806	43743	48167	48316	70742
Public Taps	21736	23762	26599	26599	26599
Sewerage revenue	57043	61657	67770	70184	95286
Water sale	12446	9970	11518	10442	11713
Gross revenue	426762	468935	521212	538552	671906
less Rebate	(5144)	(6342)	(7882)	(7707)	(9496)
Net Revenue	421619	462593	513330	530814	662410
Penalty	26603	34184	34966	34462	32527
Installation charge	13309	16172	17288	16482	15977
Repair charge	1403	1526	1809	2117	1452
MISC income	3686	4738	4066	6244	4862
Interest income	9175	5469	6368	6866	5692
Sale of spares	8935	9326	6880	1909	3559
Pharping water Supply income	1937				
Total other income	65049	71414	69377	68081	64069
Total income	486668	534007	582706	598895	726479

Source : NWSC, Annual Report Tripureshwor, Kathmandu.

The change in percentage of income statement is shown below.

Table No. 4.8

Change in Income Statement FY*2059/060 to 2063/064*

(Fig. in '000')

Particulars	**Fiscal Year**					
	2058/059	2059/060	2060/061	2061/062	2062/063	2063/064
Govt. Taps Metered Change in Percentage	28744 –	30866 7.38	34480 11.71	36112 4.73	37641 4.23	42546 13.03
Private Taps Metered Change in Percentage	223585 –	251350 12.42	286390 13.94	321792 12.36	336375 4.52	412726 22.7
Govt Taps unmetered Change in Percentage	8133 –	8515 4.70	89318 4.9	9254 3.6	8963 (3.2)	1229 37.16
Private Taps unmetered Change in Percentage	43362 –	44806 3.33	43743 (2.37)	48167 10.11	48316 3.09	70742 46.42
Public Taps Change in Percentage	20154 –	21736 7.85	23762 9.32	26599 11.94	26599 –	26599 –
Sewerage revenue Change in Percentage	53997 –	57043 5.66	61657 8.09	67770 9.91	70184 3.56	95286 35.77
Water sale Change in Percentage	9084 –	12446 37.00	9970 (19.90)	11518 15.53	10442 (9.34)	11713 12.17
Gross Revenue Change in Percentage	387059 –	426762 10.26	468935 9.88	521212 11.15	538552 3.32	671906 24.77

4.10 Analysis of Different Heads of Revenue:

Government taps Metered:

Taps metered have been gradually increased though the increasing ratio is not the same in all the FY the high-test increase percentage is in the FY 2063/064 by 13.3%.

Private Taps Metered:

The income from private taps metered is in the increasing ratio in each Fiscal year. The highest increase percentage is in the FY 2063/064 by

22.7% and the lowest increase percentage is in the FY 2062/063 by 4.53%

Government Taps un-metered :

The income from Govt. Taps Metered is increasing except in the fiscal year 2062/063 In this year it has decreased by (3.2)% The highest increase in the income is 37.16% which has been achieved in the FY 2063/064.

Private Taps Unmetered :

We fund the gradual increase in the income from private taps unmetered as well except in the FY 2060/061. In the FY 060/061 it has been decreased by (2.37%) from the preceding year. The highest increase in percentage of income in the FY 2063/064 and the lowest decease of income is in the FY 2060/061 by 46.42% and (2.37) respectively.

Public Taps :

It has been found gradual increase in the percentage of change in income from public Taps frame the base year 2058/059 up to the FY 2061/062, but it has remained constant in the Fiscal Year 2062/063 and 2063/064.

Sewerage Revenue :

The change in sewerage revenue is seen in the increasing trend. In the FY 2063/064the change in percentage is 35.77%, which is the highest change. Likewise, in the FY 2062/063 the change in percentage is 3.56%, which is the lowest change.

Water Sale :

Though water sale is one of the regular sources of income of the corporation, it is greatly fluctuating the change in percentage between the FY 2058/59 to 2063/064 are 37.00%, (19.9%), 15.53%, (9.34%) and 12.17% respectively.

Gross Revenue :

Gross Revenue is seen in the increasing trend but the increasing ratio is not the same. The highest change in gross revenue in the FY 2061/062 and 2063/064 the highest change in percentage of gross Revenue is 24.77% between the FY 2062/063 and 2063/064. Similarly, the lowest change in percentage is 3.32& which is in between the FY 2061/062 and 2062/063.

4.11 *Consideration of Inventories*

The development of production plan requires the consideration of finished goods and work in progress inventory. It is impossible to develop a realistic production plan without definite inventory policy, one of the principal advantages of production planning. Inventory policy should include (i) The establishment of inventory. Standard such as maximum and minimum level and (ii) the application of techniques and methods that will ensure conformity with planned inventory standards. Finished goods inventory is used for fulfilling demand and the level of inventory going to be decreased, and on the other hand when production exceeds sales then the excess production is kept into steer for the smooth sales activities of the corporation.

Generally, level of finished goods is determined by nature of product, production process, perished ability and so many other factors. NWSC has not followed strict and regulate inventory policies. The following table shows the opening and closing inventory of NWSC.

Table No. 4.9

Position of Opening and Closing Inventory of NWSC.

From F/Y. 2059/060-2063/064

(RS in million)

Fiscal Year	Opening Balance	Closing Balance
2059/060	323.11	309.28
2060/061	309.28	311.19
2061/062	311.19	290.63
2062/063	290.63	298.74
2063/064	298.74	297.13

Source: Budget books of NWSC, Tripureshwor, Kathmandu

The above table indicates the amount of inventory of NWSC, Which has been fluctuating each year. This fluctuated inventory is in the decreasing trend. In each fiseal-year. According to this table the closing inventory of the FY 2060/061 is increased by 6.6% more than the FY 2061/062 it is the highest fluctuation during the study period. The inventory of FY 2062/063 was decreased by 4.18% and the final year's inventory was decreased by 4.46% than the second year's inventory.

4.12 Analysis of Expenses of NWSC

The operating expenses of NWSC is very high. The operating expenses is in the increasing trend in each fiscal year during study period which are given in the following table.

Table No. 4.10

Operating Expenses Statement

(Fig. in million)

Particulars	2059/060	2060/061	2061/062	2062/063	2063/064
Production Exps	137.00	150.00	148.00	156.8	167.60
Distribution Exps	87.90	101.40	93.90	100.60	105.90
Electro Mechanical	12.70	16.20	10.90	12.50	12.50
Administrative Exps	115.00	119.30	114.90	114.10	149.10
Total	**352.60**	**386.90**	**367.70**	**84.00**	**435.10**

Source: Annual Report of NWSC of the Fy 059 to 063/064

The above table shows the changes of operating expenses of NWSC in different fiscal years. In this calculation operating expenses includes production expenses, distribution expenses, Electro-Mechanical expenses and Administrative expenses.

