

CHAPTER-I

INTRODUCTION

1.1 General Background

Profit planning and control is an important approach, mainly in profit-oriented enterprises. Profit, planning is merely a tool of management. It is not an end of management or substitute of management. It facilitates the managers to accomplish managerial goals in a systematic way.

The management is efficient if it is able to accomplish the objectives of the enterprises. It is effective, when it accomplishes the objectives with minimum effort and cost. In order to attain long-range efficiency and effectiveness, management must chart out its course of action kin advance. A systematic approach that facilitates effective management performance is profit planning and control or budgeting. Budgeting is therefore an integral part of management. In a way, a budgetary control, system has been described as a historical combination of a *"goal-setting machine for increasing an enterprises profit, and goal-achieving, machine for facilitating organizational co-ordination and planning while achieving the budgeted targets."*

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

Comprehensive profit planning and control (profit planning and control) is a new term in the literature of business . Though it is a new term, it is not a new concept in management. The other terms, which can be used in same context, are comprehensive budgeting, managerial budgeting and simply budgeting. The

profit planning and control can be defined as process/technique of management that enhances the efficiency of management.

Public enterprises play the major roles in achieving the twin objectives of social and economic development in envisaged in the nation policy. Public enterprises set by the government. It has to be efficient and at the same time accountable to the government and the public. Public enterprises are autonomous bodies which are owned and managed by the government and which provides goods and services for a price. The ownership with the government should be 51% or more to make entity public enterprise. They have been established in many sectors for the overall development of the county with different goals and objectives. In Nepal, some public enterprise have been setup under various legal entities such as (1) Manufacturing PEs i.e Janakpur cigarette factory, Hetauda cement factory, Udayapur cement factory etc (2) Commercial PEs (3) Financial PEs (4) Public Utilities PEs (5) Social service PEs.

1.2. A Brief Introduction of Public Enterprises

Public enterprises is an institution operating a service of an institution operating a service of an economic character in behalf of the government, but as an independent legal entity, largely autonomous in its management, through responsible to the public through government and parliament and subject to some direction by the government. Public enterprise is equipped on the other hand with independent and separate funds of its own and the legal and commercial attributer of the commercial enterprise.

According to Friedman, "Public enterprise is an institution operating a service of an social character in behalf of the government, but as independent legal entity, largely autonomous in it's management, through responsible to the public, through government an parliament and subject to some direction by the

government, equipped on the other hand with independent and separate funds of it's own legal and commercial attributer of a commercial enterprise".
[Friedman, 1998:173]

1.2.1. Public Enterprises in Nepal

Nepal Bank Ltd., a commercial bank was the first public enterprise to have a separate legal entity in Nepal. During Second World War, some other public enterprises were established; however they could not make more progress.

Nepal started its planned economic development in 1956 which launching of first five-year plan. Since then the number of public enterprises has been increased substantially in the various field of national economy. There are 64 public enterprises. Some of them are in privatization process. Public enterprises can be classified as follows:

- 1) Manufacturing enterprises
- 2) Commercial enterprises
- 3) Financial enterprises
- 4) Public enterprises
- 5) Development or service enterprises

1.3. Introduction to Nepal Oil Corporation Limited

Nepal Oil Corporation Limited (NOC) was established on 10th January 1970 by the government of Nepal under the "Company Act 2021(1964)" as a state owned trading enterprises to deal with the import, storage and distribution of various Petroleum Products in the country. Government of Nepal owns 98.36% of its share and rest is contributed by four other state owned enterprises, namely Rastriya Beema Sansthan, National Trading Limited, Nepal Bank Ltd. and Rastriya Banijya Bank.

In the very beginning, the trading activities of NOC were started by storing two drums under the leadership of Late Mr. Subarna Bikram Thapa appointment by the government Nepal. His persistent endeavor to develop NOC had resulted more than 30000 Kilo Liters (KL) of storage facilities for petroleum products in different development regions of Nepal.

NOC is the key supplier of energy in the country. It supplies petroleum products to meet a significant part of energy requirements of the people. Energy is an essential requirement of life and development process. So, as a premier energy supplier, NOC is fully aware of the growth trend and changing consumption pattern in the energy sector. It has geared its institutional resources in the past to meet this requirement and it will expand and strength its capacity to meet the needs of future. With the advancement of air and road transport and industrialization, the demand of petroleum product has gone in increasing. Due to the shortage of firewood for fuel and rapid urbanization have also increased the demand of petroleum products. According to NOC, the demand of petroleum product goes is increasing by 10-15% per year.

The objective of corporation is to ensure smooth and uninterrupted distribution of petroleum products in the kingdom by negotiating with the petroleum exporting countries buying from the soft market. The refined petroleum fuel bought from the soft market. The refined petroleum fuel bought from oil-exporting countries is transported to the seaports of Indian border. Thus, imported oil is given to Indian Oil Corporation (IOC) on the condition of receiving the same amount in the Nepalese border and imported oil is distributed throughout the kingdom by agent or by corporation itself. The action plan has been effective since his agreement of NOC with IOC on 10th June 1990. Before this date, the corporation used to buy the petroleum products

directly from international companies. In the agreement between Nepal and Indian Oil corporation it has been decided to import the fuel through different gates located in Indo-Nepal border on the basis of product exchange system.

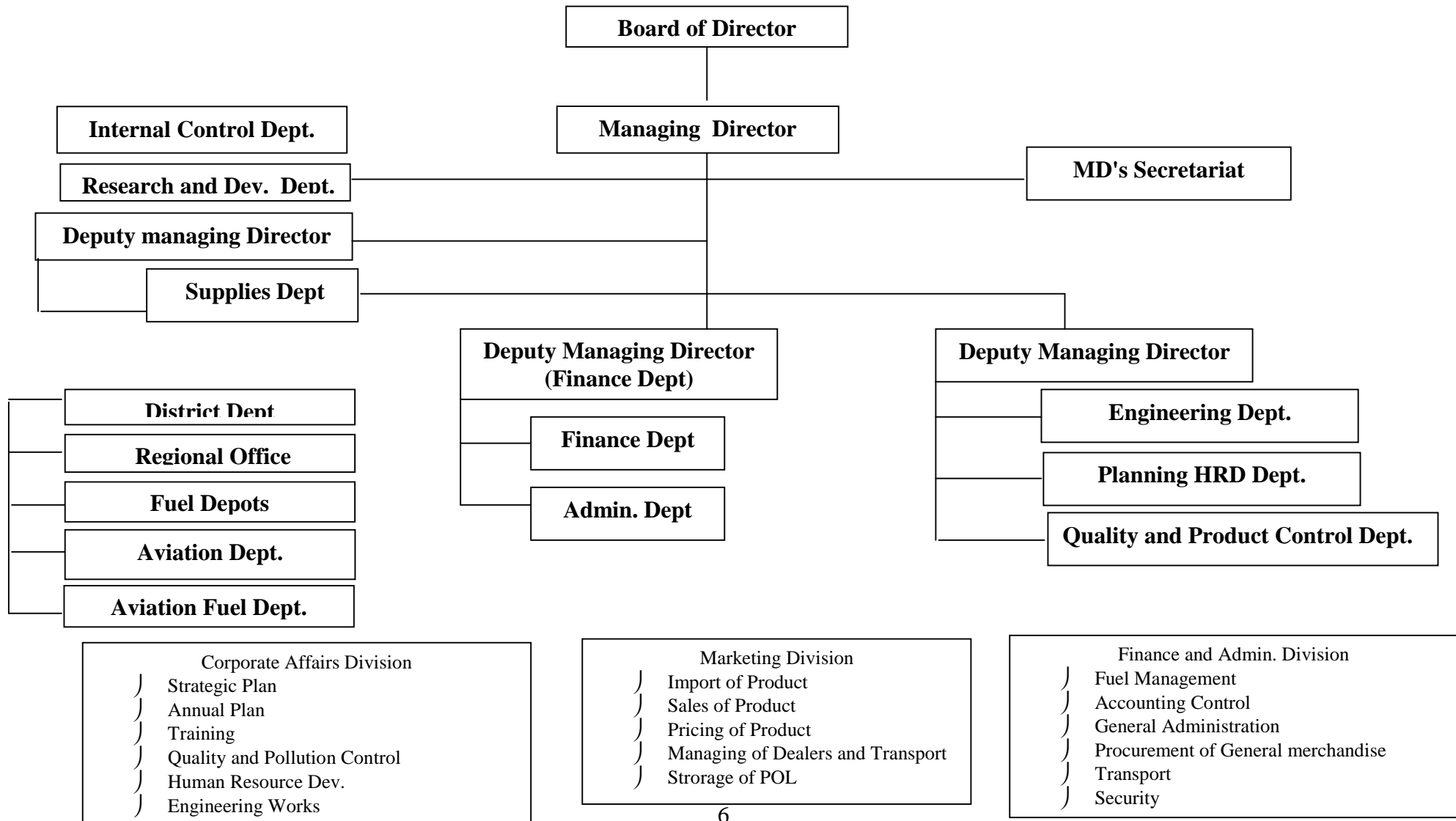
1.3.1 Organizational Structure of NOC

The purpose of organizational structure and assignment of authority is to establish a framework within which objectives of the enterprise may be attained in a coordinate and effective way on a continuing basis. The scope and interrelationship of the responsibility of each individual manager are specified.

To increase managerial and operational efficiency practically all enterprise, except perhaps the very smallest ones should be structurally, disaggregated into organizational sub-units. The manager of each sub-unit should be assigned specific authority and responsibility for operational activity of the sub-units.

The current organizational structure of NOC has been depicted below:

ORGANIZATIONAL STRUCTURE OF NEPAL OIL CORPORATION LIMITED



1.4 Meaning of Sales Budget and Purchase Budget

Profit planning and control is an important approach, mainly in profit-oriented enterprises. Profit, planning is merely a tool of management. It is not an end of management or substitute of management. It facilitates the managers to accomplish managerial goals in a systematic way.

The management is efficient if it is able to accomplish the objectives of the enterprises. It is effective, when it accomplishes the objectives with minimum effort and cost. In order to attain long-range efficiency and effectiveness, management must chart out its course of action in advance. A systematic approach that facilitates effective management performance is profit planning and control or budgeting. Budgeting is therefore an integral part of management. In a way, a budgetary control, system has been described as a *"goal-setting machine for increasing an enterprises profit, and goal-achieving, machine for facilitating organizational co-ordination and planning while achieving the budgeted targets."*

1.4.1 Sales Budget

A sales budget is a forecast of what the company can expect to sell during a budget period. It is forecast of total sales expressed and incorporated in quantities and money. The starting point in preparing profit plan is the sales plan, which displays the projected sales in units and rupees. The sales planning process is an essential part of profit plan and control because, it provides for the basic management decisions about marketing and based on these decisions, it is an organizational approach for developing a comprehensive sales plan. If sales plan is not realistic and relevant, most if not all of the other parts of overall profit plan are also not realistic. Therefore, if the management believes that a realistic sales plan cannot be developed; there is little justification for PPC. Similarly, if it is really impossible to assess the future revenue potential of a business, there would be little or no incentives to investors and prospective investors. Hence, the sales plan is both ends and means of PPC.

The primary purpose of sales plan is:

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

1.4.2. Purchase Budget

After preparation of Sale budget, the second step followed by merchandising organization is to prepare purchase budget. It refers the development of policies about efficient purchase level and facilities. It includes the planning and policy objectives covering wide range of related and complementary included in such activities are the research and development required for the proper selection of merchandise and which these merchandises may be bought [*Lynch & Williamson, 1989:105*].

Purchase budget is an enterprises has now become a specialize function. It was experienced that by giving purchase responsibility to a specialist, the firm can obtain greater economies in purchasing.

1.5 Sales and Purchase Budget of Nepal Oil Corporation Limited

1.5.1 Sales Budget of Oil Corporation Limited

Petrol, Diesel and kerosene are sold through dealers once the voucher for the payment of the order has been produced; the products are delivered to the dealers at their place of business through talk Lorries. 1900 private dealers are available for distribution of petroleum product and 1200 tank Lorries for supplying petroleum product to dealers. In case of aviation fuel, the selling is done, directly by NOC through its aviation depots. The quantities of different petroleum product sales by NOC are show sales targeted of petroleum products from past 10 years by the following table.

Table No 1.1

Sales Targeted Budget of Petroleum Products of NOC

Quantity in KL

FISCAL YEAR	MS	HSD	SKO	ATF	LDO	FO	LGP in MT	MTO	Total Quantity
2054/55	46939	300604	282026	51412	967	27776	22961	108	732793
2055/56	49994	315780	294982	55549	547	33860	25019	132	775863
2056/57	55589	310561	331120	56849	3989	26811	30627	132	815678
2057/58	59245	326060	316381	63130	3416	20934	40102	132	829400
2058/59	63271	286233	386592	47452	2411	18188	48757	120	853024
2059/60	67457	299973	348620	52839	610	14496	56079	48	840122
2060/61	67586	299730	310826	64041	577	12653	66142.3	36	821591
2061/62	75989	315368	239328	66825	88	2696	77594	0	777888
2062/63	80640	291569	226637	64335	250	3171	81005	0	751280
2063/64	80989	294329	226637	64335	290	3695	81005	0	768525

1.5.2 Purchase Budget of Nepal Oil Corporation

The current arrangement between NOC and IOC has been made in 2002 and it is valid for 5 years up to 2007. According to this agreement, NOC purchase raw oil from third country and handed over to the IOC for finished product of the same value. NOC can purchase finished product from IOC according to international price. According to This agreement, many kind of taxes by Indian government are not added by IOC. If so, both company request to the related government to remove this. The purchase quantity of different types of petroleum products are shown in above table.

Table No 1.2

Purchase Targeted Budget of Petroleum Products of NOC

Quantity in KL

FISCAL YEAR	MS	HSD	SKO	ATF	LDO	FO	LGP in MT	MTO	Total Quantity
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2054/55	47507	302063	287595	51700	967	27776	22961	132	740,701
2055/56	51584	319158	298351	56010	547	34245	25019	132	785,046
2056/57	55570	327427	350196	59123	4005	26876	30627	132	853,956
2057/58	60653	333791	325198	65620	3418	20999	40102	132	849,913
2058/59	63578	287657	390113	47274	2413	18255	48757	120	858,167
2059/60	68482	301672	351696	53546	610	14502	56079	48	846,635
2060/61	67965	302644	313127	64394	590	12672	66142.3	36	827,570
2061/62	76097	308076	231463	68340	88	2651	77594	0	764,309
2062/63	82494	292400	225125	66014	252	3226	81005	0	750,356
2063/64	98435	292381	225007	66100	292	3754	81005	0	752446

1.6 Statement of the Problem

The Nepal Oil Corporation Limited is one of the public enterprises established in Nepal to fulfill the need of petroleum product by supplying at a reasonable price. Most of the public enterprises are in heavy loss in Nepal, although they have a monopoly market. Government has given subsidy to run public enterprises but they are not able to contribute to the society at a desirable rate. More than half of the public enterprises are in loss.

Nepal Oil Corporation Limited imports the petroleum products and supplies those products in various parts of the nation. It is very interesting that the corporation increases the price of its product in different time but can meet the purchase price. Instead of having social and economic development, Nepal Oil Corporation Limited is under heavy loss over the years.

Most of Nepalese enterprise could not achieve their pre-established objective and goals due to the lack of authority and communication of objective and goals from top to lower level management. There are various other problem such as political interference, bureaucratic tendency, poor profitability, exposure to public enterprises, negligence of management lack of effective managerial skills etc. The major problem

of public enterprises is lack of study on effective and proper purchase and sales plan/budget, to cover its market. Due to lack of proper sales planning, large amount of products are supplied in that place where the demand is very low and the small amount of product are supplied where the demand is high. Such kinds of mistake generate the extra transportation cost to return back the product from the place where demand is low. Similarly if we can not make proper purchase plan, then the cost if goods purchase will be higher than the price in proper plan. Small quantity increase the ordering cost and large quantity increase the caring cost.

1.7 Objectives of the Study

The basic objective of the study is to examine the effectiveness of sales budget and purchase budget on profit planning of non-manufacturing public enterprises, especially Nepal Oil Corporation Limited. The specific objectives are:

1. To evaluate the actual and budgeted sales and purchase result on Nepal Oil Corporation.
2. To prepare sales and purchase budget for the next financial period
3. To highlight the budgeting procedures adopted by Nepal Oil Corporation.
4. To provide suggestions and recommendations on the basis of major findings.

1.8 Significance of the Study

There are some researches on sales and purchase budget of different institution, but not about Nepal Oil Corporation Limited. Some research work have been found in other topics but not about the sales and purchase part, which is very important to continue the corporation. Nepal Oil Corporation Ltd. is a single institution for dealing petroleum product. In this case the study is very important.

The scope of this study is to show the importance of sales budget and purchase budget on profit-planning of Nepal Oil Corporation Ltd. with the help of data collected for different year.

1.9 Limitations of the Study

Due to time and resources constrains, this study is limited to a single public enterprises i.e. Nepal Oil Corporation Limited. The other limitations are as follows:

-) This study will be based on the available data and information.
-) This study is limited to a single enterprise.
-) The study is conducted only as case study of the corporation about sales and purchase structure of NOC.
-) The study covers a period of years i.e. F/Y 2060/61 to 2064/65

1.10 Organization of the Study

The study has been organized into five chapters, each developed to some aspect of the study on “Sales Budget and Purchase Budget” of Nepal Oil Corporation Limited. The titles of thesis chapters are as follows:

Chapter -I: Introduction

Background information on the subject matter of research undertaking has been presented under this section to provide a general idea of its history. So this section includes a brief introduction to public enterprises in Nepal, role and objectives of public enterprises in Nepalese economy and introduction to Nepal Oil Corporation

Limited. Likewise, the statement of the problem, objectives of the study comes next followed by scope and limited of the study.

Chapter -II: Review of Literature

The second chapter deals with the review of literatures relating to Sales and Purchase budget analysis i.e. review of book, journals, article, review of previous research and report with research gap etc.

Chapter III: Research Methodology

In this chapter, the method employed to gather data and the tools used in its interpretation has been described under the headings; research design the population and sample, nature and sources of data and financial and statistical tools for analysis of data.