According to the above table production expenses is varied in different fiscal year. The highest production expenses is 167.60 million in the FY 2063/064and the lowest prod expenses is 137.00 million in the FY 2059/060 the changes in each year is positive. The distribution expenses has also been in the increasing rate. The highest dist^{n} expenses is such in the FY 2063/064 and the lowest in the FY 2059/060 which are 105.90 million and 87.90 million respectively. The expenses in electro-mechanical is fluctuating up to the FY 2061/062. But it is remained constant in the FY 2062/063 and 2063/064 which is 12.50 million.

We find a high change in administrative expenses in between 2059/060 and 2060/061, but this is quite similar in the remaining years. The highest administrative expenses is 149.10 million but the lowest exps is 114.10 million.

From the overall analysis of operating expenses it can be said that the operative expenses of NWSC is increasing gradually. It means the volume of production and distribution is increasing every years.

4.13 Profit and Loss Account

Profit is an essential part of any organization whether that is small or large sized organization without profit no organization can live long time. In case of public utilities in Nepal, the basic establishment objective is to mobilize the resources and to generate surplus for substantial economic development of the country.

Profit and loss account can be prepared after preparing all the functional budgets. It can be referred as a final account which summarizes the incomes and gains earned and expenses incurred during the financial year. Therefore, profit and loss account is prepared to ascertain the operating results of a company in term of net profit or loss. The profit and loss account determines net income or loss by matching incomes and expenses accrued during a particular financial years.

NWSC prepares a projected profit and loss account in advance to know the possible future profit and loss of the corporation. At the end of the year it prepares the actual profit and loss account in order to know the net profit or loss situation of the corporation during a financial year.

Profit

Table No. 4.11

Detail Profit and Loss Account of NWSC

For Fiscal year 2063/064

(in 000)

Particular	Amount Rs.
Income	
Water revenue (After rebate)	662,410
Other income	64069
Total	726479
Expenditure	
Production	167584
Distribution	105963
Quality Control	8930
Electro Mechanical	12461
Sewerage	10370
Consumer's Account	45999
Administrative Expenses	149113
Write off stock	98
Provision for D/D	23764
Total	524282
Operating surplus	202197
Interest Payable	(61756)
Depreciation	(152490)
Depreciation Transferred from Capital Reserved	47738
Net Profit	35699
last year's Adjustment	1448
Up to previous year (net loss)	(274118)
Accumulated loss carried to B.S.	236972

Source: Annual Report of NWSC 2063/064.

The above profit and loss account of NWSC shows the corporation in profit. The detail comprehensives profit and loss account from FY 2059/060 to 2063/064 has been shown in Appendix-4. According to P/L a/c. net profit of the company was Rs. 35699 thousand.

The profit and loss pattern of NWSC is presented in the following table from the FY 2059/061 to 2063/064.

Table No. 4.12

Profit and Loss Pattern of NWSC.

(Fig. in Rs.)

Fiscal Year	Profit and Loss	Diff %
2059/060	(30280672.54)	-
2060/061	(47732177.43)	57.6%
2061/062	(4569735.83)	90.45%
2062/063	(42914320.93)	60.9%
2063/064	35698928.59	831.8%

Source : Annual Report if NWSC 2063/064

The above table shows that NWSC has been able to generate net profit only in the final year during the study period, but in remaining all the other years, it has suffering from loss. It shows the unfavorable condition of NWSC. The main reasons of bearing loss are poor performance in operating, lack of profit planning and control, etc.

4.14 Balance Sheet

Balance sheet represents the position of company's assets liabilities and stock holder's equity at a particular date. It is a statement of assets and liabilities of a firm which shows the overall financial condition of the firm. Balance sheet indicates the financial strength and weakness of the company. It gives the real situation of the firm to the insiders as well as outsiders.

NWSC prepares the balance sheet at the end of every financial year and is published in its annual report.

Detail compressive balance sheet from Fy 2059/060 to 063/064 has been shown below

Table No. 4.13

Balance Sheet of Nepal Water Supply Corporation

from the FY 2059/060 to 2063/064

(Fig In '000')

Year	**059/60**	**060/061**	**061/062**	**062/063**	**063/064**
Capital and liabilities:					
Share Capital & Fund	1346042	1371042	1371042	3375218	3,461,927
Capital Reserve	705728	6620023	616206	561125	5213633
long term loan	1820303	1894484	1943828	857547	0
Current Liabilities	525892	658735	658735	967179	967180
Total	4397965	4586285	4666731	4793890	4950470
Assets					
Assets and properties(A) Fixed Assets	2063745	2109607	2768871	2927377	2,909,313
Work in-progress	1052014	1154557	483281	317305	323,688
Total (A)	3115759	3264164	3252152	3244682	3,233,002
Current Assets: (B) Debtors	465106	550792	576346	686681	818004
Advance	38971	26640	34293	36906	35690
Insurance	7500	9248	13740	15674	18249
Stock	309283	311194	290637	298744	297140
Cash and bank balance	257050	163435	226245	237084	311414
Total (B)	1077909	1061309	1141261	1275089	1,480,497
Profit and loss: (C) Net loss	204297	260812	273319	274119	236,972
Total (A+B+C)	4397965	4586285	4666731	4793890	4,950,470

Source: Annual Report of NWSC Fy 2063/064

The above table shows the balance sheet of NWSC for the fiscal year 2059/060 to 2063/064. The current liability of NWSC is Rs 967,180 “000”,in 2063/064 Which is high than FY2062/063 and the debtors are increasing instead of decreasing. It denotes that NWSC has been failed to collect its revenue from its customers. It is a great weakness of the corporation. Unless the corporation be able to collect revenue from its customers, it can not achieve its goals and objectives. Moreover, the corporation has a heavy burden to owe current liability due to its high percentage. It is 19.53% of total liability, cash and bank balance is also lying idle by 21.03% of total current assets which is not favorable for the corporation. The current Assets are higher than current liabilities, it means there is sufficient amount of working capital. Except the current assets and current liabilities while viewing all the other aspects NWSC's financial activities are to be restructured to some extent.

4.15 Analysis of Financial Position of NWSC.

Financial analysis is the process of identifying the financial strength and weakness of the firm by properly establishing relationship between the item of the balance sheet and the profit and loss account. Financial analysis can be undertaken by the management of the firm and the parties outside the firm, debtors, creditors, investors and others. The nature of the analysis may be differing depending upon the purpose of the analyst. On the other hand it is important to measure the firms liquidity, Profitability, and solvency position and to assess the firm's operating efficiency. It is their overall responsibility to sec that the resources of the firm's are used most efficiently and that the firm's financial condition is sound. The financial analysis try to seek answer to the following questions.

1) Is the firm in a position to meet the current obligation ?
2) What sources of the long term finance are employed by the firm and what is the relationship between them ? Is their any danger to the solvency of the firm due to the employment of the excessive debt ?
3) How efficiently does the firm uses its assets ?
4) Is the earning of the firm adequate ?
5) What is the position on the return on Investment and for capital employed ?

There are many technique used in analyzing the financial statement. One of them is the ratio analysis. Ratio analysis is one of the powerful tools of the financial analysis. A ratio is defined the "the index or quotient of two mathematical expression" and the relationship between two or more things. In financial analysis ratio is used as an index for evaluating the financial position and performance of the firm. The absolute accounting figures reported in the financial statement do not provide meaningful answer tending of the performance and financial position of a firm. At last ratio may be used to evaluate the company liquidity, efficiency, leverage, and profitability. The ratio may be classified as follows:-

1. Liquidity Ratio
2. Leverage Ratio
3. Profitability Ratio
4. Activity Ratio

4.16 Liquidity Ratio:-

Liquidity ratio measure the ability of the firm to serve its current or short term obligation. In fact analysis of the liquidity needs the preparation of the cash flow statement, but liquidity ratios by establishing the relationship between cash and other current assets to the current obligation provide a quick measure of the liquidity. A firm should ensure that it does not suffer from the lack of liquidity and also that it is not too much highly liquid. The failure of the company to meet its obligations due to lack of sufficient liquidity, will result in bad credit rating, loss of creditor's confidence, or even a law suit resulting to the closure of the company. In case of NWSC, current and quick ratios are used to judge its liquidity position.

A) Current Ratio of NWSC:-

Current Ratio is also known as short term solvency ratio or working capital ratio. This ratio is used to asses the short term financial position of NWSC. In other word it is an indicator of firms ability to meet its short term obligation. This ratio is calculated by using the following formula.

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liability}}$$

Table No.4.14

Calculation of Current Assets Ratio of NWSC from Fy 059/60 to 2063/064

(Rs in million)

Fiscal Year	Current Assets	Current liabilities	Ratios
2059/060	1077.909	525.891	2.05:1
2060/061	1061.309	658.735	1.61:1
2061/062	1141.260	735.655	1.55:1
2062/063	1275.089	857.546	1.49:1
2063/064	1480.497	967.180	1.53:1
Average			

Sources: Annual Report of NWSC, 2063/064.

A ratio greater than one means that the corporation has more current assets than current liabilities. It represents a margin of safety for creditors. For the company 2:1 is considered to be an adequate ratio. If current ration of corporation is less than 2:1 the solvency position of the enterprise is considered as not good. If it is considered as more than 2:1 the company may have excessive investment in current assets which can not produce a good return. The above table shows that current assets are more than current liabilities in all the fiscal year during study period. The maximum and minimum current ratios are 2.05: 1 and 1.49:1 respectively. It shows that the liquidity position of NWSC is not quite satisfactory.

B) Quick Ratio of NWSC.

The quick ratio is the more refined measure of the NWSC liquidity. This ratio establishes relationship between quick or the liquid assets and current liabilities. An asset is liquid, if it can be converted into the cash immediately or reasonably soon without the loss of any value. It is a more stringent measure of liquidity than current ratio. This ratio is calculated by using the following formula.

$$\text{Quick Ratio} = \frac{\text{QuickAssets}}{\text{Currentliobillites}}$$

Table No. 4.15

Calculation of Quick Assets Ratio of NWSC from Fy 2059/060to 2063/64

(Rs in Million)

Fiscal Year	Quick Assets	Current liabilities	Ratios
2059/060	768.623	525.891	1.46:1
2060/061	750.115	658.735	1.34:1
2061/062	850.623	735.655	1.16:1
2062/063	976.345	857.546	1.14:1
2063/064	1183.358	967.180	1.22:1

Sources: Annual Report of NWSC, 2063/064

By analyzing the above table it can be said that the liquidity position of NWSC is satisfactory. The liquidity position of NWSC is sound in all the fiscal years. It is considered as satisfactory when quick ratio is 1:1 NWSC has maintained this standard in all the 5 years. A satisfactory Quick Ratio shows the ability to pay immediate current debt from current assets of the corporation. With reference of Quick ratio it can be said that NWSC has satisfactory liquidity position and it has maintained a good cash balance.

4.17 Leverage Ratio

To analyses the long term financial position of the any business organization, it leverage ratio. This ratio can be calculated also is called long term solvency ratio or capital structure ratio. The long term solvency implies the ability of a company to meet the payment associated with its long-term debts.

A) Total Debt Ratio of NWSC

This ratio shows the relationship between to total debt and total capital of NWSC. The frequently used leverage ratio by NWSC is total debt ratio. This Ratio is calculated by using following formula.

$$\text{Total Debt Ratio} = \frac{\text{Total debt}}{\text{Total debt}\,\Gamma\,\text{Networth}}$$

Table No. 4.16

Calculation of Total Debt Ratio of NWSC from the Fy 2059/060to 2063/64

(Rs in million)

Fiscal Year	Total Debt	Total debt + Net worth	Ratios
2059/060	2346.194	3872.073	0.61:1
2060/061	2553.219	4586.285	0.55:1
2061/062	2679.482	4666.731	0.57:1
2062/063	2898.896	4793.889	0.60:1
2063/064	3008.354	4950.469	0.61:1

Sources: Annual Report of NWSC 2063/064

The above table shows Debt Ratio of NWSC. In all the fiscal years this ratio was lower it means, the corporation was not being able to maintain the standard at satisfactory level. It is considered 2:3 as satisfactory level. This Ratios were almost constant in all the 5 years from 2059/060 to 2063/064 besides a less fluctuation. So the position of corporation regarding debt ratio is not satisfactory. NWSC should improve it in future to get success.

4.18 Activity Ratio

Activity ratios are employed to evaluate the efficiency with which the firm managers utilize its assets. These ratios are also called turnover ratios because they indicate the speed with which assets are being converted or turned out into sales. Activity ratios thus evaluates a relations between sales and the various assets, and presume that there exist an appropriate balance between sales and the various assets. Normally, NWSC uses Fixed assets turnaround total assets turnover.

A) Fixed Assets Turnover Ratio

To know how effectively the fixed assets are utilized in NWSC, the fixed assets turnover ratio of NWSC should be calculated. If there is no effective utilization of fixed assets, financial position of the corporation cannot be sound. This ratio is calculated by using following formula.

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

Table No. 4.17

Computation of Fixed Assets Turnover Ratio of NWSC from Fy 2059/060to 2063/64

(Rs in Million)

Fiscal Year	Sales Revenue	Fixed Assets	Ratios
2059/060	421.618	2063.744	0.2 0 times
2060/061	462.592	2109.607	0.22 "
2061/062	513.329	2768.870	0.19 "
2062/063	530.813	2927.376	0.18 "
2063/064	662.410	2909.313	0.23

Sources: Annual Report of NWSC Inspected 2063/064

This table No. 4.16 shows the fixed assets turnover ratio of NWSC. In the Fy 2059/060 the ratio is 0.20 tunes, likewise in the Fy 2063/064 is 0.23 times. The above calculation shows except in the Fy 061/062 and 062/063. The fixed assets have varied from 2063.744 million to 2909.313 million during the study period. Similarly the gross sales varied from 421.618 million to 662.410 million although the assets turneries ratios are in increasing trend, it is not satisfactory because the corporation can not cover its average fixed assets turnover ratio. It clearly shows that the utilization of Fixed assets is poor. It is because of the weakness in implementing rules and regulations for using fixed assets in corporation properly. NWSC has to utilize its available resources properly to achieve its goals and objectives. So, it can be advised that the corporation should try to maintain the efficient management to utilize its fixed assets effectively.