Chapter-IV: Data Presentation and Analysis

This chapter is the one of the most important and core of the thesis. Since, it consists of systematic presentation and analysis of data and interprets the results so obtained.

Chapter-V: Summary, Conclusion and Recommendations

This chapter is also important part of the study where major findings has been summarized, variable recommendations suggested and conclusions drawn.

CHAPTER-II

REVIEW OF LITERATURE

Review of literature means reviewing research studies or other relevant propositions in the related area of the study so that all the past studies, their conclusions and deficiencies may be known and further research can be concluded. It is an integral and mandatory process in research work [Joshi, 2003:45]. It supports the researcher to explore the relevant and true facts for the reporting purpose in the field of study. It also helps to find out the lacuna in the earlier research work and to stop duplication of the previous work. Literature means the related printing materials about the subject matter of the research work. It may be various forms like book, booklet, thesis report etc.

This chapter highlights the literature available related to the present study. This chapter has divided into two sections, Review of Conceptual Framework and Review of Previous Related Studies.

2 Review of Conceptual Framework

2.1 Profit Planning

After defining about profit and planning now is going to present some theoretical concept of profit planning. When management plans for a certain period of time, it is called profit plan. Profit plan is defined as, an estimation and predetermination of revenue and express that estimate how much income shall be generated and how it would be spent in order to meet investment and profit requirement. In the case of institutional operation it presents a plan of operations, covers a definite period of time and formulates the planning decision of management.

Generally two types of profit plans are generated, for long term objectives strategic plans and short term objectives tactical plans are developed. The type of profit plan depended upon the nature of business entity. Generally for a manufacturing enterprises following plans are prepared (1) Sales Plan (2) Production Plan (3) Raw Material Plan (4) Purchase Budget (5) Inventory Budget (6) Labour Hours and Cost Budget (7) Manufacturing Overhead Budget (8) Administrative Expenses Budget (9) Selling expenses Budget (10) Cash Budget (11) Capital Expenditure Budget (12) Flexible Budget (13) Projected Income Statement (14) Project Balance Sheet (15) Variance Analysis of performance report [*Prasad, 2002:28*].

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

2.2. Profit Planning and Control

Profit planning in fact is a managerial techniques and a profit plan is such a written plan, in which all aspects of business operation with respect to define future period are included. It is a formal statement of policy, plan, objective and goal established by the top management in respect of some future period. Profit planning is a predetermined detailed plan of action developed and distributed as guide to current operations and as basis form subsequent evaluation of performance” [*Gupta, 1992:521*].

The PPC model involves [*Lynch and Williamson, 1989:30*]

-) Development and application of broad and long-range objective of enterprise.
-) Specification of enterprises goals.
-) Specification of a tactical short-range profit plan detailed by assigned responsibilities (division, department, projects).
-) Development of a strategic long-range profit plan in broad terms.
-) Establishment of a system of periodic performance report detailed by assigned responsibilities.

) Development of follow-up procedures.

2.3. Implementation of Profit Plan

Some people say that the comprehensive profit planning and control is applicable only to large and complex organization. Usually it is commented that “comprehensive budgeting is a fine idea for most business, but ours is different,” or “ it is impossible to project our revenues and expenses,” and so on. Sometimes specific industries are viewed as not amenable to profit planning and control. These views are common regarding non-manufacturing enterprises- service companies, hospitals, certain retail business, construction companies, and real-estate enterprises. To the contrary, profit planning and control can be adapted to any organization (profit or non-profit, service or manufacturing, regardless of size, special circumstances, or conditions). The fact that a company has peculiar circumstances or critical problem is frequently a good reason for the adoption of certain profit planning and control procedures. In respect to size, when operations are extensive enough to require more than one or two supervisory personnel, there may be a need for profit planning and control and applications. The smaller company certainly has different needs in this respect than a larger one. As with accounting, a single profit planning and control system that is appropriate for all enterprises cannot be designed. A profit planning and control system must be tailored to fit the particular enterprise, and it must be continually adapted as the enterprise and its environment change.

2.4. Planning Vs Forecasting

Forecasting is the calculation of responsible probabilities about the future based on the analysis of all the latest relevant information by tested and logically sound statistical and econometric as by interpreted, modified and applied in terms of an

executive's personal judgment and social knowledge of his own business and his own firm. Forecasting may be called by different names such as intuition, estimation, programming and strategy making but it is all forecasting is one way or the other way.

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

Forecasting is an important tool of management that in preparation of budget and is an integral part of decision making activities of management. Business forecasting refers to the social analysis of the past and current movements in the given time series so as to obtain clues about the future pattern of these movements, management must plan ahead on the basis of a forecast but it must also provide sufficient flexibility to enable the unexpected to be dealt with. The reason for forecasting is not so much to predict the future as to be prepared to meet it when it comes. Forecasts involve a careful look at the future in terms of what is thought likely to happen whilst plans are the embodiment of what is to be attempted so as to meet that future.

2.5. Budgeting: As a Tool of Profit Planning

Profit does not emerge of their own accord. They have to be influenced by management. The quality of management is often judged by the size of profit figures at the end of the financial year. For its own protection in the interests of the business, management must plan to make profit and the accepted basis for this is the annual budget properly supported by the long term planning and operational planning. Budgeting is an expatriation of a firm's plan in financial form for a period of time in future; it is an estimate of future needs calculated for a defined period. It anticipates income for a given period and costs as well as expresses of obtaining this income are

set or limited with in the ideas of earning a desired profit or an aid in controlling losses. A business budget is a plan covering all phases of policies, plans, objectives and goals laid down in advance by top management for the undertaking as a whole and every subdivision there of.

Budget as a tool of planning and control is closely related to the broader system of planning and control in an organization. Planning involves the specification of the basic objectives that will guide it. In operational terms, it involves the step of setting objectives, specifying goals, formulating strategies and expressing budgets. A budget is a comprehensive and coordinated plan expressed in financial terms for the operations and resources of an enterprise for some specified period in future [*Khan and Jain, 1993:173*].

A budget is a quantitative expression of a plan of action and an aid to coordination and implementation. Budgets may be formulated for the organization as a whole or for any sub units. Budgeting includes sales, production, distribution and financial aspect of an organization. Budget programs are designed to carryout a variety of functions planning, performance evaluation, coordinating activities, implementing plans, communicating, motivating and authorizing actions [*Horn Green, 1976:123*].

2.6. Objectives of Budgeting

'To achieve this purpose, we must follow the systematic approach of budgets as follows:

1. To forecast and to plan for the future to avoid losses and to maximized profits, i.e. to help to planning.
2. To bring about coordination between different function of an enterprise i.e. to help in coordination.
3. To control actual actions by ensuring that actual are in true with targets, i.e. to help in controlling.
4. To state the firms expectations (goals) in clear; formal terms to avoid confusion and to facilitate their attainability.
5. To communicate expectations to all concerned with the management of firm so that they are understood, supported and implemented.
6. To provide a detailed plan of action for reducing uncertainty and for the proper direction of individual and group efforts to achieve goals.
7. To coordinate the activities and effort in such a way that the use of resources is minimized.
8. To provided a means of measuring and controlling the performance of individual and units and to supply information of the basis of which the necessary corrective action can be taken' [*Pandey; 2004:159*]

2.7 Implementation of Budgeting

Implementations of management plans that have been developed and approved in the planning process involve the management function of leading subordinates in attaining enterprise objectives and goals. Thus, effective management at all levels requires that enterprise objectives, goals, strategies, and policies be communicated and understood by subordinates. There are many facts involved in management leadership. However, a comprehensive profit planning and control programmed may aid substantially in performing this function. Plans, strategies and policies developed

through significant participation establish the foundation for effective communication. Preceding discussions emphasized the objectives and goals should be realistic and attainable; yet they should present real challenges to overall enterprise and to each responsibility center. The plans should have been developed with the managerial conviction that they are going to meet or exceeded in all major respects. If these principles are effective in the development process, the various executive and supervisors will have a clear understanding of their responsibilities and the expected level of performance.

In designing and implementing a profit planning and control program the following steps are recommended:

In designing and implementing a profit planning and control program the following steps are recommended:

1. Appoint a high-level management committee to provide broad recommendations.
2. Analyze the internal environment based on factual studies.
3. Conduct economic feasibility studies.
4. Decide on the basic budgetary approach.
5. Specify the broad objectives of program.
6. Specify management responsibilities in planning and controlling (line various staff.)
7. Institute budget education
8. Plan the implementation of the system.
9. Establish procedures for monitoring the system to ensure its appropriateness and to provide for improvements.
10. Establish guidelines to ensure effective utilization of the system by all levels of management.

The starting point in preparing profit plan is the sales plan, which displays the projected sales in units and rupees. The sales planning process is an essential part of profit plan and control because, it provides for the basic management decisions about marketing and based on these decisions, it is an organized approach for developing a comprehensive sales plan. If sales plan is not realistic and relevant, most if not all of the other parts of overall profit plan are also not realistic. Therefore, if the management believes that a realistic sales plan cannot be developed, there is little justification for

PPC. Similarly, If it is really impossible to assess the future revenue potential of a business, there would be little or no incentives to investors and prospective investors. Hence, the sales plan is both ends and means of PPC.

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

2.8 Sales Budget

Preparation of sales budget is the starting point of profit plan. All the budget planning being with the forecast of sales. Using the information supplied by the sales person [*Lynch, 2001: 142*]. Sales plan is the starting point in the preparation of the comprehensive profit planning and control. All the other plans and budget is dependent both in units and amounts of the sales revenue or sales volume. The

preparation of sales plan is based upon the sales forecast. A variety of methods is used to forecast the sales for the planning period.

The sales planning process is a necessary part of PPC because (a) It provides for the basic management decisions about marketing, and (b) based on these decisions, it is an organized approach for developing a comprehensive sales plan. If the sales plan is not realistic, most if not all of the other parts of the overall profit plan also are not realistic. Therefore, if the management believes that a realistic sales plan cannot be developed; there is little justification for PPC [*Welsch, Hilton and Gordon, 1992:172*].

A comprehensive sales plan includes two separate, but related, plans the strategic and the tactical sales plan. A comprehensive sales plan incorporates such management decisions as objectives, goals, strategies and premises. These translate in to planning decisions about planned volume (units or jobs) of goods and services, prices, promotion and selling efforts [*Welsch, Hilton and Gordon, 1992:172*].

Sales budgets are the another essential management tools. They allot the potential market [after serious market study] to territories or systems of selling. They setup quotas to salesmen so as to assure that all selling forces contribute their proper share of activity. Throughout this, adequate control of performance of all members of the organization is retained. Practically all other budgets are based on the sales budget. In some cases, the sales budget is also a tool to find the sales help and the promotion or advertising needed.

A plan of operations must necessarily be built around the activity or volume of business that can reasonably be expected during the specific period covered by the profit plans. Unless there is a realistic sales plan, practically all other elements of a project plan will be out of kilter with reality. The sales plan is the foundation for periodic planning in the firm, because practically all other enterprise planning is built on it. The primary source of cash is sales; the capital additions needed the amount of

expenses to be planned, the manpower requirements, the production level and other important operational aspect depend on the volume of sales.

In this way, sales budget as the major factor or primary factor of all other budgeting system and organizational activities. Sales budget is the very important for each and every organization, they may be manufacturing and non-manufacturing without proper sales budget organization cannot make the other budget, like purchase, expenses, etc.

The sales plan have three distinct (a) The planned volume of sales and the planned sales price per unit for each product (b) the sales promotional plan, (c) The sales expenses plan.

Welsch, Hilton and Goredn explain the primary purposes of sales plan are as follows:

1. To reduce uncertainty about future revenues,
2. To incorporate management judgments and decisions into the planning process (e.g. in the marketing plans)
3. To provide necessary information for developing other elements of comprehensive profit plan, and
4. To facilitate management's control of sales activities.

Table No. 2.1

Complete Format of Sales Budget (Territory wise)

Territing/Time	Total			Eastern					Western				
	Units		Total (Rs.)	A@Rs		B@Rs.		Total (Rs.)	A@Rs		B@Rs.		Total Rs.
	A	B		Units	Rs.	Units	Rs.		Units	Rs.	Units	Rs.	
January													
February													
March													
April													
Total of 1 ^s Qt.													
2 nd quarter													
3 rd quarter													
4 th quarter													
Gross sales for the year													
Less: Return and allowance													
Net sales for the year													

2.9. Sales Planning Vs Sales Forecasting

It is important to make distinction between sales planning and forecasting because they are often confused. The preparation of sales plan is based upon the sales forecast. Sales forecasting is known as prediction, estimation and expectation for future related to sales. “Sales planning and forecasting often are confused. Although related, they have distinctly different purposes. A forecast is not a plan; rather it is a statement and/or a qualified assessment of future conditions about particular subjects (e.g. sales revenue) based on one or more explicit assumptions. A forecast should

always state the assumptions upon which it is based. A forecast should be viewed as only one input onto the development of a sales plan. The management of a company may accept, modify, or reject the forecast. In contrast, a sales plan incorporates management decisions that are based on the forecast, other inputs, and management judgments about such related items as sales volume, prices, sales efforts, production, and financing.

2.10. Method of Sales Forecasting

2.10.1. Personal Judgment Method or Non-mathematical Method

A) Sales Force Composite

This approach of sales forecasting emphasizes the maximum participation from bottom up. Under this projection method, sales forces from sales divisions engage in sales projections. Sales forces collect socio-economic information from the area through informal chat, ocular survey or formal data collection. Based upon the historical sales data and socio-economic information, sales forces prepare sales projection and submit it to sales departments. Sales department, after collecting sales projection of territories makes adjustment on projected figures, and compiles the figure and submit to chief executive for approval as total sales projection for the company. After checking the figure, chief executive returns back the budget to sales department with tentative approval.

B) Sales Division Managers Composite

This approach emphasizes the participation of district or product sales managers rather than the individual sales persons. Under this method of sales projections, district or product sales managers with the historical and analyzed information project the sales of future and submit to chief executives for approval. The chief executives return the sales projection to sales department with its tentative approval.

C) Judgmental for chief executive

Under this approach, chief executive him/ herself involves in projecting sales. He/ She receive historical sales data from sales department and gets information after environmental assessment. With this available information, he/she uses his/her judgment to forecast the sales.

2.10.2 Mathematical or Statistical Method

A) Economic Rhythm Method

Under this method, sales are projected based upon economic rhythm i.e. movement of economic. While projecting sales using this method, first of all, the factors of economy that have a high influences on demand or sales of the product are analyzed. Then historical sales are adjusted with the influences of economic factors. Sometimes such factors push the sales and sometimes pull the sales. Generally, cyclical variance, seasonal variance and price variances are observed in economic factors.

B) Regression Method

Regression method is the most popular statistical techniques of demand estimation. In regression method of demand/ sales forecasting, the firm estimates the demand function for a product. In the demand function, quantity to be forecasted is a dependent variable and all the other variables that affect the demand are called independent or explanatory variables.

C) Time Series Analysis

One of the most frequently used forecasting methods of sales is time-series analysis. Regression analysis can be used to quantify the relationship between variables but data collection can be more complex if regression model consists a large number of independent variables. When changes in a variable show discernible patterns over time, time series analysis is an alternative method for forecasting future value sales. Time series data refers to the values of a variable arranged chronologically by days, weeks, months, quarters, or years. The first step in time series analysis is usually to plot past values of the variable that we seek to forecast on the

variable axis and time on the horizontal axis in order to visually inspect the movement of the time series overtime. Time series analysis attempts to forecast future values of time series by examine past observations of the data only. In this assumption is made that the series will continue to move as in the past. For this reason, it is often referred as naïve forecasting.

2.11. Strategic and Tactical Sales Plan

A comprehensive sales plan includes both strategic long-term and tactical short-term sales plan. Both sales plans must be prepared in comprehensive profit plan. The usual case is a five or ten year strategic sales plan and one year tactical sales plan. Sometimes it may be helpful to view the development of the long-range and short-range sales plan dovetail with the strategic long-range plan in all major respects.

2.11.1 Strategic Sales Plan

Strategic Sales plan is known as long-range sales plan. Usually, it covers 5 to 10 years; it is to be developed as annual amounts. Long-term sales plans usually involve in depth analysis of future market potentials, which may be built up form a basic foundation such as population changes, state of the economy, industry projections and finally company objectives. Long-term managerial strategies would affect such areas as long-term pricing policy, development of new products and innovations of present products, new products and innovations pf present products, now directions in marketing efforts, expansion or changes in distribution channels and cost patterns. The influence of managerial strategy decisions is explicitly brought to bear on the ling-term sales plan primary on a judgmental basis.

2.11.2. Tactical Sales Plan

Tactical sales plan is also called short-range sales plan. It is prepared for one year or less than one year. Short-range sales plan or tactical sales plan is prepared to plan sales for twelve-months, into the future detailing the plan initially by quarters and by months for first quarter. At the end of each months or quarter throughout the year,

the sales plan is restudied and revised by adding a period in the future and by dropping the period just ended. Thus, tactical sales plan are usually subject to review and revision on a quarterly basis. The short-term sales plan includes a detail plan for each major product and for groupings of minor products. Short-term sales plans are usually developed in terms of physical units (or jobs) and in sales and/or service dollars, also be structured by marketing responsibility (e.g. by sales districts) for planning and control purpose. Short-term sales plan may involve the application of technical analysis; however, managerial judgments play a large part in their determination [Welsch, Hilton and Gordon, 1992:173].

Table No 2.2
Components of Comprehensive Sales Plan

COMPONENT	STRATEGIC PLAN	TACTICAL PLAN
Management policies and assumption	Board and general	Detailed and specific for the year
Marketing plan (Sales and service revenue)	Annual amounts; major groups	Detailed; by product and responsibility
Advertising and Promotional plan	General; by year	Detailed and specific for the year
Distribution (selling) expenses plan by year	Total fixed and totals variable expenses; respectively	Fixed and variable expenses by month and by year

Source: Welsch, Hilton and Gordon, 1992:76

2.12. Develop a Comprehensive Sales Plan

Welsch, Hilton and Gordon have mentioned the following steps in developing a comprehensive sales plan [*Welsch, Hilton and Gordon, 1993:177:186*]

Step 1- Develop Management Guidelines for Sales Planning

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

Step 2- Prepare Sales Forecasts

One or more forecasts should be prepared. Each separate forecast should use different assumptions, which should be clearly explained in the forecast. The management guidelines (step 1 above) should provide the broad assumptions. The forecast should include strategic and tactical forecasts that are consistent with the time dimensions used in the comprehensive profit plans.