B) Total Assets Turnover Ratio :

Total assets turnover ratio establishes the relationship between the amount of sales and total assets. This ratio indicates how well the NWSC's total assets are being used to generate its sales. This ratio is calculated by using the following formula.

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

Table No. 4.18

Computation of Total Assets Turnover Ratio of NWSC from Fy 059/060 to 2063/064

Fiscal Year	Sales Revenue	Total Assets	Ratio
2059/060	421.618	4193.667	0.10 times
2060/061	462.592	4325.472	0.11 "
2061/062	513.329	4393.412	0.12 "
2062/063	530.813	4519.77	0.12 "
2063/064	662.410	4713.497	0.14 "

Sources : Annual Report of NWSC, 2063/064

From the above table it is seen that the sales revenue of each fiscal year is in increasing trend. It shows that the investment of total assets has been increased in each fiscal year during the study period. The sales revenue has varied from Rs 421.618 million to Rs 662.410 million and the investment of total assets has varied. From Rs. 4193.667 million to Rs 4713.497 million from the Fy 2059/060 to 2063/064 respectively.

In the Fy 2060/061, the assets turnover ratio is 0.11 which represents that NWSC has earned Rs. 0.11 sales only for a rupee of investment in its total assets and in the fiscal year 2063/064 it has earned Rs 0.14 for a rupee of investment. This ratio is a significant ratio since it shows NWSC's ability of generating sales from all the financial resources committed to firm. Although the turnover ratio is in increasing trend, it is not satisfactory.

4.19 Profitability Ratio:

A company should earn profit to survive and grow over a long period of time. Profit are essential, but it would be wrong to assume that every action initiated by management of a company should be viewed at maximizing profit. Therefore, profitability shows the overall efficiency of the company. Profitability ratios are measure of its overall efficiency. Generally, profitability ratios can be calculated in term of the company's sales, investment and earning and dividends. Applying the profitability ratio, profit position of NWSC can be found. The following are the important profitability ratios of NWSC.

A) Net profit Ratios :

Net profit ratio measures the overall profitability of a Business by establishing the relationship between net profit and net sales. Net profit is obtained when operating expenses and income tax are subtracted from the gross profit. The net profit ratio is measured by dividing net profit after tax by sales.

Net profit Ratio: $\frac{\text{Net profit after tax}}{\text{Net sales}} | 100$

Table No.4.19

Computation of Net Profit Ratio of NWSC from FY 2059/060 to 2063/064

(Rs. in million)

Fiscal Year	Sales Revenue	Net Profit	Ratio
2059/060	421.618	-30.281	-0.072
2060/061	462.592	-47.732	-0.103
2061/062	513.329	-45.70	-0.089
2062/063	530.813	-42.914	-0.081
2063/064	662.410	35.698	0.054

Sources: Annual Report of NWSC, 2063/064.

The above table shows the net profit ratio of NWSC. This ratio is negative in all the years except the final year of study period. The huge amount of investment of

NWSC to increase its profit results in negative profit, which indicates bad position of NWSC. NWSC should reduce its unnecessary expenses and leakage to increase its profit otherwise, its condition will be miserable in future. The increasing negative net profit in each year clears the bad position of NWSC, however the positive result in the final year, ie. 063/064 is hopeful in the future.

B) Return on Total Assets:

The relation between net profit and utilization of the assets of the company is known as return on assets. The main objective of this ratio is to determine how efficiently the fund supplied by the total assets have been used by the management. This ratio is calculated by using following formula.

$$\text{Return on Total Assets} = \frac{\text{Net profit after tax}}{\text{Total assets}} \times 100$$

Table No. 4.20

Computation of Return on Total Assets from FY 2059/060 to 2063/064

Fiscal Year	Net Profit	Total Assets	Ratio
2059/060	- 30.281	4193.668	- 0.0072
2060/061	- 47.732	4325.472	- 0.0011
2061/062	- 45.70	4393.412	- 0.0104
2062/063	- 42.94	4519.771	-0.0095
2063/064	35.698	4713.497	0.00757

Sources: Annual Report of NWSC, 2063/064

The above table shows the return on total assets ratio of NWSC. The amount of total assets is increasing every year but its return on total assets ratios are negative all the years except the year 2063/064, which reflects very low productivity of assets. From this analysis it is concluded that the management group of NWSC must be conscious to manage its assets efficiently for increasing the productivity of assets.

4.20 *Overhead Budget of NWSC.*

NWSC prepares its overhead budget in a combined way, which gives its name as operating expenses budget. The following expenditures are included by this budget.

A. Employee Expenses :

1. Employees' salaries and facilities
2. Employee welfare expenses
3. Pension and gratuity to Employee.

B. Power and Fuel :

1. Fuel for vehicles
2. Fuel for other uses
3. Power

C. Chemical :

Chemical (With lab)

D. Repair and Maintenance :

1. Repairs and Maintenance of Building
2. Repair and Maintenance of Vehicle, Equipment, Furniture.
3. Repair and Maintenance of other system.

E. Other Administrative Expenses :

1. Audit fee and expenses
2. Printing and Stationary
3. Advertisement
4. Newspaper
5. Services
6. Rent
7. Expenditure of BOD
8. Contingency expenses
9. Tanker operation expenses.
10. Training

F. Interest

G. Depreciation

4.21 Capital Expenditure of NWSC.

Capital budgeting is the process of planning and controlling strategic and tactical expenditure for the expansion and construction of investment in operating assets. Capital expenditure on includes fixed assets as property, plant, equipment, major renovation and patents. In capital expenditure projects funds are tied up for relatively long period of time. Capital expenditure plan enables management to plan the amount of resources that should be invested in capital additions. A major issue in controlling the actual expenditures are consistent with the plans and those funds are available when the expenditures are incurred.

NWSC prepares tactical and strategic capital expenditure. Plan tactical capital expenditure is prepared for one year and which is published in capital expenditure budget of NWSC, but strategic capital expenditure is not published. NWSC's capital water production plan, repair and maintenance equipment and other with the help of it NWSC estimates its cash requirement and get support to prepare cash budget.

4.22 Identification of Cost Variability

The knowledge of cost behavior is very important in planning and controlling of cost so, identification of cost behavior is necessary. While accounting to the cost behavior, cost can be broadly classified into two types. First is fixed cost and second is variable cost. Fixed cost are those cost which remain constant in total for a certain range of output for a certain time. It doesn't change within an activity level either there is increase or decrease in output. But variable cost is of fluctuating nature. It increases or decreases according to the increase or decrease of output. Variable cost has a direct relationship with output. Those expenses that are neither fixed nor variable nature are called semi-veriable cost which have some characteristics of both fixed and variable cost.

Classification of costs into fixed and variable plays very important role in management to plan and control the cost. It helps to determine the volume of operation desired to maintain the corporation's profitability. But there is maintained no any clear-cut boundary about cost classification as fixed and variable components of NWSC. So it is difficult to classify the cost whether it is fixed or variable. The classification of expenses in fixed and variable are as under mentioned.

Table No. 4.21

Identification of Cost Fy. 2063/064

(Fig. in '000')

S.No.	Expenses item	Behavior	Variable cost	Fixed cost
1	Salaries	Fixed		157375
2	Allowance	Fixed		15915
3	Overtime	Fixed		10730
4	TADA	Fixed		2200
5	Leave Salary	Fixed		10465
6	Insurance	Fixed		6995
7	Gratuity	Fixed		6400
8	Medical expenses	Fixed		14300
9	Dress	Fixed		3535
10	Repair and maintenance of pump or machine.	Fixed		
	Fixed 70%			9854.6
	Variable 30%		4223.4	
11	Water processing	Fixed		12835
12	Vehicle's fuel	Semi-variable		
	Fixed 70%			8909.6
	Variable 30%		3818.4	
13	Fuel (others)	variable	685.00	
14	Power	semi-variable		
	Fixed 70%			72940
	Variable 30%		31260	
15	Repair of vehicles and equipment	Fixed		9955
16	Repair and maintenance of building	Fixed		5460
17	Audit fee and expenses	Fixed		631

18	Printing and stationary	Fixed		11350
19	Advertisement	Variable	1400	
20	Newspapers	Fixed		507
21	Service	Semi-variable		
	Fixed 70%			4430.3
	Variable 30%		1898.7	
22	Rent	Fixed		3732
23	Board of director expenses	Fixed		700
24	Contingency expenses	Variable	8000	
25	Tanker operation expenses	Variable		
26	Emergency expenses	variable	10000	
27	Other non durable materials	variable	3268	
28	Training	variable	1000	
29	Interest	Fixed		61755
30	System repair and maintenance	variable	65000	
	Total		130553.5	495974.5

Source : Budget Book of NWSC, 2063/064

4.23 Cost Volume Profit Analysis.

The analysis of the relationship between cost volume and profit is known as cost volume profit analysis. It is a device which is used to determine the usefulness of the profit planning process of the firm. Infact, the entire field of profit planning becomes associated with the CVP inter-relationship. However, it should be noted that the formal profit planning and control involves the use of budgets and other forecasts and CVP analysis simply provides an overview of the profit planning process, and helps to evaluate the propose and reasonable of such budget and forecasts.

CVP analysis of Nepal water supply corporation is based on the following assumption.

1. Cost Volume structure is based on the accounting data of the Fy 2063/064

2. Activity base is selected in term of sold unit.
3. Selling price, variable cost volume ratio and fixed cost per annum are assumed to be remaining constant.
4. Cost can be classified as fixed and variable cost.
5. Miscellaneous income is excluded from cost volume profit relationship, which is a non operating income.

For the CVP analysis of NWSC, the data of Fy 2061/062 are as follows:

Total sales volume = 159 MLD

Total Sales revenue = 662410 (in thousand)

Total variable cost = 130553.5 (thousand)

Total Fixed cost = 495974.5 (thousand)

Total cost (Fixed + variable) = 626528 (thousand)

On the basis of the above data following calculations are made to calculate the break-even point and to analyze the cost volume profit analysis.

(a) Variable Cost Volume Ratio (V/V ratio)

$$\text{V/V ratio} = \frac{\text{Total variable cost}}{\text{Total sales revenue}}$$

$$= \frac{130553.5}{662410}$$

$$= 0.197$$

$$= 19.7\%$$

The V/V ratio 0.197 shows that the proportion of variable cost is Rs. 0.197 to each Rs of sales revenue.

(b) Profit Volume Ratio (P/V ratio)

It shows the proportion of contribution margin left for fixed cost in per Rs of sales. The following formula is used to calculate the P/V ratio.

$$\text{P/V ratio} = 1 - \frac{\text{Variable cost}}{\text{Sales revenue}}$$

$$= 1 - \frac{130553.5}{662410}$$

$$= 1 - 0.197$$

$$= 0.80\ \%$$

We can calculate the Break-Even point of NWSC with the help of these P/V and V/V Ratios.

$$\text{BEP Rs} = \frac{\text{Total Fixed cost} - \text{other operating income}}{\text{P / V ratio}}$$

$$= \frac{495974.5 - 0}{0.80}$$

$$= 619968.125 \text{ (in thousand)}$$

The above calculation shows that NWSC will be at break even when the sales revenue will be Rs. 619968.125 (thousand). The existing sales revenue 662410 thousand is above the BEP sales. It clearly indicates that the position of NWSC in term of cost volume profit analysis is satisfactory in the fiscal year 2061/062 but in all the other years during the study period the sales revenue is below the break-even point so that the corporation is in loss.

4.24 Variance Analysis

The term variance refers to the deviation of the actual from the budget due to various causes. variance analysis is the process of calculating the deviation of actual from budgeted and interpreting the result. Variance analysis helps to ascertain the magnitude of each of the variance and causes of variance so that corrective actions can be taken. In variance analysis, when actual results are better than budgeted , favorable variance arises. When actual results are not better than budgeted, unfavorable variance arises.

Normally, the following variance of NWSC has been analyzed for five fiscal years.

1. Sales variance
2. Production variance.

4.25 Sales Variance of NWSC

The deviation of the actual from budgeted sales unit of NWSC is called sales unit variance. When actual sales is better than budgeted, favorable variance arises other wise, unfavorable it becomes. It is usually an indicator of measuring efficiency or inefficiency NWSC.

The following table shows the sales variance of NWSC of the Fy 2059/060 to 2063/064

Table No. 4.22

Sales Variance of NWSC From Fy 2059/060 to 2063/064

Fiscal year	Budgeted sales	Actual sales	variance	Remarks
2059/060	122	120	2	unfavorable
2060/061	144	142	2	unfavorable
2061/062	150	145	5	unfavorable
2062/063	172	170	2	unfavorable
2063/064	160	159	1	unfavorable

Source: Annual Report and Budget Book of NWSC of 2063/064

The above table shows the sales units variance 059/060 to 063/064of NWSC. According to this table sales units variance is unfavorable in all the fiscal year. So, responsible department should be accountable for this unfavorable sales variance and take corrective action effectively to minimize the adverse effect of such unfavorable variances.

4.26 Production Variance of NWSC:

Production variance is calculated by comparing the budgeted and actual production units of NWSC. If the variance is favorable, it proves the production efficiency of NWSC and vice versa.

The following table shows the production variance of NWS from the Fy 2059/060 to 2063/064.

Table No. 4.23

Production Variance of NWSC from Fy 2059/060 to 2063/064

(Unit in MLD)

Fiscal year	Budgeted production	Actual production	Variance	Remarks
2059/060	217	203	14	unfavorable
2060/061	259	243	16	unfavorable
2061/062	273	247	26	unfavorable

2062/063	293	269	24	unfavorable
2063/064	254	244	10	unfavorable

Source: Annual Report and Budget Book of NWSC.