Step 3- Assemble Other Relevant Data

In addition to steps 1 and 2, all other information relevant to developing a realistic sales plan should be collected and evaluated. This information should relate to both constraints and opportunities. The primary constraints that should be evaluated are:

1. Manufacturing capacity
2. Source of raw materials and supplies, or goods for resale
3. Availability of key people and a labour force
4. Capital availability
5. Availability of alternative distribution channels

Opportunities are seldom given adequate attention during the sales planning process. Sales planning opportunities include redesign of old products and introduction of new products, changes in sales territories, pricing innovations, (e.g. customer bonuses), attractive packaging, advertisement innovation, and new marketing strategies. In all instances, the effects of expected competitors should be evaluated.

Step 4- Develop the Strategic and Tactical Sales Plans

Using the information provided in step 1, 2, and 3; the management develops a comprehensive sales plan. To do this, the planning process must be structured to maximize (a) motivation of sales force and (b) realism in the sales plan. This process should recognize the importance of management goals- both strategic and tactical. For both the behavioral motivation and judgmental imperatives, the process should involve participation by the sales managers from the bottom up to the fullest extent possible. When it is feasible, salespersons who deal directly with customers should participate because they are often able to obtain relevant information from the customers about their future purchasing plans and competitive pressures. This means that all participants should be provided information relevant to their participative role that was generated in steps, 1,2and3. Extensive participation by middle and lower level managers is more appropriate and useful in developing the tactical (short-term) sales plan than in developing the strategic (long-term) term sales plan. The latter should primary involve top-management participation.

An important part of a participative approach to develop a tactical sales plan is the opportunity to present, explain, defend and respond to questions about a proposed sales plan for each major practicing group. One scenario would be for the manager of each sales region, in conformity with a preplanning schedule, to present recommended regional sales plan to a sales planning group headed by the top sales executives. The given and take in such sessions, if unbiased and depersonalized, is invaluable in making sound managerial judgments. Later, the top sales executive would make a similar presentation of the proposed company sales plan to the top executive committee. The latter committee would then, after any changes, recommend it to the president for approval.

Step 5- Secure Managerial Commitment to Attain the Goals in the Comprehensive Sales Plan

To management must be full committed to attaining the sales goals that are specified in the approved sales plan. This commitment requires full communication to the sales manager of the goals, approved marketing plan, and strategies by sales responsibilities. The commitment must be strong and ever present in day-to-day operations.

2.13 Purchase Budget or (Purchase Plan)

Sufficient raw materials will have to be available to meet production needs and to provide for the desired ending raw materials inventory. However, some quantity of material requirement will already exist in the form of beginning raw materials inventory. The remainder will have to be purchased from a supplier.

In simple words purchasing means procurement of goods and services from some external agencies. Wastling explains, "Purchasing is a managerial activity that goes beyond the simple act of buying. It includes the planning and policy objectives covering wide range of related and complementary included in such activities are the research and development required for the proper selection of materials and sources from which these materials may be brought.

Planning of purchase is very important for manufacturing enterprises as well as merchandising company also. Major function of merchandising company is to purchase the finished goods from supplier in large quantity and supply it to the purchaser or customer according to their needs. So the purchase budget is very important for merchandising company. A purchase budget gives the details of the purchase which must be made to meet the need of the business. It includes all items of purchases, such as raw materials, indirect materials and other equipments for manufacturing company and finished goods or merchandise product for non-manufacturing enterprises for resale. The object of a purchasing budget is to formulate a plan which will allow all the necessary materials and other items to be obtained at minimum cost.

2.13.1 Purchase Forecasting

Purchase forecasting is a little difficult than sales forecasting and other type of forecasting. For purchasing, it is necessary to know about future price and supply conditions.

Purchase forecasting is important because we don't want to get stuck with using high-period materials if price goes down. Of course we can avoid most of that risk by buying from hand to mouth, but then our small quantity buying makes us pay more right along. Purchase forecasting is also important because if price is going up we might make a tidy sum by doing a little stockpiling.

When we feel that we must enter into long-term purchasing contracts, keep the price open to be decided when the goods are delivered. But by no means does that the price is vague. Spell it out in the contracts, exactly how the price will be set.

2.13.2 Objective of Purchasing

The objective of purchasing should conform to over all objectives of the organization. It is one activity where reasonable economics can be accomplished. It is one activity where reasonable economics can be accomplished. In the word of J. H. Wasting, "Objectives of the purchasing department is to buy the right amount of the right kinds of goods from the right supplier at the right time and at the right price.

The responsibility of purchasing department is to buy materials of the right quality in the right quantity at the right price from the right source with delivery at the right places. This is the way of stating the objectives of sound purchasing [*Gupta, 5th edition: 782*].

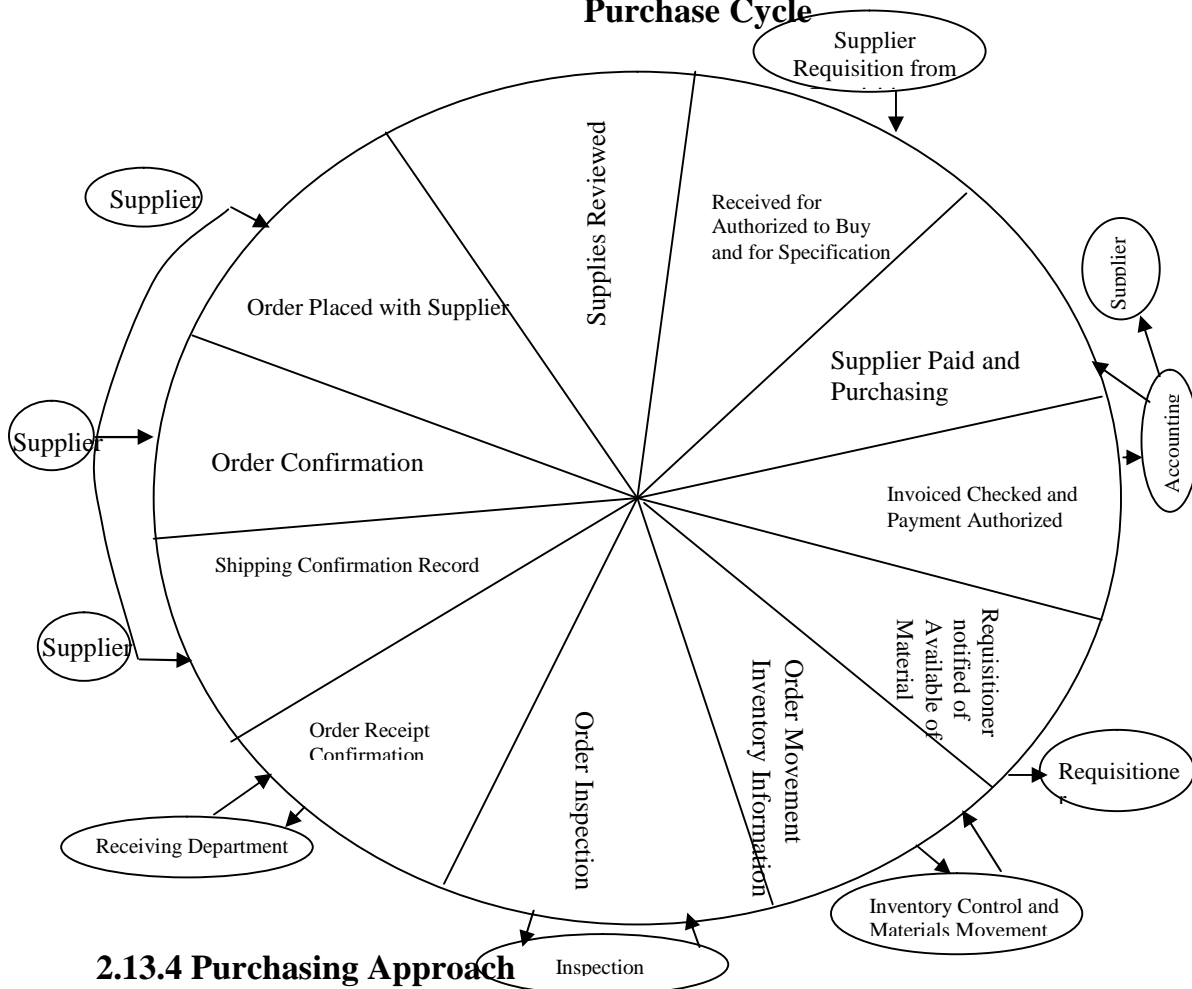
2.13.3 Purchasing Cycle

The placing of a purchase order is only the beginning of the process. To run quickly through the entire process, the purchasing department first reviews requisitions placed by other functional area of the firm to ascertain if they are

authorized. If they are purchasing, check to see it each needed item is properly described and it available chapter material could to the job. Before writing the order however, purchasing must select suppliers on the basis of price and the quality and delivery schedule of their product. Purchasing then records the suppliers acknowledgements or receipt of orders and conform the shipping dates. When the material is received, purchasing records its arrival and checks to see it there are shortage or detects in it. It checks purchase invoice and forwards them to accounting with an authorization for payment. Throughout this cycle, purchasing either performs the task or records its performance as illustrated in figure.

Figure 2.1

Purchase Cycle



2.13.4 Purchasing Approach

Under the purchasing approach there is various purchasing method, which are described below:

a. Hand-to-mouth buying

Under this approach materials are purchased to meet immediate needs only. This approach is followed when the market price of the required material is above average, likely to fall or the actual requirement of the company is uncertain the objective of this approach is to minimize inventory loss due to fall in prices.

b. Averaging Down

This approach of purchasing aims to obtain the benefit of price dips. In other words purchasing is down in every price falls. If handled successfully it is possible to keep the cost below the average market price.

c. Forward Buying

When the purchaser forecasts his future needs and purchases the required goods in economic quantities to meet those need then this policy is forwarded. When prices relatively stable overtime or when only moderate prices increases can be anticipated then this approach is often used. This approach is used to take advantage of economical large volume purchases.

d. Speculative Buying

Under this method, purchase is made in excess of needs of the items when a market price is low. This purchasing helps the company to save money in purchasing and to generate profit on sales. Hence speculative buying seeks to make a possible profit by purchasing materials in anticipation of price rises.

e. Reciprocal Buying

According to this approach, the firms agree in to a contract to buy and supply materials from each other. It is difficult to set hard and fast rules as to the advisability of such agreement.

f. Local Buying

Sometimes, through uneconomical materials are to purchase from local suppliers. Especially in the area where degree of industrialization is low, this is done to build good public image.

After determining the quantities of different types of merchandising goods required, preparation of purpose budget entails further adjustments arising form merchandising goods, stock policies and contracts already placed. Thus, where the stock of merchandise goods are to be reduced, the quantities to be purchased will be less than the quantities of merchandise required by the sale budget, while opposite will be the case if stock are too increased.

2.14 Format of Purchase Budget of Non-Manufacturing Concern

Table No. 2.3
Open-to Buy Amount (By Budget)
as on.....

Particulars	Amount	Ref.
A. Stock Needed:		
1. Planned final inventory	xxx	
2. Planned sales for the period	xxx	
3. Planned reduction for the period	xxx	
4. Less: Actual sales for the period	xxx	
Actual reduction to date	xxx	
A. Total stock Needed	xxx	
B. Stock Available:		[A]
1. Planned beginning inventory	xxx	
2. Merchandise received to date	xxx	
3. Stock on order for delivery	xxx	
4. Less: Actual sales to date	xxx	
Actual reduction to date	xxx	
B. Total stock available	xxx	[B]
C. Open to buy at retail	xxx	[A-B]
D. Initial Markup	%	
E. Multiplier [1- initial markup]	%	[1-d]
F. Open to buy at cost	xxxx	[C x E]

2.15 Inventory Policy

Purchase and Inventory is interrelated. The production plan specifies the planned volume of each product (or groups of similar) to be produced for each time period throughout the planning period. This entails the development of policies about efficient production levels, use of productive facilities, and inventory levels (i.e.

finished-goods and work-in-progress inventory) The quantities specified in the marketing plan, adjusted to confirm to production and inventory policies, give the volume of goods that must be manufactured. It can be presented in equation.

$$\text{Sales Volume} \pm \text{Finished-goods inventory change} = \text{Production requirements}$$

Most important part of the purchase budget is to manage the inventory level. The purchase budget is directly related with inventory policy. “The quantity differential planned between the materials and parts budget and the purchase budget is accounted for by the change in materials and parts inventory level. As well as the quantity differential planned between the merchandise budget and the purchase budget is accounted for by the change in merchandise inventory level.

The primary considerations in setting inventory policies are:

1. Timing and quantity for manufacturing needs for manufacturing company and selling needs for non-manufacturing company.
2. Economies in purchasing through quantity discounts.
3. Availability of materials and parts and parts for manufacturing and merchandise for non-manufacturing company.
4. Lead time (order and delivery)
5. Perish ability of materials and parts of merchandise.
6. Storage facilities needed.
7. Capital requirements to finance inventory.
8. Cost of storage
9. Expected changes in the cost of materials and parts of merchandise.
10. Risk involved in inventories.
11. Opportunity costs (Inadequate inventory)

We can follow the different inventory control approach. Such as

a. EOQ Model

EOQ technique is the most important technique for inventory control. It attempts to establish the most economic balance between the carrying costs and ordering cost while determining the quantities to be ordered. The economic order quantity is that inventory level which minimizes the total of ordering and carrying costs. The relationship between the ordering costs and carrying costs is called cost factor. The mathematical formula of EOQ is:

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

Here, A = Annual Requirement

O = Ordering Cost per Order

C = Carrying Cost Per Unit per year

b. ABC Analysis

Usually a firm has to maintain several types of inventories. It is not desirable to keep same degree of control on all the items. The firm should pay maximum attention to those items whose value is the highest. In other words, the firm should focus on the most important items in the inventory.

ABC analysis has shown the following classification as being representation on many industries.

Items	Quantity	Value of Items
X	5-10%	70-75%
Y	15-20%	25-30%
Z	60-70%	10-15%

c. Just in Time (JIT) Purchase

The characteristics of Japanese JIT purchasing is unique, in terms of both general philosophy and in detailed procedures. The term JIT purchasing suggests emphasizing on timing which is true, but it doesn't suggest the broad philosophical underpinnings of the system. Although the term comes from the emphasis in supplying just in time for use on the factory floor.

2.16. CVP Analysis

The relationship between cost, sales volume and profit is known as cost volume-profit analysis. It is an analytical tool for studying the relationship between sales volume, cost price and profit. The analytical technique used to study the behavior of profit in response to changes in volume, cost and prices is called the cost-volume-profit (CVP) analysis. It is a device used to determine the usefulness of the profit planning process of the firm.

2.17 Review of Related Studies

There are not any research papers concerning this particular topic i.e. "Sales Budgeting and Planning". Most of the students of Account group have done the research in the topic of profit planning and control of different public and non-public business enterprises. Sales budgeting and planning is the most important part of all types of manufacturing and non-manufacturing business enterprise. Without sales budgeting and planning other plan can not be prepared.

Some of the previous related research's findings and major recommendations are as follows:

Mr. Bhattarai (2001) "**Profit Planning and Control of Nepal Oil Corporation (NOC)**" This research highlights the applicability and effectiveness of profit planning in Nepalese Public Enterprise. For data gathering procedures, both primary and secondary sources of data have been used. He has used statistical tools like correlation and regression analysis. The basic objectives of this research work were to:

-) To analyze the functional budgets of Nepal Oil Corporation
-) To analyze the trend of sales and profit in the light of budget.
-) Provide suggestion for improving the budgeting system.

In this research Mr. Bhattari has pointed out various findings and recommendations, which are as follows.

The major findings from his study are

- 1) Corporation's objectives are controversial. There is conflict between and goals. Consequently the profit planning programs of this corporation is adversely affected.
- 2) There is no well developed system of performance evaluation for employees. No fair system of reward and punishment to employees on the basis of their work performance. No programs have been attention about fair working environment.
- 3) NOC has not any objectives to create and maintain an optimum enterprise internment that maximize the interest and motivation of all employees
- 4) There is no well communication system. The communication is limited only among the top level managers.
- 5) There is no well system in formulating and implementing profit pans.
- 6) The purchase plan depends upon the sales plan but the plans are made in adhoc basic.
- 7) The concept of variance analysis is completely ignored.
- 8) comprehensive PPC then they should equally implement this concept in real practice.

Mr. Bhattarai has provided some major recommendations to improve the profit planning system of this corporation which are as follows.

- 1) The corporation must involve all the managerial level personnel for preparation of corporations future planning.
- 2) There should be continuous flow of information among various level of management and various grown up of employees. The goals and objectives

and strategies of these enterprises should carefully be communicated to lower level management.

- 3) Proper motivation program, reward and punishment system must be conducted.
- 4) NOC must formulate clear out goals, objectives, policies, long term plan strategic program etc. Sales and purchase budget must be prepared on realistic responsible and committed to accomplish them within the specified period of time.
- 5) Planning department should be given adequate authority to decide and create new ideas to formulate various plans.

Mr. Sharma (2005) has worked out a research on "***Budgeting in Nepal Oil Corporation Limited***". His study was mainly focused on the application of systematic approach of Budget in Nepalese PEs with the special reference of Nepal Oil Corporation and has tried to examine Budget system applied by Nepal Oil Corporation (NOC).

The basic objectives of his research work were to:

-) To analyze the trend of sales, cost and profit in light of budget.
-) To analyze the various functional budget if Nepal Oil corporation.
-) Provide suggestion for improving the budgeting system.

Mr. Sharma conducted following findings:

1. Objective of this organization is controversial. There is conflict between profit and social goals. No well developed system of performance evaluation.
2. There is no any systematic and effective practice of Budgeting.
3. Purchase plan depend upon the sales plan but the plan are made in adhoc basis.
4. Sales and purchase of NOC indicate a positive trend in regression analysis.
5. Pricing system of Nepalese PEs is not scientific.