The above table shows the production units variance of 2059/060 to 2063/064 of NWSC. According to this table production units variance is unfavorable in all the fiscal years. So the corporation should be sensitive for this situation and corrective action should be taken effectively to minimize the gaps between budgeted and actual production, and correct the adverse effect of such unfavorable variances.

4.27 Flexible Budget of NWSC

A flexible budget is a set of alternative budget for different level of activities. This budget shows the budgeted revenue, cost and profit for different level of business activities. It is a budget which can be used to evaluate the efficiency of a department throughout the business even if the actual business activity differs from the management's original estimates. According to Institute of cost and works account "A budget which by recognizing the difference between fixed, semi-fixed and variable costs is designed to change in relation of the level of activity attained".

NWSC has no practice of preparing flexible budget. According to the given data of NWSC, flexible budget has been prepared as shown below. For preparing flexible budget, it is assumed that sales revenue of 2063/064 is 100% level of activity. Similarly the variable cost ratio is also assumed coustant at different level of activity. Fixed cost at different level of activity is also constant. The flexible budget of NWSC from 90% to 120% level of activity is shown below.

Table No. 4.24

Flexible Budget

(Fig in 000')

Description	Activity levels in percentage			
	90%	100%	110%	120%
Sales revenue	596169	662410	728651	794892
Less variable cost @30% of	178851	198723	218595	238468

sales				
Contribution Margin	417318	763687	510056	556424
Less fixed cost.	495974.5	495974.5	495974.5	495974.5
Net income/loss	(78656.5)	(32287.5)	14081.5	60449.5

Source : NWSC, Head office, Tripureshwor KTM.

From the above table the corporation can not earn a profit up to 100% of its capacity utilization. To earn profit, The corporation should utilize its capacity more than 100%. It seems only in profit when the corporation utilizes its capacity in 110%

The variable cost is 20% of sales. Similarly the contribution margin is 70% of sales. The corporation is suffering from high fixed cost. Unless and until, it is not reduced, NWSC will not make profit.

4.2 Major Findings:

After analyzing the various functional budgets of NWSC during the period of 5 years from 2059/060 to 2063/064, It is found that this corporation has been suffering from various internal as well as external problems in the process of formulating and implementing profit plans. The corporation has been found to be operating in loss in each year except in the final year. It is because of its high expenses in comparison to its income. So, the must considerable thing is to control its cost.

The major findings after the detail analysis of budgeting process of NWSC are as follow.

(1) It is found that there is a lack of cost classification and control programmer. There is no proper system of segregation of cost into fixed and variable.

(2) NWSC has not been able to meet the increasing demand of water due to the lack of suitable technological support and expansion policy.

(3) Actual sales are more fluctuating than budgeted sales, but budgeted production is found to be more fluctuating than actual production.

(4) No proper planning is seen in production budget.

(5) NWSC is suffering more loss due to high fixed costs.

(6) Actual sales are always less than actual production due to high leakage. Percentage of leakage is about 35%. It is the main problem of NWSC which affects it profit.

(7) The financial position of NWSC is not satisfactory.

(8) Overhead expenses are not classified systematically which create difficulty in analyzing expenses effectively.

(9) The corporation is not being able to earn profit during the study period except the Fy 2063/064

(10) Account receivable and average collection period are in increasing trend during the study period.

(11) There are perfect correlations between budgeted and actual sales and budgeted and actual production.

(12) The corporation pays high amount of interest each year for long term loan.

(13) NWSC has no clear-cut vision and concept of comprehensive profit planning system.

(14) NWSC does not prepare detail cash budget showing all the sources and uses of cash.

(15) Capital expenditure budget of NWSC has not been properly made.

(16) NWSC's liquidity ratios were satisfactory but profitability rations were not satisfactory.

(17) NWSC has not maintained its periodic performance report systematically.

(18) NWSC is not being able to maintain BEP sales except in the Fy 063/64.

(19) NWSC has no practice of preparing flexible budget.

CHAPTER- FIVE

Summary, Conclusions and Recommendations

5.1 Summary

Nepal is a small, landlocked country situated in south Asia and has been served by many public enterprises managed by the government. Such enterprises have been established for the purpose of providing employment opportunities, mobilizing means and resources and earning reasonable profit necessary for the national development. Most of the public enterprises established in Nepal have been suffering from a serious problem of under utilization of their capacity due to the lack of clear cut goals and objectives. NWSC, the state owned entity which is the prime supplier of drinking water in country was established in 2046 B.S. under the NWSC act 2046 to regulate the drinking water supply for the community and to construct, manage and control of sewerage system in the country.

Profit plan is the lifeblood of the organization which not only keeps it alive but also assures the future, creates soundness on it and helps to public enterprises to improve over all aspects of their operation. And budgeting has been recognized as the accepted procedure for profit planning. The primary purpose of budgeting is profit planning and control. It is also said as the key to productive financial planning and control. How effectively the business is operated is fully depend upon as to what extent the management follows proper planning and how the budget are prepared with the consideration of the planned profit the business. However profit planning and control is an important tool for management, it has some limitations also. The user of profit plan must be having full knowledge about these limitations which are as following.

(a) It is based on estimates.
(b) It has danger of rigidity.
(c) It should be applied for long period.
(d) Its execution is not automatic.
(e) It is not substituted for management.
(f) The installation of it is costly.

(g) It should be continuously evaluated.

(h) Chance of lower morale and productivity.

The application of profit planning and control is also no free from the problems and such problems should be solved by proper and effective management. Some usual problems that arise in the application of profit plan can be listed as follow.

(a) Developing a realistic sales plan.

(b) Developing management sophistication in its application.

(c) Developing a realistic objectives and standards.

(d) Adequate communication of the attitude, policies and guide-line by higher levels of management.

(e) Attaining managerial flexibility in application of the system.

(f) Updating the system to harmonize with the changing environment within which the management operates.

Profit planning, however having these limitations and problems is an important management tool, when properly executed it can result the business in best. Therefore, this should be applied with adequate knowledge and should try to avoid its limitations.

The main objective of planning at business is to increase the profit. Planning can be broadly divided into two groups as functional plan and financial plan. Functional plan includes, sales plan, purchase plan, labour plan, production plan, expenses plan, etc. Financial plan includes, cash flow plan, capital expenditure plan, projected income statement, and projected balance sheet. Profit plans are prepared for two time dimensions, strategic for (5 to 10 years) plan and tactical for (one year detailed by interim time period).

An effective implementation and continuous follow up system is very important for budgeting or profit planning and control system. Use of functional budgets as a tool of profit planning is not a new concept. It is well organized and widely applied technique of profit planning and control. But due to the poor industrialization in Nepal, this concept is not widely used.

The study has tried to examine the effectiveness of profit planning and the use of budgets as a tool for profit planning in public enterprises. Nepal water supply corporation (NWSC) has been taken as reference public enterprise.
NWSC was established in 2046. The head office of Nepal water supply corporation is located at Tripureshwor, Kathmandu.

The study has tried to analyze and examine the practice, procedure and techniques of preparing various functional budgets. It has also tried to answer the certain questions stated.

The basic objective of this study is to examine the impact of budgeting on profitability of Nepalese public enterprises. In addition other sub-objecting are laid down with consistent to the basic objective. For the fulfillment of these objectives, various functional budgets are analyzed in detail.

The scope of the study is limited for micro level analysis the five years (FY 2059/2060 to 2063/2064). Trend of data have been used to analyze the quantitative data wherever necessary.

The study has been organized in five main chapters consisting of introduction, literature review, research methodology, and presentation, analysis of data and summary, conclusion and recommendation.

5.2 Conclusions

After analyzing the present practice of budgeting in respect of profit planning in Nepal Water Supply Corporation, the following conclusion can be drawn.

(1) After the detailed study it is found that there is not complete and comprehensive budgeting system. NWSC does not prepare long-term strategic profit plan, but it prepares only a short term profit plan which is usually refereed as budget. The time period covered by the budgets is only one fiscal year.

(2) There is no systematic performance evaluation for employees, and no fair system of reward and punishment to employees on the basis of their work performance. There is no piece wage system of salary

payment. All employees get fix amount as a salary at the end of month.

(3) Shortage of water due to old network system and high rate of leakage percentage of water has become a great problem for rapidly growing population, especially in Kathmandu valley and other urban areas.

(4) There is no systematic and scientific way of preparing overhead budget in NWSC. All the expenses of corporation are shown as operating expenses. Moreover, there is no system of classifying the cost as fixed cost and variable cost.

(5) The BEP sales of NWSC are above the actual sales except in the FY 2063/064 during the study period.

(6) NWSC has not been able to use its full capacity of production to meet the demand of consumers due to the lack of technical knowledge and manpower for executing the efficient plans and programmer relating to the production and the distribution of water.

(7) Various statistical tools show the positive relationship between budgeted sales and actual sales. Least square straight line trend of net profit of NWSC for five years analysis shows positive for future, but it is fluctuating which is a serious matter for thinking.

(8) Actual sales and actual production are less than budgeted sales and production.

(9) NWSC has been facing more problems in profit planning system. Management of the corporation has not adequate knowledge about the nature of profit planning, and Co-ordination between managerial responsibility. So it has no satisfactory achievement of specific goals that were targeted.

(10) NWSC is suffering from high fixed cost as there is no effective cost control programmer.

(11) NWSC does not prepare capital expenditure budget. Capital expenditures are made according to the necessity, but it does not use any appropriate method of evaluating capital addition.

(12) Nepal Water Supply Corporation has not developed the alternative way to earn profit. Neither has it prepared periodical performance report.

(13) Duties and responsibilities are not identified between various levels of management.

(14) NWSC can improve its profitability by utilizing idle capacity and effective cost control programmer.

5.3 Recommendations

After the detail analysis of profit planning system of Nepal water supply corporation as a reference study of the social enterprises of Nepal following points can be recommended to improve the formulation and implementation of profit plans.

(1) Nepal Water Supply Corporation should develop its specific goal for the coming budgeted year. Such goals may be net profit on sales, return on capital employed, production, sales, etc. without such goals, the operation of NWSC may not be effective. To achieve this goal, a good co-operation and motivation between the management of all levels with healthy working environment and the environment of trust, co-operation and good understanding amongst all employees from top to bottom.

(2) To bring the effectiveness in corporation, the work performance of the employees needs to be evaluated fairly and increase their efficiency by making the provision of reward and punishment for good and bad performance.

(3) It should be free from government's interference in setting the strategies and policies to fulfill the objectives. Board of director and general manager should be free to take their responsibility and

they should be appointed for some long period. A capable person at a right place.

(4) The corporation should make the effective plans for producing and supplying sufficient amount of water utilizing the sources available to fulfill the demand of water for increasing population in urban areas.

(5) The duties and responsibilities of the various levels of management should be clearly identified so that the targeted objectives of the corporation can be achieved by the effectiveness of management.

(6) NWSC should emphasize the internal financing to minimize the burden of high payment of interest in long term loan. It can issue share to refund the debt for this. So, NWSC must restructure its capital.

(7) The management of corporation should define cost clearly. Operating as well as non-operating expenses should be controlled to increase the profit of NWSC. Similarly, the unproductive expenses should be curtailed cost reduction program should be introduced for each responsibility centre.

(8) NWSC should develop its overhead in a well classified as well as scientific way .It should include all expenses related with production in direct overhead or installation overhead. Similarly, it should classify administrative overhead, selling and distribution overhead systematically.

(9) Capital expenditures should be planned in advance and discounted cash flow techniques should be applied to evaluate the proposals. Cash budget should be developed separately and policy to finance the cash deficit and the utilization of excess funds should be formulated.

(10) There should be effective utilization of fixed assets by developing capital budgeting techniques more effectively. NWSC should also properly analyze the application of fund through different ways.

(11) Small drinking water projects with low cost should be executed by controlling leakage of water to fulfill the need of pure drinking water throughout the kingdom.

(12) To increase the financial performance of NWSC; capital, manpower, available assets and resources should be highly utilized rather than increasing the volume. The high current ratio of NWSC, it indicates the idle holding of assets so it should be analyzed and restructured.

(13) To improve the financial condition of NWSC, cost volume profit relationship, contribution margin approach and different ratios must be considered while formulating profit plan and to increase profitability.

(14) Finally, a systematic approach should be made towards comprehensive profit planning. This can considerably contribute to increase the profitability and efficiency of the corporation. To adopt this approach, planning experts should be hired or existing planners should be trained.

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Appendix – 1

Budgeted and Actual Sales of NWSC in Unit (MLD) From the FY 2059/060 to 2063/064

Fy	(X)	$x(X-\overline{X})$	u^2	(Y)	$y(Y-\overline{Y})$	V^2	xy
059/060	122	-27.6	761.76	120	-27.2	739.84	750.72
060/061	144	-5.6	31.36	142	-5.2	27.04	29.12
061/062	150	0.4	0.16	145	-2.2	4.84	.88
062/063	172	22.4	501.76	170	22.8	519.54	510.72
063/064	160	10.4	108.16	159	11.8	139.24	122.72
			$\sum u^2 = 140$			$\sum V^2 = 1430.8$	xy X1412.28

(I) Standard deviation ($\sigma x = \sqrt{\frac{x^2}{N}}$ X $\sqrt{\frac{14.3.2}{5}}$ X16.75 of Budgeted sales.

(II) Standard deviation of actual sales $(\pm y \text{ X} \sqrt{\frac{y2}{N}} \text{ X} \sqrt{\frac{1430.8}{5}} \text{ X}16.92$

Calculation of Arithmetic Mean

$$\overline{X} = \frac{\sum X}{N} = \frac{748}{5} = 149.6$$

$$\overline{Y} = \frac{\sum Y}{N} = \frac{736}{5} = 147.2$$

Calculation of Coefficient of Variance.