Based on the conclusion above stated Mr. Sharma has recommended some suggestions as:

- 1) NOC must formulate clear goals, objective policies, long term strategic program etc. has sales and purchase budget must be prepared on realistic ground to accomplish them which in the specified period of time.
- 2) Need of continuous flow of information among various level of management and various group of employees. Accountability and responsibility, power and duties of each level of management should be adequately defined. Need of proper motivational program is recommended.
- 3) To eliminate red tapism, unnecessary formalities should be corrected and avoided which create delays in decision making and functioning.
- 4) Planning department should be given adequate authority to decide and create new ideas to formulate various plans.
- 5) The corporation should evaluate cash outflows necessary to match the cash inflow sources and application of the funds should be properly analyzed.

Mr. Neupane (2008) had studied on "*Sales Budget and Purchase Budget of NOC*", form his study he had conclude the following Findings:

1. The sales plan and achievement are satisfactory for expansion but there is no particular person to prepare sales plan.
2. NOC has the sales forecasting on realistic ground because there is highly significant and positively correlation between budgeted and actual sales which indicate that if targets are high achievement will also be high. NOC has followed a fluctuating inventory policy.
3. Some of NOC dealers have build very good retail outlets to further enhance the image of NOC in the market.
4. The corporation has no clear pricing method. NOC does not carry out any kind of sales research to know the consumers' reaction and the external forces that

could affect NOC's business in the long run. Distribution system of the corporation is adequate.

5. Only top management and middle management are responsible for preparing sales plan. At least overall sales plan also is not so clear.

In this way, Mr. Neupane has concluded that the budgeting procedure followed by NOC is not so clear and reliable.

2.18 Research Gap

There is the gap between the present research and the previous research. The previous research had been conducted on management accounting practice and CVP analysis in non – manufacturing company (NOC). It only covers the existing practices that had been concerned company but it does not consider the sales and purchase condition of NOC.

To fulfill these gap this research has been conducted to find out the sales and purchase condition of NOC. This research also disclose the major difficulties of sales and purchase of NOC. One of the most important things is that this research is not only focus to the study the sales and purchase budget of NOC but it also analyzed sensitivity. Probably this might be the first research study carried on the topic of sales and purchase budget of NOC. It can also helps to public to know the sales and purchase of NOC in today's situation.

CHAPTER-III

RESEARCH METHODOLOGY

3.1. Introduction

Human nature is always curious to learn, understand or investigate about the phenomenon by raising questions like why, how, what, when etc. The knowledge has something to do with knowing. Knowing may be through acquaintance or through description of characteristics of certain things. The things with which we can be acquainted are the things of which we are directly aware of. Direct awareness may come through perception and sensation.

Research means to search or study about a phenomenon. The word research is composed by 're' and 'search' where re means repeatedly or again and again, and search means to investigate or find. Thus, to search again and again is research. Generally, research is an effort to search new fact, knowledge, principle in scientific ways.

Research methodology is the way to solve systematically about the research problem. It is the process of arriving at the solution of the problem through the planned and systematic dealing with collection, analysis and interpretation of facts and figures. The major objective of this study is to analyze the Sales plan and Purchase plan of NOC.

For the purpose of achieving the objectives the following research methodology has been proposed, which includes research design, nature and sources of data, data collection procedure and presentation and analysis techniques.

3.2. Research Design

The research design is the plan structure and strategy for investigation of the facts in order to arrive at conclusion. The plan is the overall scheme of programme of the research. It includes and outlines of what the investigator will do from writing the hypothesis and their operational implication to the financial analysis if data. This research design is a plan to obtain the answer of research question through analysis of data. Research is systematic search for knowledge it application of scientific methods to the study of universe. This study entitled “Sales budget and Purchase Budget of Nepal Oil Corporation” deals with procurement, sales and distribution procedure. Trends of present sales and purchase practice of Nepal Oil Corporation, which are the variables under study. So the descriptive research will be applied as research design.

3.3. Population and Sample

Although there are many public enterprises which are involved in manufacturing and non-manufacturing company in our country. But it is not possible to study all of them regarding the research topic. Therefore among seven non-manufacturing companies, NOC is taken as sample company.

3.4. Period Covered

Coverage of long time or period is more effective for every research work that makes result more realistic and accurate. But due to difficulties in collection of data, the present study is undertaken for a period of 5 years, i.e. form fiscal year 2060/061 to 2064/065.

3.5. Nature and Source of Data

To achieve the basic objective of this research study, primary as well as secondary data have been used.

- a) **Primary data:** Primary data are original data generated by the researcher for the research project at hand. Thus these data are collected through interviews, questionnaire, observation and direct meeting with concerned persons.
- b) **Secondary data:** Secondary data refer those for already gathered by other. The source of secondary data can be divided into two groups, internal and external. The internal secondary data are found within the collected form published document of the company. External secondary data are collected from sources outside the company.

Both primary and secondary data have been used in this study. Primary data are based on interviews as well as unstructured dialogues and discussions with staff of Nepal Oil Corporation. While secondary data have been collected from the following sources.

-) Published documents of ministry of industry and commerce and ministry of finance.
-) Data available from Nepal Oil Corporation Limited.
-) Other related records and data relevant to the study.
-) Published and unpublished articles, newspaper, books and other sources.

3.6. Data Gathering Procedure

Data gathering procedure, which is most important part of the research, consists of obtaining information from some body's hand. It is therefore very difficult activity of the whole research process. Research has made frequent visits to central office of Nepal Oil Corporation in order to collect the required data from officials.

Published and unpublished documents, books, articles magazine and the official's records are the main source of secondary information. While the primary sources consisted were interviews, dialogues and discussion with the concerned parties.

3.7. Research Questions

The basic research question used this report are as follows:

1. Whether the budgeting procedure followed by NOC is appropriate or not?
2. Whether the sales plan and purchase plan are effectively implemented or not?
3. Do sales plan affected by other functional plan?
4. Whether the sales and purchase plan are effective or not?

3.8. Tools Used

A) Activity and Financial Tools

This section contains the representative of data in different shape & format. In this study table format and graphics (chart, diagram) are used for analysis and presentation of data and interpreted and explained wherever necessary. There are some methods that are used in computing sales and purchase budget. They are as follows:

Method of Sales Budget:

i) Strategic sales Budget

Strategic sales plan is the long rang sales plan of an enterprises. Usually, it is 5 to 10 years. It is broad and general.

ii) Tactical Sales budget:

Tactical sales plan is a short range sales plan. It is developed for a short period of time usually a year, initially by quarters and by months for the first quarter.

Method or Purchase Budget:

After completion of sales plan, public enterprises must developed purchase plan by using this formula.

Plan Purchase at retail = (Planned net Sales Plan net reduction planned EOM) –
Planned BOM

Where,

BOM= Beginning of the Month

EOM=Ending of the month

B) Statistical Tools

Data gather from various source were in raw form. They were managed, processed, analyzed and presented in proper tables and formats through the use of different statistical tools. So many statistical tools are available to analyze the data; some of them in this report are as follows.

i. Arithmetic Mean: It is a single value selected from a group of value to represent them in some way. It supposed to stand for whole group of which it is part.

$$\text{Or } \bar{X} = \frac{\sum X}{n}$$

where, \bar{X} denote mean. $\sum X$ = sum of observation

ii. Standard Deviation: It may regard as the best and the most powerful tools of measure of dispersion and dispersion is the measure of the variation of the items.

In Symbol

$$\text{S.D. (} \sigma \text{)} = \sqrt{\frac{\sum X^2}{n} - \left(\frac{\sum X}{n}\right)^2} \text{ or } \sqrt{\frac{\sum (X - \bar{X})^2}{N}}$$

iii. Coefficient of variation: The coefficient of variation is the relative measure of dispersion, comparable across, which is defined as the ratios of the standard deviation to the mean expressed in percent.

In Symbol

$$\text{C.V.} = \frac{S.D.}{\bar{X}} \times 100$$

Where, S.D. (†) = Standard Deviation \bar{X} = denotes mean

iv. Regression analysis: It measures the relationship between two or more variables in terms of the original units of the data

v. Correlation: Correlation analysis contributes to the understanding of economic behavior, aids in locating the critically important variables on which others depend, may reveal to the economist the connections by which disturbances spread and suggest to him the paths through which establishing forces may become effective.

In Symbol

$$r = \frac{n\sum XY - \sum X \sum Y}{\sqrt{[n\sum X^2 - (\sum X)^2][n\sum Y^2 - (\sum Y)^2]}}$$

$$\text{Probable Error (r)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}}$$

vi. Trend Analysis: It shows the figure of any items fluctuated over a time.

vii. Graph: Graph is the device of presenting the statistical data in neat, concise, systematic and readily comprehensible and intelligible form.

viii Time-series Analysis: It reflects the dynamic pace of movement of a phenomenon over a period of time.

CHAPTER -IV

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

The basic objective of this study has already been mentioned in the first chapter. The sales budget and purchase budget have been discussed in the “Review of

Literature”. In the “**Research Methodology**” necessary analytical tools and techniques have been employed for accomplishment of prescribed objective.

In this chapter effort have been made to process the obtained data and analysis and interpretation them. The available data are presented in table and graph and they are presented in the table and graph and they are analyzed with the help of statistical, mathematical tools and are finally interpreted to explore the facts. In this study, it will be explained of four petroleum products they are Speed Diesel (HSD), Super Kerosene Oil (SKO), Motor Spirit (MS) and Aviation Turbine Fuel (ATF).

4.2 Sales Budget

A sale is an act of exchanging something for money. Sales budget is the most important for each and every type of organization, they may be manufacturing or merchandising. Sales budget is the infrastructure of overall budget. All other functional budget are depends upon the sales budget. The major objective of each and every business organization is to earn maximum profit through service. So that the first consideration of business must be prepare effective sales budget.

Profit is amount excess of revenue over cost; therefore the sales plan is the foundation for periodic planning in the enterprise. Sales are the primary sources of cash and all other functional budget is prepared on the basis of sales budget. The efficiency of planner or planning expert can be evaluated form the comparison between actual and planned sales.

In Nepalese context, practice of profit planning is very week. So many public enterprises are following the traditional system of management. Very few enterprises prepare two periodic profit plans, a long range and short range. A long range profit plan encompass a time horizon of more than five years and short range profit plan encompass more than one years. In the context of NOC, past sales experience is considered to formulate long term sales plan.

To find out the long term actual sales trend, semi average method is used. Data from 2055/56 to 2064/65 is used for this purpose.

Table No. 4.1

Estimation of Trend Line of Sales by Semi-Average Method

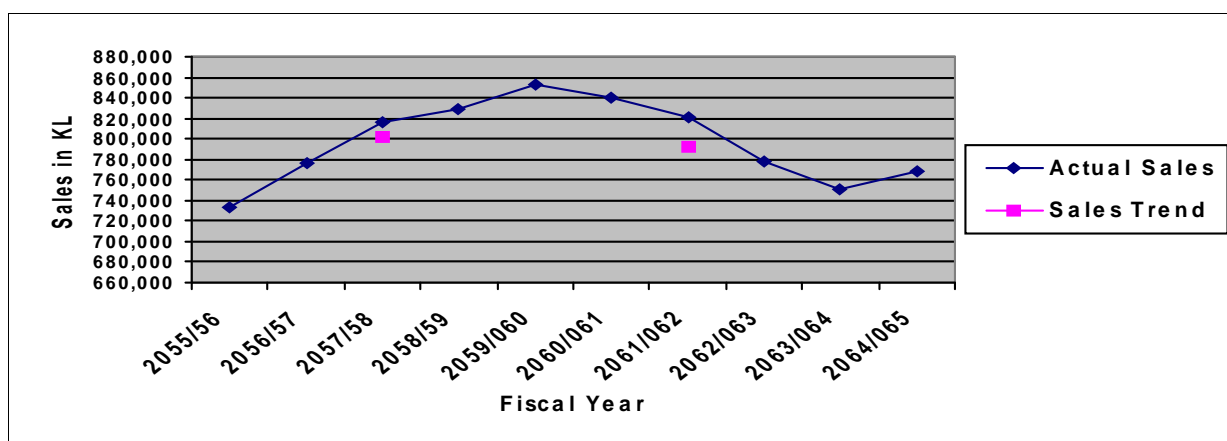
F.Y.	Sales (Unit in KL)	Semi-total	Semi-Average
2055/56	732,793		
2056/57	775,863		
2057/58	815,678	4006758	801351.6
2058/59	829,400		
2059/60	853,024		
2060/61	840,122		
2061/62	821,591		
2062/63	777,888	3959406	791881.2
2063/64	751,280		
2064/65	768,525		

Source: Annual Report Nepal Oil Corporation, 2008, Katmandu

Now calculate semi-average 801351.6 and 791881.2 are plotted for the year 2057/58 and 2062/63 respectively with the help of figure as below:

Fig. 4.1

Sales Trend of NOC by Semi-average Method



As per constructed semi-average trend line (Fig. No. 4.1) shows the sales made by NOC in different years is fluctuating. The minimum sales quantity is 732,793 which is in FY 2055/56 and the maximum sales quantity is 853,024 which is in FY 2059/60. The above trend line shows the increasing trend of sales. The sales trend is more clear form table No 4.2 where sales target, sales achievement and percentage achievement if different years are presented.

Table No 4.2
Sales Target and Achievement of NOC

Qt in '00' KL

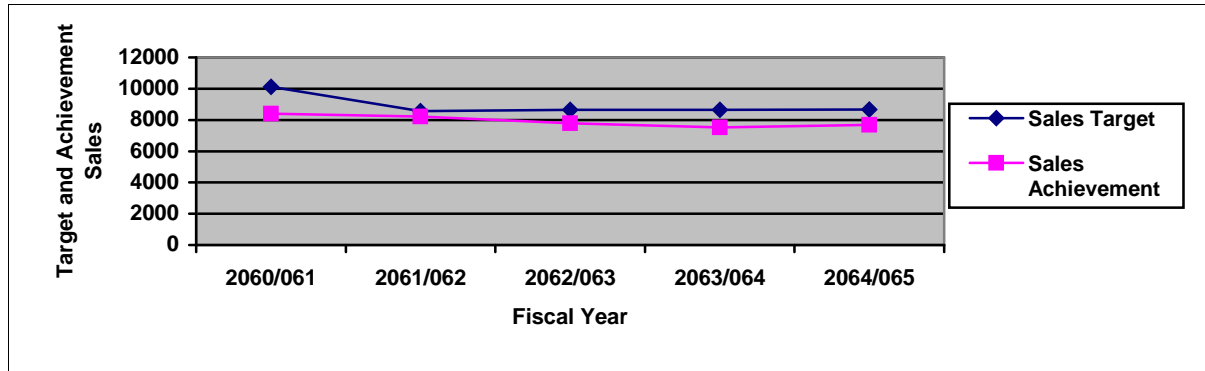
F.Y.	Sales Target	Sales Achievement	% Achievement
2060/61	10110.00	8401.22	83.100
2061/62	8575.40	8215.91	95.808
2062/63	8650.68	7778.88	89.922
2063/64	8652.70	7512.80	86.818
2064/65	8658.80	7685.25	88.757

Source: Nepal Oil Corporation, 2008, Katmandu

The above table No. 4.2 shows the target sales and achievement sales of NOC in unit form FY 2060/61 to 2064/65 B.S. Here target and actual sales both are in fluctuating trend. But the trend is not so high. Percentage achievement of target sales

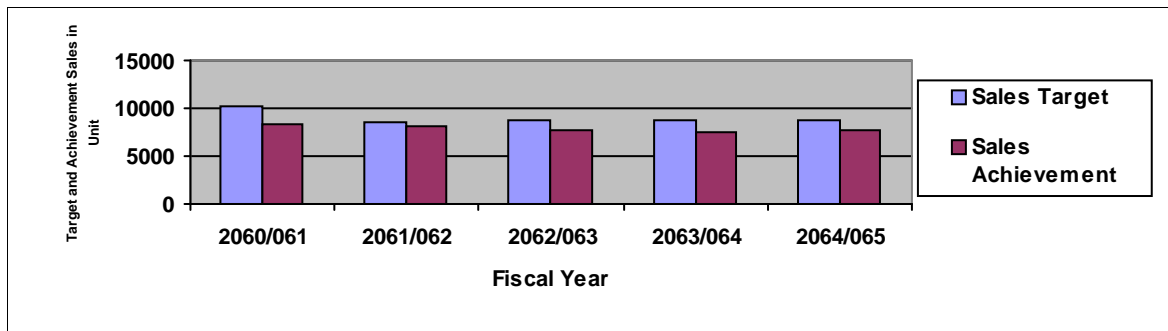
is not so weak but the fluctuation lies is 83.1% to 95.808%. The above data shows the reliable figure in target and actual. For more effective presentation of the data of table No 4.2, we can draw the figure as follows:

Fig. 4.2
Target and Actual Sales of NOC



The above figure shows the fluctuation trend of target sales is grater than actual sales. It shows the weakness of planning system of NOC. For more effective presentation, we can use the diagram as below:

Fig. 4.3
Target and Actual Sales of NOC



From the above presentation of data, conclusion can made that the firm has not nature of variability of target sales and achievement sales. It is necessary to find out the nature of variability of target sales and achievement sales. Arithmetic mean standard deviation and co-efficient of variation of those figure for five year period from FY2060/61 to 2064/65 are analyzed.

Table No 4.3
Statistical Information Table of Target and Achievement Sales

Particular	Target Sales (X)	Actual Sales (Y)
------------	------------------	------------------

Mean (\bar{X})	8929.52	7918.81
Standard Deviation (\dagger)	179.73	334.65
Coefficient of variation (CV)	2.01	4.23

Source Appendix -A

Mean of target sales is greater than achievement sales and co-efficient of variation of target sales are 2.01 and of achievement sales is 4.23 in above statistical information presented in table No. 4.3 as computed in appendix-A. It shows the higher variability in achievement sales. Here rememberable thing is that the figure of higher CV is more variable than lower C.V.

To find out the degree of correlation between target and actual sales, Karl Pearson's co-efficient of correlation (r) is to be calculated. For this target sales 'x' is assumed to be independent variable and achievement sales 'y' is assumed to be dependent variable. From this we can derive direction of correlation between variables.