Budgeted.

$$CV = \frac{\sigma}{\overline{\overline{X}}} \times 100 = \frac{16.75}{149.6} \times 100 = 11.2\%$$

Actual

$$CV = \frac{\sigma}{\overline{\overline{Y}}} \times 100 = \frac{16.92}{147.2} \times 100 = 11.5\%$$

Appendix – 2

Budgeted and Actual Production of NWSE in unit MLD

From FY 2059/060 to 2063/064

(in MLD)

	Budgeted	Actual	u	v			
Fy	X	Y	$(X-\overline{Y})$	$(Y-\overline{Y})$	u^2	v^2	uv
059/060	217	203	-42.20	-38.20	1780.84	1459.24	1612.04
060/061	259	243	-0.20	1.80	0.04	3.24	-0.36
061/062	273	247	13.8	-5.80	190.44	33.64	-80.04
062/063	293	269	33.8	27.80	1142.44	772.84	939.64
063/064	254	244	-5.2	-2.80	27.04	7.84	14.56

	$\sum$ X = 1296	$\sum$ Y = 1206			$\sum$ u2= 3140.8	$\sum$ v2= 2276.80	$\sum$ uv= 2485.84

Calculation of mean ($\overline{X}$)

$$\overline{X} = \frac{\sum X}{N} = \frac{1296}{5} = 259.2\,\text{MLD}$$

$$\overline{Y} = \frac{\sum Y}{N} = \frac{1206}{5} = 241.2\,\text{MLD}$$

Calculation of S.D. (σ)

$$\sigma x = \sqrt{\frac{1}{N} \times \sum u^2} = \sqrt{\frac{1}{5} \times 3140.8} = 25.063$$

$$\sigma y = \sqrt{\frac{1}{N} \times \sum v^2} = \sqrt{\frac{1}{5} \times 2276.80} = 21.34$$

Calculation of C.V.

$$\text{CV of } \overline{X} = \frac{\sigma x}{\overline{X}} = \frac{25.063}{259.2} = 9.67\%$$

$$\text{CV of } \overline{Y} = \frac{\sigma y}{\overline{Y}} = 8.895$$

Fitting Straight – Iine Trend

	Production			
Year	Actual (Y)	'X' Year's mid year	X^2	XY
059/060	203	-2	4	-406
060/061	243	-1	1	-243
061/062	247	0	0	0
062/063	269	1	1	269
063/064	244	2	4	488
	$\sum$ Y= 1206		$\sum X^2 = 10$	$\sum$ XY=108

$$a = \frac{\sum y}{N} = \frac{1206}{5} = 241.20$$

$$b = \frac{\sum XY}{\sum X^2} = \frac{108}{10} = 10.8$$

Yc = 241.20 + 10.8X

2065/066 = 3 years

Y 065/066 = 241.20 + 10.8×3

= 241.20 + 32.4

= 273.6

Appendix – 3

Actual sales and actual production of NWSC in unit from 2059/060 to 2063/064

Fy	Actual Sales (X)	Actual Prod^{n}Y	$(X-\overline{X})$	$(Y-\overline{Y})$	u^2	v^2	uv
059/060	120	203	-27.2	-38.20	739.84	1459.24	1039.04
060/061	142	243	-5.2	1.80	27.04	3.24	-9.36
061/062	145	247	-2.2	5.8	4.84	33.64	-12.76
062/063	170	269	22.8	27.8	519.84	772.84	633.84
063/064	159	244	11.8	2.8	139.24	7.84	33.04
	$\sum X = 736$	$\sum Y = 1206$			$\sum u2 = 1430.8$	$\sum v2 = 2276.80$	$\sum uv = 1683.8$

Calculation of mean $(\overline{X})$

$$\overline{X} = \frac{\sum X}{N} = \frac{736}{5} = 147.2$$

$$\overline{Y} = \frac{\sum Y}{N} = \frac{1206}{5} = 241.2$$

Calculation of Standard Deviation.

$$\sigma x = \sqrt{\frac{1}{N} \times \sum u^2} = \sqrt{\frac{1430.8}{5}} = 16.92$$

$$\sigma y = \sqrt{\frac{1}{N} \times \sum v^2} = \sqrt{\frac{2276.80}{5}} = 21.34$$

Calculation of Coefficient of Variance

$$\text{CV of } \overline{X} = \frac{\sigma x}{\overline{X}} = \frac{16.92}{147.2} = 11.49\%$$

$$\text{CV of } \overline{Y} = \frac{\sigma y}{\overline{Y}} = \frac{21.34}{241.2} = 8.85$$

Calculation

$$r = \frac{\sum uv}{\sqrt{\sum u^2 \times \sum v^2}} = \frac{1638.8}{\sqrt{1430.8 \times 2276.8}}$$

$$v = \frac{1638.8}{1804.894856} = 0.908$$

Calculation of PEr

$$P_{Er} = \frac{0.6745(1 = r^2)}{\sqrt{5}}$$

$$P_{Er} = \frac{0.6745\{1-(0.908)^2\}}{\sqrt{5}}$$

$$P_{Er} = \frac{0.6745\{1-0.824464\}}{2.236} \qquad P_{Er} = \frac{118399}{2.236} \qquad P_{Er}$$

=0.0529

Appendix - 4

Profit and Loss A/C from the Fiscal Year 2059/060 to 2063/064(Fig in '000')

Particulars/Fy	Amount				
	059/60	**060/061**	**061/062**	**062/063**	**063/064**
Income					
Water Revenue (After Rebate)	421619	462593	513330	530814	662410
Other income	-	71414	69377	68081	64069
Total		534007	582706	598895	726479
Expenditure					
Production	136992	149797	147531	156808	167584
Distribution	87853	101374	93859	100565	1 05963
Quality control	5887	6168	8208	7828	8930
Electro-mechanical	12738	16188	10871	12470	12461
Sewerage	136113	12843	10381	10724	10370
Consumer's Account	38278	40087	40403	43655	45999 149113

Administrative Exps.	114954	119346	114831	114141	23764
Provision for D/D	28280	180932	27508	17636	98
Write off (stock)	-	-	688	775	-
Provision for Gratuity Fund	-	14919	20009	17018	
Total Expenditure	438595	478816	474289	481620	524282
Operating Surplus/deficit	(16977)	55191	108226	117275	202197
Other income	65049	-	-	-	-
Net Operating surplus/deficit	48073	-	-	-	-
Interest payable	(31957)	(48115)	(52220)	(56188)	(61756)
Depreciation	(95398)	(102286)	(108385)	(151717)	(152490)
Depreciation transferred from Capital Reserved	49002	47478	47608	47715	47738
Net Profit / Loss	(30281)	(47732)	(4570)	47715	35699
Last year's Adjustment	(4955)	(8783)	(7937)	(42914)	1448
Up to Previous year (net loss)	(169061)	(204212)	(260812)	(273318)	(274118)
Accumulated loss carried to B/S	(204297)	(260812)	(273319)	(274118)	(236972)