We have to following formula to calculate the correlation coefficient,

$$\begin{aligned} \text{Correlation Co-efficient (r)} &= \frac{\phi_{xy}}{\sqrt{\phi X^2} \sqrt{Y^2}} \\ &= 0.87 \end{aligned}$$

The result of correlation shows 0.87. It means there is high degree of positive correlation. It means the direction of change in actual and target sales is positively correlated.

Similarly a regression line to forecast the achievement with given sales target for the coming year can be presented which shows relationship of both variables, assume sales target is independent and achievement is dependent variable.

Statistical tools	Sales target 'x'	Sales achievement 'Y'
Mean (\bar{X})	8929.52	7918.81
Standard Deviation (\dagger)	179.73	334.65
Co-efficient of correlation 'r' = 0.87		

Regression line of achievement sales 'y' as target sales 'x' is as follow

$$y - \bar{y} = r \frac{\dagger Y}{\dagger X} (x - \bar{X})$$

And get, $y = 1.62x - 6546.79$

The regression line shows positive relationship between target and actual sales. It means if target sales will decrease in coming year achievement sales will also decrease and if target sales will increase in future the actual sales will also increase.

For example

a) If sales for FY 2065/66 expect 20,000 then actual sales will

$$\begin{aligned} Y &= 1.62 \times 20000 - 6546.79 \\ &= 32400 - 6546.79 \\ &= 25853.21 \end{aligned}$$

The actual sales will be 25853.21K.L.

b) If sales for FY 2065/66 except 10000 then actual sales will

$$\begin{aligned} Y &= 1.62 \times 10000 - 6546.79 \\ &= 16200 - 6546.79 \\ &= 9653.21 \end{aligned}$$

The actual sales will be 9653.21 K. L.

To find out actual sales for given time period, least square equation is used. A least square equation will show the relationship between given time (years) and actual sales. This method assumes that a sale is constantly changed with the change in time and such change with the change in time and such change can be expressed as component of time series.

To fit the straight-line trend time factor is considered as independent factor (x) and sales (Y) as dependent factor, dependent upon time.

As known,

$$Y_c = a + b_x$$

Where

Y_c = Slope of total Sales

A = Constant

B = slope of trend line

X = Independent variable

Table No 4.4

Fitting Straight- Line Trend by Least Square Method

FY	Actual Sales Y in K.L. '00'	x	x²	xy
2060/61	8401.22	-2	4	-16802.44
2061/62	8215.91	-1	1	-8215.91
2062/63	7778.88	0	0	0
2063/64	7512.80	1	1	7512.80
2064/65	7685.25	2	4	15370.5
N=5	ϕ_y X39594.06	ϕ_x X0	ϕ_{x^2} X10	ϕ_{xy} X- 2135.05

(Source: Supply Distribution and Aviation Department)

Where,

$$a = \frac{\phi Y}{N} = 8538.617$$

ϕY = Total actual sales

N= No of years

$$b = \frac{\phi xy}{\phi x^2} = -2135.05$$

As per equation $Y_c = a + b_x$

$$Y_c = 7914.81 + (-213.505_x)$$

The least square trend line shows sales will decrease by (-2135.05) K.L. per year if the trend of past five year is continuous in future in NOC.

Using this trend line sales for 2065/66 estimate (x is 3 assuming base year is 2060/61)

$$Y_c = 7914.81 - 2135.05 \times 3$$

$$= 7914.81 - 640.515$$

$$= 7274.295$$

According to this trend line the sales of 2065/066 will be 7274.295 K.L.

Long term sales plan and achievement detailed and time is presented below in Table No 4.5.

Table No 4.5
Sales Target and Achievement of NOC
By Product and Time

Target Sales							
Product	060/61	061/62	062/63	063/64	2064/65	Total	Average
MS	70000	70589	71493	74458	85000	371540	74308
HSD	350000	292658	304763	317543	325712	1590676	318135.2
SKO	425000	364145	302491	261224	258226	1511086	302217.2
ATF	70000	51368	86528	82000	87570	377466	75493.2
Total	915000	778760	765275	735225	756508	3850768	770153.6
Actual Sales							
060/61	061/62	062/63	063/64	2064/65	Total	Average	
67457	67586	75989	80989	101912	393933	78786.6	
299973	299730	315368	294329	306687.2	1516087.2	303217.44	
348620	310826	239328	226637	197849.5	1323260.5	264652.1	
52893	64041	66825	64335	63777.8	311817.8	62363.56	
768943	742183	697510	666290	670226.5	3545098.5	709019.7	

(Source: Nepal Oil Corporation Central Office Kathmandu)

Table No 4.5 shows target and achievement sales of NOC for different products. For the year 2060/61 to 2064/65 B.S. and for both target and achievement sales, and average data for five years of all given products also presented at Table No 4.5, so that the table is very informative and it will help to understand this study on different stage. The product wise target and achievement sales are presented in fig 4.4 (a, b, c, d).

Figure No. 4.4 (a)
Sales Target and Achievement of MS

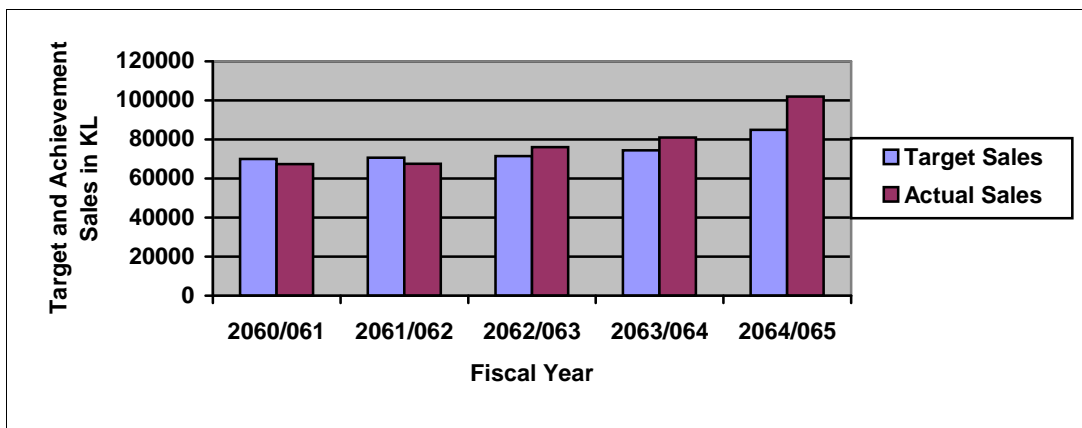


Figure No. 4.4 (b)

Sales Target and Achievement of HSD

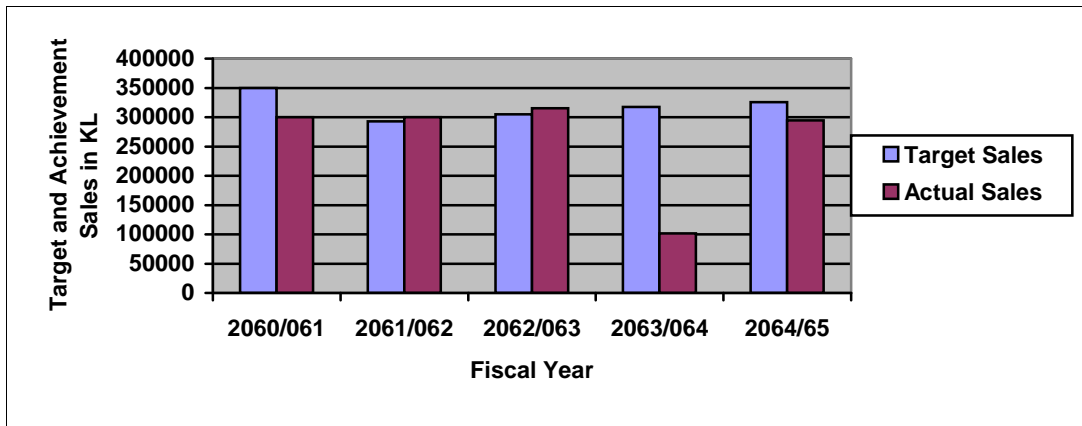


Figure No. 4.4 (c)

Sales Target and Achievement of SKO

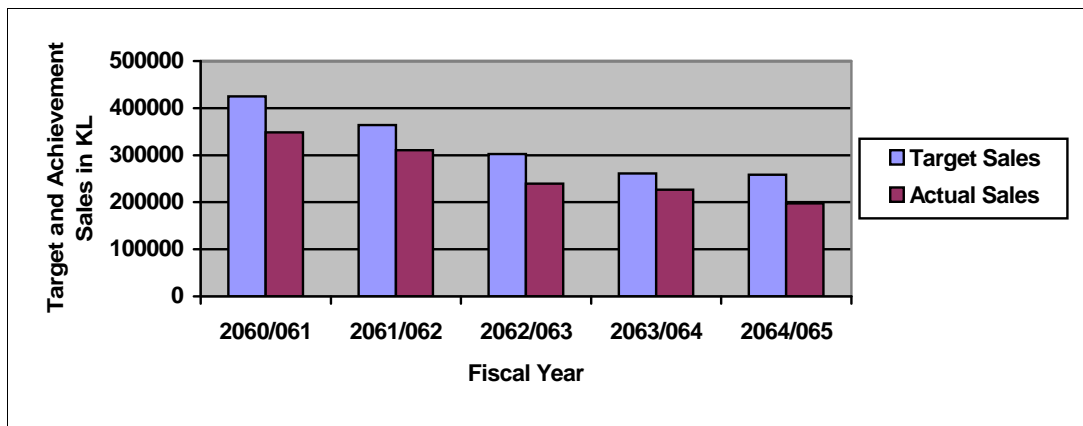


Figure No. 4.4 (d)

Sales Target and Achievement of ATF

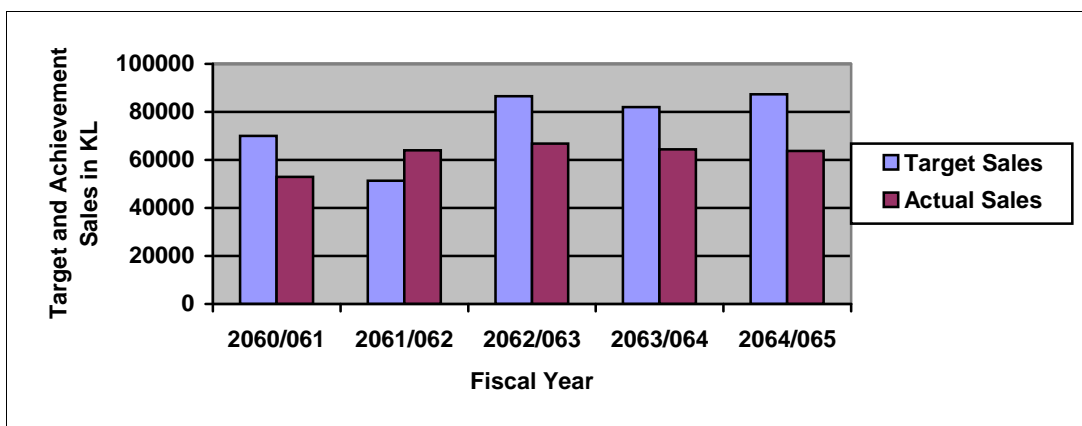


Figure 4.4 (a, b, c, d) shows the sales target and achievement for all products. It also shows the sales are high for SKO and HSD. According to the

planning officers of NOC, cause of higher sales of SKO is lower price and it is also use for fuel in large industry also. HSD is also highly used for different industry, vehicle and other so many sectors as fuel. Therefore supply of SKO and HSD are higher than other products.

4.3 Trend Analysis of Sales

A sale is an act of exchanging something for money. Nepal Oil Corporation sales are different products to its consumer. The following table shows the comparative statement of annual sales of NOC from FY 2059/60 to 2063/64.

Table No 4.6
Comparative Statement of Annual Sales of Petroleum Products

S. No.	Type of Fuel	Year & Respective Percentage										Total
		060/61	%	061/62	%	062/63	%	063/64	%	064/65	%	
1	MS	67457	9	67586	10	75989	11	80989	12	101912	15	393933
2	HSD	299973	39	299730	40	315368	45	294329	44	306687.2	46	1516087.2
3	SKO	348620	45	310826	42	239328	34	226637	34	197849.5	30	1323260.5
4	ATF	52839	7	64014	8	66825	10	64335	10	63777.8	9	311790.8
Total		768889	100	742156	100	697510	100	666290	100	670226.5	100	3545071.5
% of Total of Total		22		21		20		19		18		100

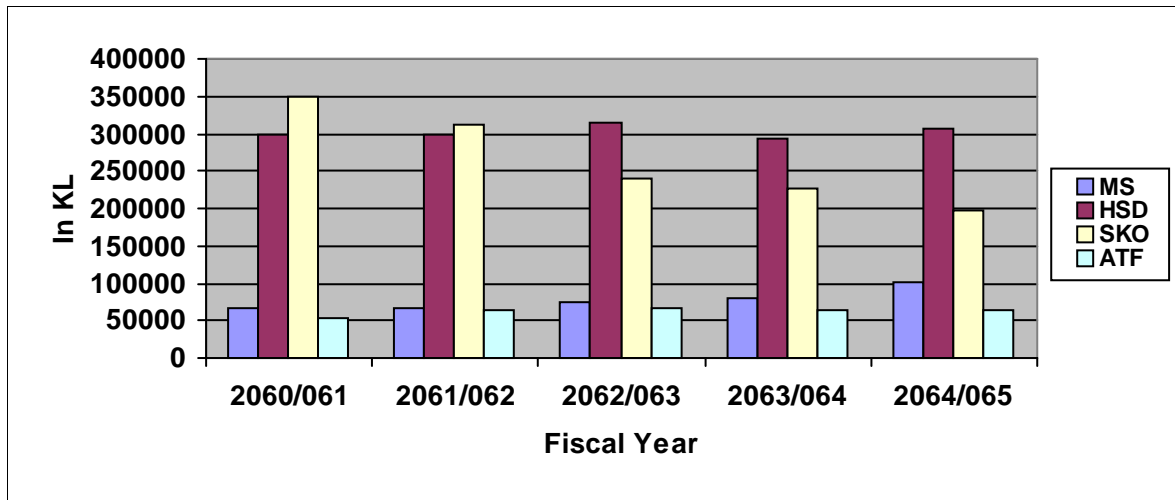
(Source: Nepal Oil Corporation Limited, Central Office, Kathmandu)

The table shows the annual sales trend of petroleum products during the past five years from 2060/61 to 2064/65. They are 76889, 742156, 697510, 666290 and 670226.5 kiloliter respectively and 3545071.5 in the total of all past seven years sales total. In fiscal year 2060/61 sales of MS 67457, HSD is 299973; SKO is 348620 and ATF is 52839 which is the proportion of 9%, 39%, 45% and 7% respectively. In fiscal year 2061/62 sales of MS is 67586, sales of HSD is 299730, sales of SKO is 310826 and sales of ATF is 64014 which is in proportion of 10%, 40%, 42% and 8% respectively. Similarly in FY 2062/63 they are 75989, 315368, 239328 and 66528 kiloliter respectively and with their proportion of 11%, 45%, 34% and 10% respectively. Similarly fiscal year 2063/64 they are 80989, 294329, 226637 and 64335 kiloliter respectively with their proportion of 12%, 44%, 34% and 10% respectively. Similarly fiscal year 2064/65 they are 101912, 306687.2, 197849.5 and 63777.8 kiloliter respectively with their proportion of 15%, 46%, 30% and 9% respectively.

The table above shows that sales proportion of MS is 15% which is the highest in the years 2064/65 and its lowest proportion is 9% during the year 2060/61. The proportion of sales of HSD in FY 2064/65 is 46% which is the highest ratio. And its lowest proportion is 39% which is in the FY 2060/61. Similarly sales of SKO in FY 2060/61 are 45% which is the highest percentage and its lowest percentage is 30% in the FY 2064/65. The sales proportion of ATF in FY 2062/63 to 2063/64 is 10%, which is the highest proportion and in FY 2060/61 is 7%, which is the lowest percentage.

Percentage of sales total of the total in FY 2060/61 is 22% and it is decreasing under every year and in FY 2064/65 it results up to 18%. The graphical figure clarifies the more details.

Figure No 4.5 Sales Statistics of Petroleum Products



Observing the table is found that the sales of SKO & HSD are higher all over the study period and sales of MS and ATF are lower in comparison. The sales of HSD are very high because it is used in public transport vehicles and number of vehicle increasing every year. The other reason being cheaper priced than petrol and highly efficient for engine this oil has very high demand. Similarly the sales of Kerosene are very high due to its price and easy access to consumer and it is affordable for the poor people. The people use it as the cooking fuel in replacement of forest base fuel and also for lightening purpose.

Analyzing their sales trend the sales of HSD has unexpectedly risen in the FY 2064/65. The reason may be increase public transportation day by day due to loan provided by finance.

On the other hand the sales of MS and ATF seem comparatively low because it has limited demand for specific purpose. Moreover the main purpose of ATF is for air services, so its consumption is slightly higher than petrol even having its low price.

4.4 Purchase Budget

After preparation of sales budget, the second step followed by merchandising organization is to prepare purchase budget. It refers the development of policies about efficient purchase level and facilities.

A purchase budget for merchandise organization is a quantity budget, which lays down the quantity of units to be purchased during the budget period. Aim behind preparing purchase budget is to maintain optimum balance between sales, purchase and inventory position of the firm.

The following table No 4.7 shows the purchase target and actual of NOC form FY 2060/61 to 2064/65.

Table No 4.7
Purchase Target and Actual of NOC

FY	Target Purchase in KL '00'	Actual Purchase in KL '00'	% Achievement of Purchase
2060/61	10155.46	8466.35	83.36
2061/62	8710	8275.70	95.01
2062/63	8833.47	7643.09	86.52
2063/64	7800	7503.56	96.20
2064/65	7730	7524.46	97.34

Source: Nepal Oil Corporation, 2008, Kathmandu

The purchase plan depends upon sales plan, cost of purchase, inventory policy etc. The above table No 4.6 shows the target and achievement purchase of NOC in different year. As per the table, the % achievement of target purchase has been fluctuating in different year at some case 83.6% to 97.34%. It means there is no so effective planning system of purchase. The figure of Table No. 4.6 can be shown more effectively in figure no 4.5

Figure 4.6
Purchase Target and Achievement of NOC (Line Diagram)

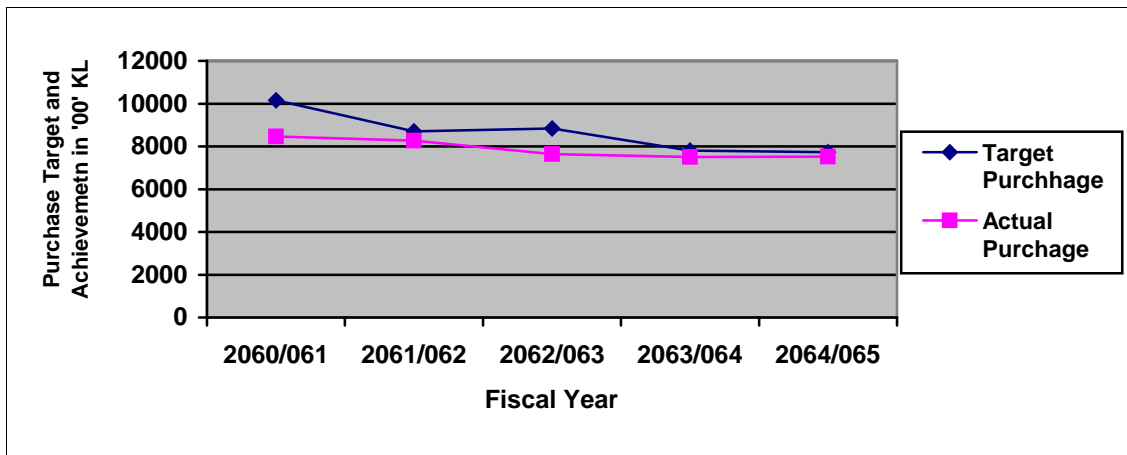
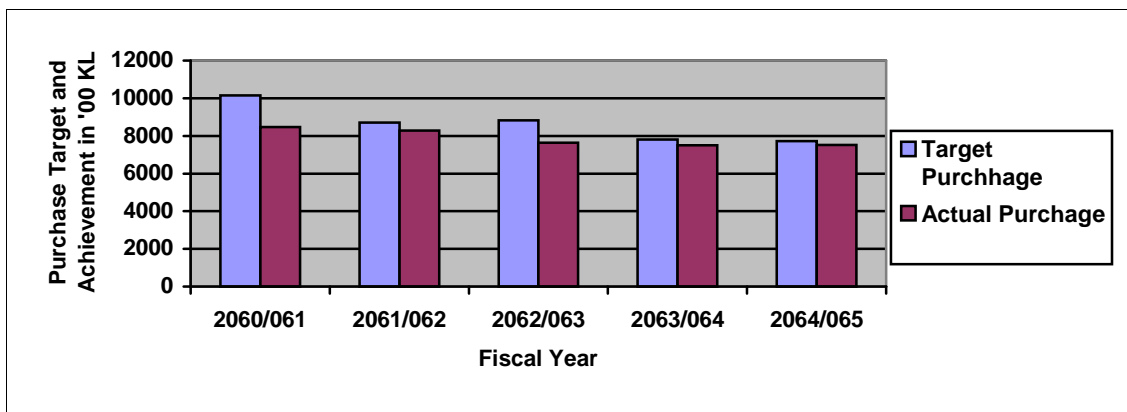


Figure No. 4.6 shows the very nearest point for budget and actual purchase in FY 2064/65 and show the large gap between budget and actual if FY 2060/61. For more effective presentation, bar diagram can be used as below:

Figure No 4.7

Purchase Target and Achievement of NOC (Bar Diagram)



In order to calculate the variability of purchase the arithmetic mean, standard deviation and coefficient of variation from available data from 2060/61 to 2064/65 for 5 years (Data are from table No. 4.6) can be calculated. Calculated values are as below (*Appendix-B*)

Table No. 4.8
Statistical Information Table of Purchase

Particular	Target purchase 'x'	Actual purchase 'y'
Mean	8645.786	7882.632
Standard Deviation	409.55	406.10
Coefficient of Variation (CV)	4.74	5.152

Source Appendix –B

Table No 4.8 shows co-efficient of variation of is less than achievement purchase. Higher CV indicates more variable of data than lower CV. Therefore it is concluded that variability of actual purchase in NOC is high.

To find degree of correlation, Karl Pearson's co-efficient of correlation (r) is to be determined.

Here, target purchase 'X' are assumed as independent and achievement purchase 'Y' as dependent variable.

$$\begin{aligned} \text{The coefficient of correlation (r)} &= \frac{\phi_{xy}}{\sqrt{\phi X^2} \sqrt{\phi Y^2}} \\ &= 0.85 \end{aligned}$$

Since the value of 'r' = 0.85 actual and target purchase in NOC is positively correlated.

A regression lines shows relationship between target and actual purchase and also helpful to forecast the achievement within given target.

To calculate the regression line of purchase, target (x) is assumed as independent and achievement (y) as dependent variable and get regression line 'y' on 'x' as under.

Statistical Tools	Purchase target (x)	Purchase achievement (y)
Mean	8645.786	7882.632
Standard deviation	409.55	406.1
Co-efficient of correlation		

Source Appendix- B

Now,

$$y - \bar{y} = r \frac{\sum y}{\sum x} (x - \bar{x})$$

$$Y - 7882.632 = 0.85 \left| \frac{406.1}{409.55} (x - 8645.786) \right.$$

$$Y = 0.843x + 595.62$$

The regression line shows the positive relationship of target and achievement purchase. Another statistical tool called least square method is used to analysis the trend of actual and target purchase and to estimate the possible future purchase for a given time frame. To calculate least square trend, target 'x' is assumed as independent and achievement 'y' as dependent variable. Calculation shown in table No 4.8

Straight line trend $Y_c = a + bx$

Y_c = Slope of total purchase

a = constant

x = Independent variable

b = Slope of trend line

Table No 4.9

Fitting Straight Line Trend by Least Square Method of Purchase Achievement of NOC

FY	Actual purchase 'y' in K.L. '00'	x	x ²	xy
2060/61	8401.22	-2	4	-16802.44
2061/62	8215.91	-1	1	-8215.91
2062/63	7778.88	0	0	0
2063/64	7512.80	1	1	7512.80
2064/65	7685.25	2	4	15370.5
N = 5	39594.06		10	-2135.05

(2061/62 is assumed as base year)

$$a = \frac{\sum Y}{N} - b \frac{\sum X}{N} = \frac{39594.06}{5} - 0.843 \frac{10}{5}$$

$$\begin{aligned}
&= 7918.812 \\
b &= \frac{\phi XY}{N} \times \frac{Z2135.05}{5} \\
&= -213.505
\end{aligned}$$

Hence, the equation of straight line trend is $Y_c = 7918.812 - 213.505x$

This straight-line trend shows the negative purchase figure. The purchase decreased by 213.505 K.L per year if past purchase and trend will continue in future. Using this trend line, purchase for 2065/66 estimate (x is 3 assuming base year is 2062/63)

$$\begin{aligned}
Y_c &= 7918.812 - 213.505x3 \\
&= 7918.812 - 640.515 \\
&7278.297
\end{aligned}$$

According to this trend line, the purchase of 2065/66 will be 7278.297 K.L.

Long term purchase plan and achievement detailed by product and time is presented below in table No 4.10

Table No. 4.10**Purchase Target & Achievement of NOC by Time and Product**

Product/F.Y.	Budgeted Purchase						
	060/61	061/62	062/63	063/64	064/65	Total	Average
MS	71482	71816	72833	73573	100320	390024	78004.8
HSD	349623	295810	313188	297512	302000	1558133	311626.6
SKO	426744	370249	308815	228335	190740	1524883	304976.6
ATF	71697	54345	88720	68300	65313	348675	69735
Total	919546	792220	783556	667720	658373	3821715	764343
Actual Purchase							
Product/F.Y.	060/61	061/62	062/63	063/64	064/65	Total	Average
MS	68482	67965	76095	81817	98435	392796	78559.2
HSD	301672	302644	308076	292381	299419	1504192	300838.4
SKO	351696	313127	231463	225007	192576	1313869	262773.8
ATF	53546	64394	68340	66100	63650	316030	63206
Total	775396	748130	683974	665305	654080	3526887	705377.4

Source: Nepal Oil Corporation, 2008.

Table No. 4.10 shows target and achievement purchase of all products from the year 2060/061 to 2064/65 BS along with the average for five year.

4.5 Trend analysis of purchase

Purchasing is the procurement of goods & services form external agencies, which plays significant role on earning of profit of an organization. The following table shows the comparative statement of annual purchase of petroleum product form 2060/61 to 2064/65.

Table No 4.11
Comparative Statement of Annual Purchase of Petroleum Product

In Kiloliter

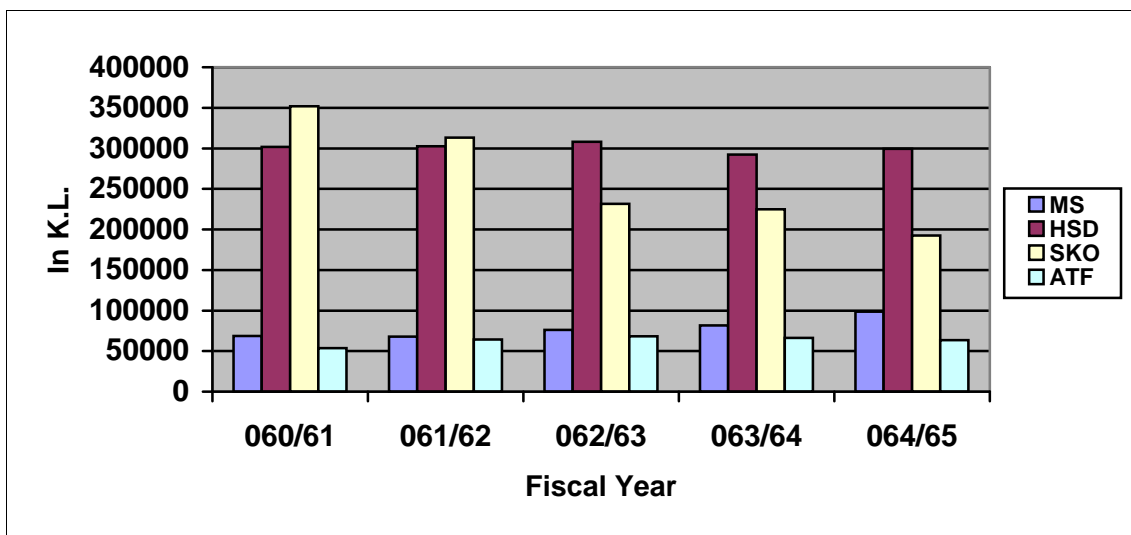
S. No.	Type of Fuel	Year & Respective Percentage										Total
		060/61	%	061/62	%	062/63	%	063/64	%	064/65	%	
1	MS	68482	9	67965	9	76097	11	81817	12	98435	15	392796
2	HSD	301672	39	302644	40	308076	45	292381	44	299419	46	1504192
3	SKO	351696	45	313127	41	231463	34	225007	34	192576	29	1313869
4	ATF	53546	7	64394	10	68340	10	66100	10	63650	10	316030
	Total	775396	100	748130	100	683976	100	665305	100	654080	100	3526887
	%of Total of total	22		21		19		19		19		100

Source: NOC Ltd. Central Office

The table above shows that the total purchases of MS, HSD, SKO and ATF from FY 2060/61 to 2065/66 is 77539, 74813, 683976, 665305 and 654080 kilo liter respectively and 3526887 KL in the total of all total of past five years purchase. In fiscal year 2060/61 purchase of MS is 68482 KL, HSD is 301672 KL, SKO is 351696 KL, and ATF is 775396 KL, which is the proportion of 9, 39, 45 and 7% respectively. In fiscal year 2061/62 purchase of MS, HSD, SKO and ATF is 67965, 302644, 313127 and 64694 respectively which is the proportion of 9%, 40%, 41% and 10% respectively. Similarly they are 76097, 308076, 231463 and 68340 KL with their proportion 11%, 45%, 34% and 10% in fiscal year 2062/63. In fiscal year 2063/64 they are purchase in kiloliter of 81817, 292381, 22507 and 66100 which proportion is 12%, 44%, 35% and 10% respectively. Finally in fiscal year 2064/65 they are purchased in 98435, 299419, 192576 and 63650 kiloliter with proportion of 15%, 46%, 29% and 10% respectively.

The purchase trends of these items can be presented as follows:

Figure No. 4.8
Purchase Statistics of Petroleum Products



The statistics above shows the purchase trend of petroleum products, which is increasing every year. Out of all those products purchases of SKO and HSD are higher than MS and ATF. The purchase of SKO is very high due to its

higher demand as it can be used for multiple purposes. Similarly the demand of HSD is also high because it is used for public vehicle and the number of vehicles is increasing every year.

On the other hand the purchase of MS and ATF is comparatively low because it has limited demand for specific purpose.

4.6 Purchase and Sales Budget

As per requirement of this research, it is necessary to show the relationship between purchase and sales budget. Although both are functional budget, sales budget is prepared through analyzing past trend, statistical method and using external expertism etc. But purchase budget is prepared on the basis of sales budget. Only those quantities are purchase by NOC, how much sales is expected in future. Therefore both of these budgets are integral to each other. To find out the relationship between sales and production budget of NOC, correlation is needed to calculate between target sales and target purchase and actual sales and actual purchase. For this purpose 5 year' data of FY 2060/61 to 2064/65 is used.

Table No.4.12

Detail Data of Actual Sales and Actual Purchase and Target Sales & Target Purchase

FY	060/61	061/62	062/63	063/64	064/65
Sales target (x)	10110.00	8575.40	8650.68	8652.70	8658.80
Purchase target (y)	10155.46	8710.00	8833.47	7800.00	7730.00
Sales achievement (x1)	8401.22	8215.91	7778.88	7512.80	7685.25
Purchase achievement (y)	8466.35	8275.70	7643.09	7503.56	7524.46

(Source: Nepal Oil Corporation, Central Office, Kathmandu)

To show the relationship between Target sales (x) and target purchase (y) correlation coefficient (r) is needed to compute.

Table No. 4.13
Statistical Information Table of Target Sales
and Target purchase

Statistical tools	Sales Target (x)	Purchase target (y)
Mean	8929.52	8645.786
Standard deviation	179.73	499.55
Coefficient of variation	2.01%	4.74%

To find out degree of correlation Carl Pearson's co-efficient of correlation (r) is to be determined.

Here,

$$\begin{aligned} \text{The co-efficient of correlation (r)} &= \frac{\phi XY}{\sqrt{X^2} \sqrt{Y^2}} \\ &= 0.87 \end{aligned}$$

Here, the degree of relationship between target sales and target purchase is 0.87. It means there is high degree of positive correlation between target sales and target purchase. To compute correlation between actual sales and actual purchase, Table No 4. 13 again used.

Table No. 4.14
Statistical Information Table of Actual Sales and Actual Purchase

Statistical tools	Sales achievement (x)	Purchase achievement (y)
Mean	7918.81	7882.632
Standard Deviation	334.65	406.10
Co- efficient of variation	4.23	5.152

Source Appendix-C

To find out the degree of correlation, Carl Pearson's co-efficient of correlation (r) is to be determined.

$$\text{Co-efficient of correlation (r)} = \frac{\phi XY}{\sqrt{X^2} \sqrt{Y^2}}$$

$$= 0.98$$

Since the value of $r = 0.98$. There is high degree of positive correlation between actual purchases. It means the demand and sales of NOC are very high.

4.7 Profits on Sales Achievement of NOC

Profit is the symbol of success for each and every organization. Each and types of business firm have so many objectives, such as social service, customer satisfaction, satisfaction of personnel, earning minimum profit etc. but among them profit is base for others.

Besides the main aims of NOC to purchase and distribute pure and quality product in reasonable and fair price to the general people and business firm, it has also business objective of making reasonable profit.

Table No. 4.15
Profit and Loss made by NOC

Rs. In '00,000'

FY	060/61	061/62	062/63	063/64	064/65
Net Profit in Rs	21415.48701	8890.65582	392.94126	(18231.11380)	(8288.72877)
Net Sales in Rs.	137562.03458	176517.23	181041.51687	202556.43390	226000.64881
% of NP on net sales	15.56	5.0367	0.217	-9.005	-3.688

(Source: Nepal Oil Corporation, Central Office, Kathmandu)

In this Table No 4.15 shows the profit in FY 060/61, 061/62 and 062/63 and heavy loss in FY 063/64 and 064/65. In general business ethics at least 10% profit on sales is necessary to move organization well but table no 4.15 shows poor percentages of profit except in the year 2060/61 and loss in the last two years. It means NOC has not been able to fulfill the general business objectives.

4.8 Cost Volume Profit Analysis

The relationship between cost, sales volume and profit is known as cost volume-profit analysis. It is an analytical tool for studying the relationship between sales volume, cost price and profit. There are three factors, which are interconnected and dependent on one another. For example profit depends upon sales, selling price to a greater extent will depend on one another. For example profit depends upon sales, selling price to a greater extent will depend upon the cost and cost depends upon the volume of production. It is greater helpful in managerial decision-making. Generally cost-volume profit analysis provides answer to question such as:

- i. What sales volume is needed to avoid losses?
- ii. What will be the effects of change in prices?

Break even analysis is the term to study of the interrelationship between cost volume at various level of activity. It is the most widely known as CVP analysis. Cost volume profit of NOC was calculated by following data for FY 062/63 to 064/65.

Rs. '00,000'

Particular	060/61	061/62	062/63	063/64	064/65
Sales	141041.1	202556.90	181041.51687	202556.43390	226000.64881
Total Fixed cost	2778.69	2538.29	2978.93969	2148.9829	2264.12763
Total variable	159604.71	169245.24	179604.96871	219245.24224	232246.54475

(Source: Nepal Oil Corporation, Central Office, Kathmandu)

FC = Interest + Depreciation + Administration cost

VC = Cost expenses + Selling and distribution cost

As Known:

- i. Variable cost volume ratio (v/v ratio) = $\frac{\text{Variable Cost}}{\text{Sales}}$
- ii. Profit Volume ratio (P/V ratio) = 1- v/v ratio
- iii. Break even point (BEP) in Rs. = $\frac{\text{Fixed Cost}}{\text{P/V Ratio}}$

Following calculate figure is derived from available data.

Particular	062/63	063/64	062/63	063/64	064/65
V/V ratio	0.994	.0824	0.994	1.0824	1.0276
P/V ratio	0.006	-0.0824	0.006	-0.0824	-0.0276
BEP in Rs.	496489.9483				

The above data shows the company bears heavy variable cost in different year. The heavy variable cost is causes of loss. In year 063/64 and 064/65 variable cost volume ratio is greater than 1. That means variable cost is greater than sales volume. In this case, increase in sales volume means increase in loss. Here the rememberable thing is that profit can be increased through increasing selling price, changing the sales mix and reducing variable cost so here the company needed to reduce variable cost and increasing selling price to increasing profit.

4.9. Budgeting Procedures

Procedure adopted by the company is very important for preparation of more realistic budget. Budget is a framework of future transaction, so it very important for future of organization. If the organization follows wrong budgeting procedure, then it will be very unfortunate situation for management.

So many transitions are involved in budgeting procedure. Some organizations are follow one type of procedure and other follow the next. Different organization follow the different procedure as their requirement

criteria of planning external and internal forces, planning of different activities, using of different managerial planning tools, adoption of controlling practice, practice of decision making and planning, clearly of sales goals, responsibility accepted by different level of management, commitment for development of budget by different management level. Participation of personnel in decision-making and implementation and other so many factors are involved in budgeting procedure. To analyze the budgeting procedure of NOC, researcher used the questionnaire filled by the personnel. The outputs of questionnaire are presented below and analyzed one by one by using mean and percentage.

4.9.1 Responsibility for Preparing Sales Plan

The following table No 4.16 shows the responsibility for preparing sales plan in NOC.

Table No 4.16
Responsibility for Preparing Sales Plan in NOC

Management level	No of respondents	Percentage
Top Management	5	50
Middle management	4	40
Lower Management	1	10
Total	10	100

Table No. 4.16 shows the 50 %respondents pointed for top management, 40% for middle management and 10% for lower management. So the decision should be top management is more responsible for preparing sales plan.

4.9.2 Criteria Followed by NOC in Preparing Sales Plan

Different organization follows the different criteria in preparing sales plan. The following table shows the criteria followed by NOC while preparing sales plan.

Table No. 4.17

Criteria Followed by NOC in Preparing Sales Plan

Criteria	Frequencies					Total score	Mean
	1	2	3	4	5		
Intuition	1	2	3	4	-	30	3
Past Experience	-	-	1	3	6	45	4.5
External expertise	1	2	6	-	1	28	2.8
Statistical method	-	1	7	2	-	31	3.1

Above table No. 4.17 shows the different mean value for different criteria. The mean value of intuition, past experience, external experts and statistical method are 3, 4.5, 2.81 and 3.14 respectively. Past experiences have highest mean value i.e. 4.5. It means that NOC uses the past experience as basis to prepare sales plan. The next importance criteria followed by NOC to prepare sales plan is statistical method, which have the second highest mean value 3.1. And NOC give less priority for intuition and external experts. For more clarity, we can show the above result in following figure as

Fig. No 4.9

Criteria Followed by NOC in Preparing Sales Plan

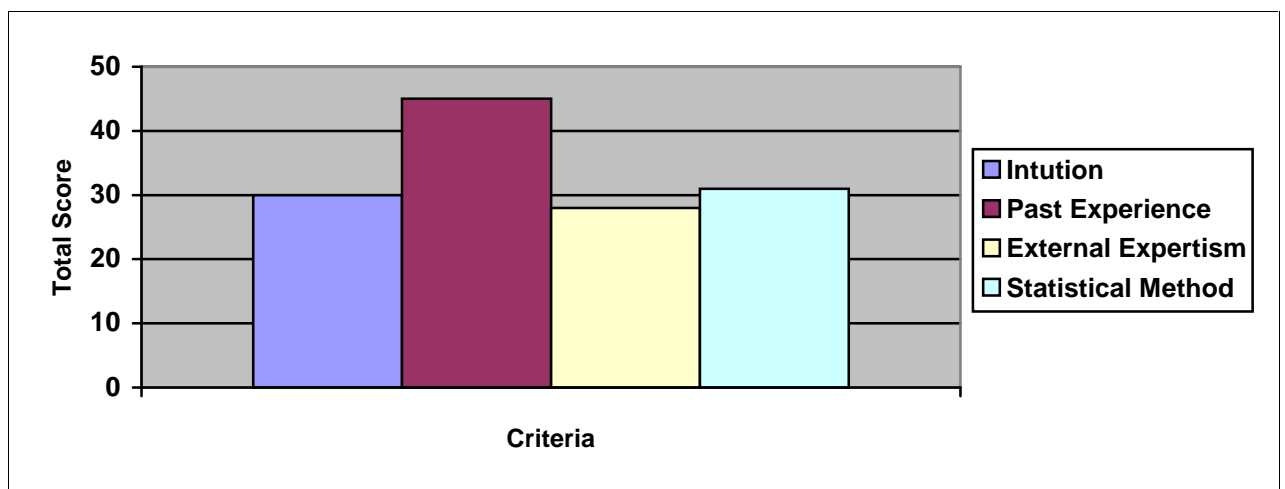


Figure 4.9 also show the highest point given for past experience and lowest point for intuition that reason NOC highly follows the past experience and lowest point for intuition that means NOC highly follow the past experience in the preparation of sales plan.

4.9.3 External Forces in Plan

External forces are important for each and every organization. NOC is also affected by different types of external forces, such as political, legal, economic etc. external forces considered by NOC to prepare sales plan is shown by the following table no. 4.18.

Table No. 4.18

Consideration of External Forces in Preparing Sales Plan

Forces	Frequencies					Total Score	Mean
	1	2	3	4	5		
Economic	-	-	1	2	7	46	4.6
Socio- Cultural		2	4	3	1	33	3.3
Political & Legal	-	1	2	5	2	38	3.8
Competition	5	3	2	-	-	17	1.7

Table No. 4.18 shows the total score and mean value of different external forces considered by NOC. The mean value of economic forces, socio-cultural forces, political- legal forces and competition are 4.16, 3.3, 3.8 and 1.7 respectively. Among them, mean value of economic forces is highest (4.6). So we can make conclusion that the NOC give high consideration for the economic force. And the lowest value is 1.7 for competition. So the NOC give less priority for competition. For more effective presentation we can use the bar- diagram for total score computed in table no. 4.18 of external forces in preparing sales plan.

Figure No. 4.10
Consideration of External Forces in Preparing Sales Plan

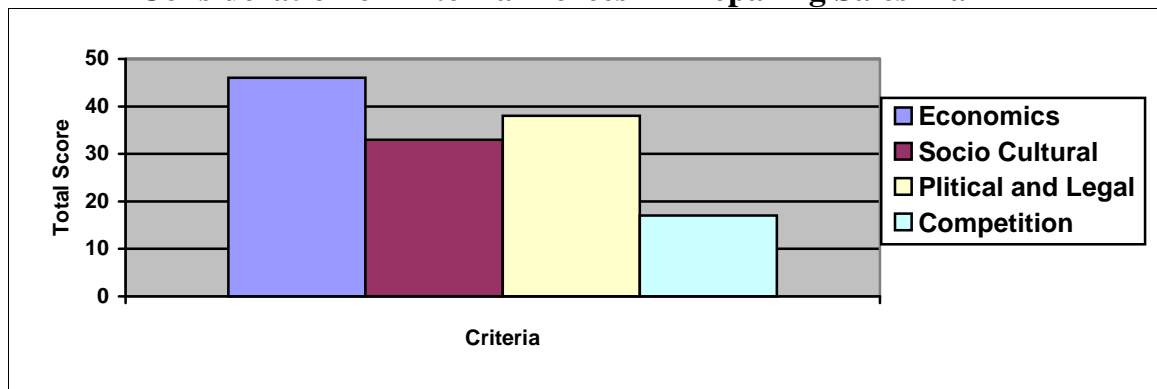


Figure 4.10 shows the highest for economic forces and lowest point for competition. It means, NOC highly considered for economic forces and competition is not so important for NOC.

4.9.4 Consideration Factor of Sales Plan

It is necessary to give consideration for different internal factor to prepare sales plan. Planner should consider financial strength, managerial strength, technological strength etc. Different factor considered by NOC are shown in Table No 4.19

Table No 4.19
Consideration Factor of Sales Plan

Consideration Factor	Frequencies					Total Score	Mean
	1	2	3	4	5		
Financial Strength	-	1	1	2	6	43	4.3
Managerial strength	-	2	3	4	1	34	3.4
Technological Strength	4	3	1	2	-	21	2.1

Table No. 4.19 shows the total score and mean value of different consideration factor. Mean value of financial Strength, Managerial strength and technological strength are 4.3, 3.4 and 2.1 respectively. Among them, mean value of financial strength is higher, so we can make conclusion that NOC highly considers the financial strength, than Managerial strength which have

mean value of 3.4. And consideration factors are presented in bar-diagram in Fig. 4.11

Figure No 4.11
Consideration Factor of Sales Plan

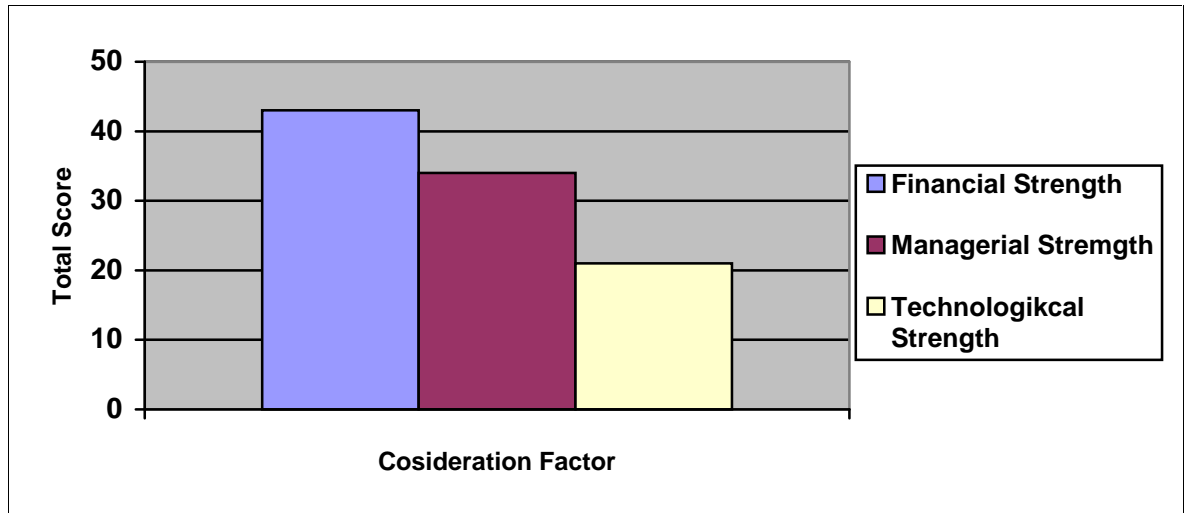


Figure 4.11 shows the highest score for financial strength, it means NOC highly consider and financial strength and very low consideration for technological strength.

4.9.5 Clarity of Sales Goals

For effective sales plan, sales goal should be clear and reliable. If there is vague sales goals then planning of sales will be very difficult. Table No. 4.20 shows the clarity of sales goals of NOC.

Table No. 4.20
Clarity of Sales goods of NOC

Level of Clarity	No of Respondents	Percentage
Adequately	2	20
Clear	4	40
Moderately clear	1	10
Ambiguous	1	10
Vague	2	20
Total	10	100

Table No. 4.20 shows that 40% respondents express their view for clear sales goal and 20% respondents express their view for adequately clear sales goals. So the conclusion is the sales goal of NOC is clear.

4.9.6 Practice of Decision Making and Planning

The following table No. 4.21 shows the practice of decision making and planning of NOC.

Table No 4.21
Practice of Decision Making & planning of NOC

Decision Making Practice	No of Respondents	Percentage
Top management makes all and just communicates to other	4	40
Top management along with middle level managers make decisions	5	50
Lower level managers develop plans and forward upward for final decision	0	0
Participation of managers of all levels are encouraged and sought	1	6
Total	10	100

Table No. 4.21 shows the maximum percentage in the row of top management along with middle level managers make decision. So the conclusion is top management along with middle level managers make decision in NOC.

4.9.7 Top Management's Commitment in the Implementation of Plans

Without proper implementation, all kinds of plan will be valueless. So the implementation factor is very important for each and every plan. Following

table shows the top management's concern and commitment in the implementation of Plans.

Table No. 4.22

Top Management Concern and Commitments in the Implement of Plans

Level of Commitment	No of respondents	Percentage
Very much	1	10
More	2	20
Moderate	4	40
Less	2	20
Very Less	1	10
Total	10	100

Table No. 4.22 shows the different level of commitment and the number of personnel for corresponding level of commitment. According to this table, 40% personnel express their view for moderate commitment in implementation of plans.

4.9.8 Seriousness Shown by Organization in Tacking the Probable Problems

Most of organization faces different kinds of problems in decision- making process. NOC cannot be the exception. The following Table No 4.23 shows the seriousness of NOC in tacking the probable problems.

Table No. 4.23

Seriousness Shown by NOC in Tackling the Probable Problem

Level of seriousness	No of respondents	Percentage
Very much serious	1	10
Much serious	2	20
Moderately serious	4	40
Less serious	2	20
No serious	1	10
Total	10	100

Table No 4.23 shows the level of seriousness and the number and percentage of respondent for corresponding level of seriousness. The highest percentage of respondent is 40%, which is lies in the row of moderately serious, so we can make decision that NOC is moderately serious for taking the probable problems.

4.9.9. Sales Budget Prepared on the Basis of Product, time and Territory

In order to know the respondent's opinion whether or not the sales budget prepared on the basis product, time and territory? The responses received from the respondents are tabulated as follows:

Table No. 4.24

Sales Budget Prepared on The Basis of Product, Time and Territory

Response	Yes		No		Total	
	No.	%	No	%	No	%
Product	2	20	-	-	2	20
Time	2	20	-	-	2	20
Territory	6	60	-	-	6	60
Total	10	100	-	-	10	100

The cent percent of respondents agree that sales budget should be prepared on the basis of product, time and territory. The highest percentage of respondent is 60% stating that the sales budget should be prepared on the basis of territory by NOC.

4.9.10. Planning Activity

To achieve the sales goal of organization, proper planning of different activities is essential. Without proper planning of different activities organization cannot achieve their sales goals. Different activities planning by NOC to achieve sales goals are shown in table No. 4.25

Table No. 4.25

Planning of Activities to Achieve the Sales Goals

Activities	Frequencies					Total Score	Mean
	1	2	3	4	5		
Marketing	5	1	1	2	1	23	2.3
Finance	4	1	3	2	1	28	2.8
Managerial	1	1	3	3	2	34	3.4
Human Resource	3	-	4	2	1	28	2.8

Table No 4.25 shows the total score and mean value of marketing activities, financial activities, managerial activities and human resource activities and the mean value them are 2.3, 2.8, 3.4 and 2.8 respectively. The highest value is 3.4. Which lies on the row of managerial strength. It shows NOC gives high priority for planning of managerial strength. And the lowest value of mean is 2.3, which, is lies on the row of marketing activities that means NOC give less priority for marketing activities to achieve the sales goal.

For more effective presentation, we can use the bar diagram as below:

Figure No 4.12

Planning of Activities to Achieve the Sales Goal

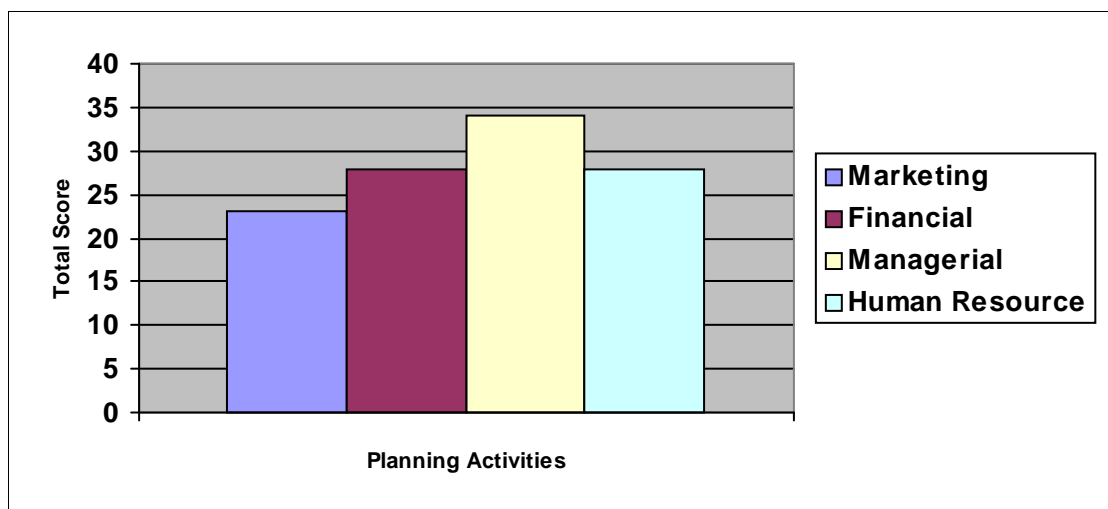


Figure No. 4.12 shows the score of Marketing, Financial, Managerial and Human Resource Activities. This figure shows the highest point for

managerial strength and lowest point for marketing activities that means NOC gives high priority for planning of managerial activities and less priority for planning of marketing activities.

4.9.11. Managerial Planning Tools

Different managerial planning tools are used in different company. NOC also use different planning tools but all are not equally important Managerial Planning tools used by NOC are shown in Table No. 4.24 as follows:

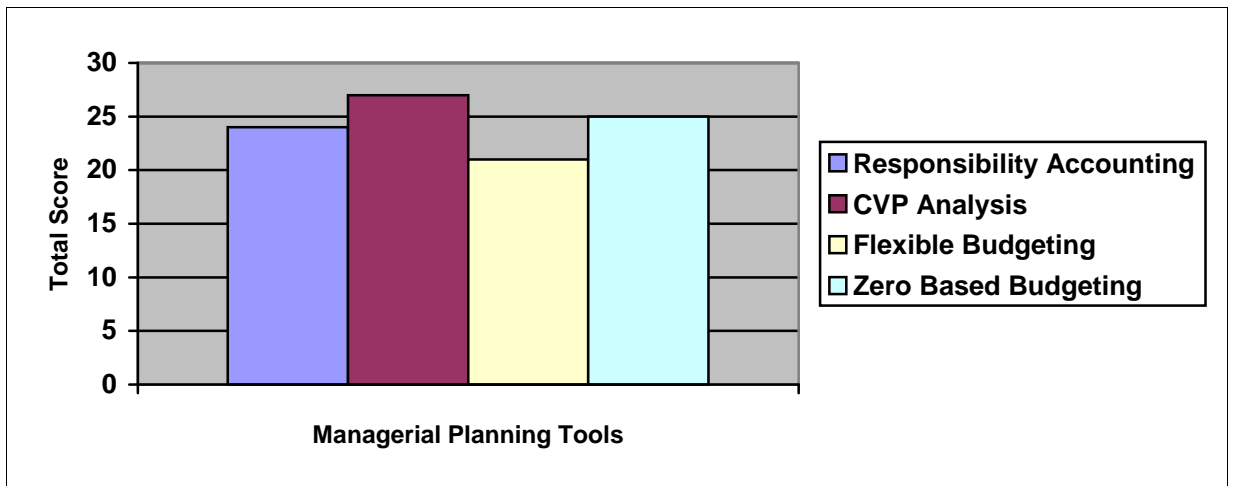
Table No. 4.26
Managerial Planning Tools

Planning Tools	Frequencies					Total Score	Mean (\bar{X})
	1	2	3	4	5		
Responsibility Accounting	3	3	2	1	1	24	2.24
CVP Analysis	3	2	1	3	1	27	2.7
Flexible Budgeting	3	4	2	1	-	21	2.1
Zero- Based Budgeting	4	2	1	1	2	25	2.5

The above table 4.26 shows the total score and mean value of different managerial planning tools. The mean value of responsibility accounting CVP analysis flexible budgeting, and zero-based budgeting are 2, 2.7, 2.1 and 2.5 respectively. Among these mean value 2.7 is the highest and it lies on the row of CVP analysis that means NOC give high priority for CVP analysis. The lowest mean value is 2.1 which lies on the row of flexible budgeting, so we can make conclusion that NOC give less priority for flexible budgeting.

For more effective presentation, we can present the total score of Table No. 4.24 in figure as follows:

Figure No. 4.13
Uses of Managerial Planning Tools



The above figure 4.13 shows the highest score for CVP analysis that means NOC highly use the CVP analysis. And the score of flexible budgeting is lowest, that means NOC do not use the flexible budgeting tools for planning.

4.9.12 Controlling Practice

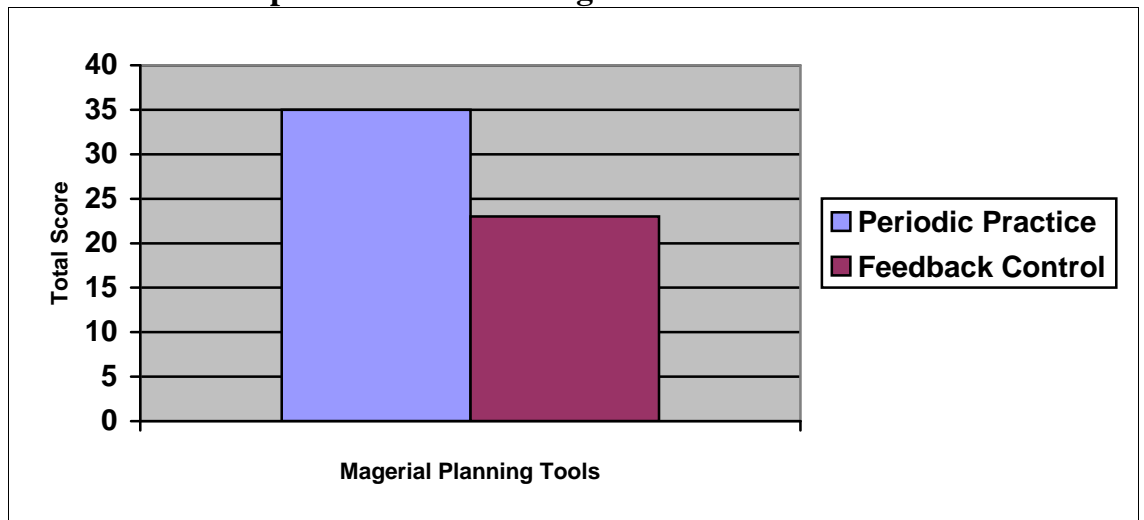
Controlling is necessary for planning and other managerial function. For this purpose, organization use the different tools such as periodic control, feedback control etc. The following Table No. 4.27 shows the controlling practice of NOC.

Table No. 4.27
Adaptation of Controlling Practice

Controlling Tools	Frequencies					Total	Mean (\bar{X})
	1	2	3	4	5		
Periodic control	2	1	1	2	4	35	3.5
Feedback control	4	1	3	2	-	23	2.3

Table No 4.27 shows the total score and mean value of different controlling tools. Mean value of periodic control and feedback control are 3.5 and 2.3. The mean value of periodic control is greater than feedback control, so we can make conclusion that the NOC highly adopt periodic control method and secondly feedback control method. For more effective presentation, we can use bar- diagram as follow:

Figure No. 4.14
Adaptation of Controlling Practice



The above figure shows the highest score for periodic control and lowest score for feedback control. So that, we can say that NOC highly use the periodic control and give less priority for feedback control.

4.9.13 Employees Responsibility for Deviation Between the Budget and Actual

Except some exception there is deviation between budget and actual. In Nepalese context very few employees accept their responsibility but most of employees do not want to accept their responsibility but most of employees do not want to accept their responsibility for mismanagement. In the context of NOC, following Table No. 4.28 shows the employees responsibility for the deviation between budget and actual.

Table No. 4.28

Employees Responsibility for The Deviation Between Budget and Actual

Responsibility Level	Respondents	Percentage
Too high	1	10
High	2	20
Moderate	4	40
Less	2	20
Very Less	1	10
Totals	10	100

Table No. 4.28 shows the responsibility level and percentage of respondent for corresponding level of responsibility, 40% personnel give their opinion for moderate responsibility for the deviation between budgets and actual, so we can make conclusion that the employees, of NOC are moderately responsible for the deviation between budget and actual.

4.9.14 Management Action to improve the Discrepancies Budgeted and Actual

It is necessary to take proper action to improve the discrepancies between budget and actual figure. Table No. 4.29 shows the management action of NOC to improve the discrepancies between budget and actual.

Table No. 4.29
Management Action to Improve the Discrepancies between Budgeted and Actual

Level of Seriousness	Frequency	Percentage
Much seriously	0	0
Seriously	2	20
Moderately	3	30
Less seriously	4	40
Carelessly	1	10
Total	10	100

Table No. 4.29 shows the level of seriousness and the percentage of respondent. 0% give their response for much seriously, 20% seriously, 30% moderately, 40% less seriously and 10% carelessly. Less seriously score in 40% which is the highest score of all. So we can make decision the management's less serious to improve the discrepancies between budget and actual.

4.9.15 Commitment for Development of Budget

Commitment of different level of manager is necessary for effective budget. Commitment of different level of managers for development of budget in NOC is shown by the following Table No. 4.30.

Table No 4.30
Commitment for Development of Budget

Level of manager	Frequencies					Total Score	Mean
	1	2	3	4	5		
Top manager	-	1	6	2	1	33	3.3
Middle Manager	1	-	2	6	1	36	3.6
Lower manager	2	2	4	1	1	27	2.7

The Table No. 4.30 shows the mean value of commitment for development of budget for different level manager. The mean value of top manager, middle manager and lower manager are 3.3, 3.6 and 2.7 respectively. Middle Manager has the highest mean value (3.6), so we can make conclusion that the middle manager show the highest commitment for development of budget. Top manager have lowest mean value (2.7), so we can say that the top manager show the lowest commitment for development of budget. And the lower managers are moderately committed for development of budget. For more effective presentation of total score of different manager's commitment for development of budget, bar diagram can be used as below:

Figure No. 4.15

Commitment for Development of Budget

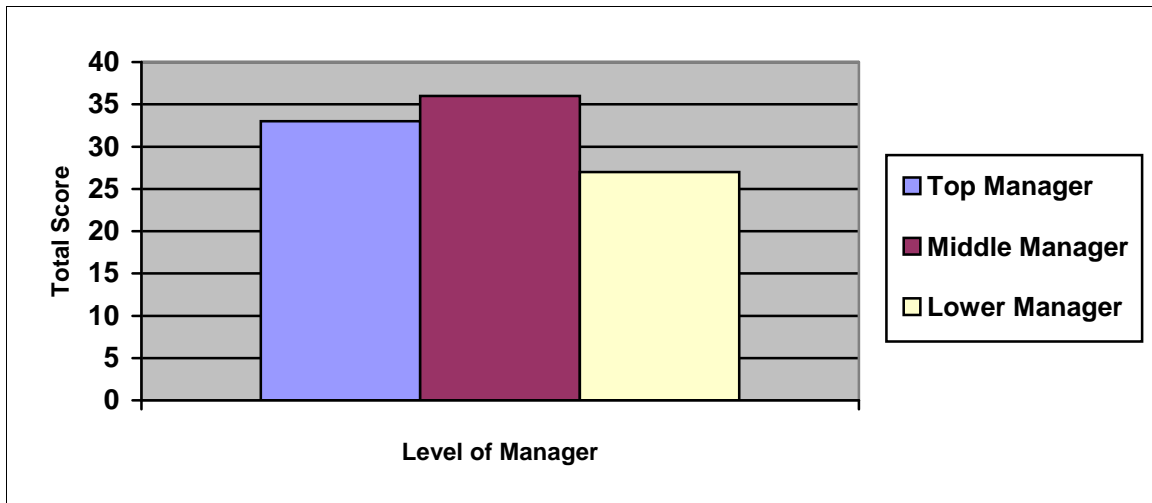


Fig.4.14 shows the score of commitment for development of budget by different level of manager. Different manager’s commitment for development of budget is slightly difference as shown by Figure No. 4.15. Among them, middle managers are more committed and top manager are less committed for the development of budget.

4.9.16 Participation in Decision-Making and Implementation

High participation of personnel is fruitful in decision-making and implementation of budget and other managerial function. The participation level of NOC for decision-making and implementation is shown in following Table No. 4.31.

Table No. 4.31

Participation in Decision Making and Implementation

Level of Manager	Frequencies				Total Score	Mean
	1	2	3	4		
Top Manager			3	7	37	3.7
Middle Manger		3	6	1	25	2.5
Lower Manager	1	6	3	-	20	2.0

Table No 4.31 shows the mean value and total score of different level of manager. The Mean value of top manager, middle manager, and lower manager are 3.7, 2.5, and 2.0 respectively. High mean value represents the high participation and low value represents the low participation. In this way, NOC makes the decision with high participation of top manager, moderate participation of middle manager and very low participation of lower manager. For more effective presentation, the total score of table No 4.31 is also shown in figure 4.16.

Figure No. 4.16

Participation in Decision-Making and Implementation

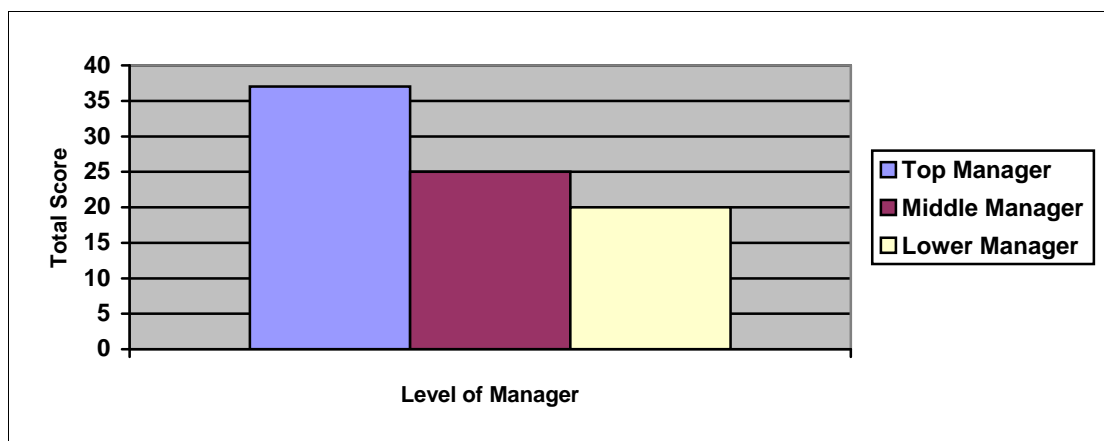


Figure 4.16 also shows the high participation of top manager, moderate participation of middle manager and very low participation of lower manager.

4.10 Major Findings

On the basis of data presentation and their analysis the most remarkable finding related to this study. The present practice of petroleum products import of NOC is only form IOC under periodic contract basis. The annual sales and purchase trends of the corporation differ form year to year and it is in increasing trends it is due to higher demand and corporations store keeping policy.

NOC is a state owned enterprises established with social objectives of serving the nation by making the different grades of petroleum products

available in reasonable prices. NOC Has got enough storage facilities located at different parts of the country for Petrol, Diesel, Kerosene and Aviation fuel. The total storage facilities could sustain nearly a month's national demand of these petroleum products. NOC has got enough distribution depots to cover the every economic region of Nepalese market. NOC has depots and dealers to distribution the fuel for their consumer but they are concentrates in urban area not in remote area. So the people of remote and rural areas are not getting sufficient oil products.

The sales plan and achievement are satisfactory for expansion but there is no particular person to prepare sales plan. NOC has the sales forecasting on realistic ground because there is highly significant and positively correlation between budgeted and actual sales which indicate that if targets are high achievement will also be high. NOC has followed a fluctuating inventory policy. Generally, it has a policy of keeping finished goods inventory equal to one month supply of future sales through the policy is not strictly followed. NOC has got many dealers in every prime location of the cities and highways. Some of NOC dealers have build very good retail outlets to further enhance the image of NOC in the market. The corporation has no clear pricing method. NOC does not carry out any kind of sales research to know the consumers' reaction and the external forces that could affect NOC's business in the long run. Distribution system of the corporation is adequate. It has five regional offices, six sub branch and about 1800 sales dealers all over the country. Every price hike decision turns out to be political propaganda or issue in the country. It is controlled by a government ministry which has got other major areas of concern like industries and commerce. Mostly the policy matter and necessary pricing decisions are pending in the ministry. NOC is not independent on its policy and can not decide the retail prices of the petroleum products on its own. NOC has got sufficient experiences in the third country import of major petroleum products like Kerosene and Diesel form the international market. In

case of any eventualities, NOC can do its best for alternative arrangement to meet the demand of major petroleum products.

NOC highly prefer the past experience to prepare sales plan and give less priority for external expertism which is very important for planning of sales. It gives high priority for economic forces, financial strength, and managerial activities and give less priority for socio-cultural forces, technological strength and financial activities which is very important for good planning system. NOC highly use the CVP analysis as planning tools and give less priority flexible budgeting and responsibility accounting. NOC adopt the periodic control as well as feedback control also. Top managers are less committed for budgeting although they have high participation in decision making and implementation. Employees are moderately responsible for the deviation between budgets and actual. Seriousness shown by NOC is not so much serious in tackling the probable problem and top management is not so concerned and committed in implementation of plan. In decision making and planning practice, there is no involvement of lower manager. Only top management and middle management are responsible for preparing sales plan. At least overall sales plan also is not so clear. In this way, we can say that that the budgeting procedure followed by NOC is not so clear and reliable.

NOC prepare the sales plan and purchase plan only to fulfill the formality, NOC cannot implement the plan and sales plan effectively. NOC highly followed the government policies and cannot make their own decision for implementation of sales plan and purchase plan and procedure of budget adopted by NOC cannot make effective sales plan and purchase plan. In this way NOC cannot make effective sales plan and purchase plan and procedure of budget adopted by NOC is also not so good. NOC highly use the past experience for planning decision. NOC highly consider the economic forces and give less priority for socio cultural forces while preparing plan. NOC give high consideration for financial strength while preparing sales plan and

purchase plan. NOC highly plan the managerial activities the managerial activities to achieve the sales goals. CVP analysis is the major managerial planning tool of NOC. NOC gives highly priority for periodic control and less priority for feedback control. Top management doing with middle level manager makes decision in NOC. The sales goal of NOC is not so clear. Top management is responsible for preparing sales plan.

Middle manager is highly committed for development of budget. Participation of lower manager in decision making and implementation is very weak. Employees are moderately responsible for the deviation between actual and budget. NOC is moderately serious in tackling the probable problem. Top management shows the moderately concentration and commitment in implementation of plan. NOC have no proper mechanism in forecasting of sales. NOC make purchase plan and sales plan only in quantity basis. Regression line of sales and purchase shows positive relationship between achievement and target. Least square line shows increasing trend of sales and purchase. NOC have not so high difference between target and actual sales. Target sales and actual sales are positively correlated. Sales and purchase is also positively correlated. The performance of NOC is very weak. Variable cost of NOC is higher than sales.

CHAPTER-V

SUMMARY CONCLUSION AND RECOMMENDATIONS

Most of the things about Sale budget and purchase budget and introduction of this study have already been presented in the first chapter. In the second chapter the available literature on inventory management are reviewed. Moreover the available literatures of inventory management are reviewed. Moreover research methodology is described in the third chapter. All the available data are presented and analyzed in the forth chapter relation to sales budget and purchase budget. In this concluding chapter an attempt has been made to present summary, major findings and suggestion.

5.1 Summary

Nepal Oil Corporation is one of the largest public enterprises in Nepal. It was established in 2077-9-26 under the company act 2021, as a state owned trading enterprises to fulfill the four five years national periodic plan objectives. It has been supplying continually such as vital commodity as POL products to the general, public enterprises, aviation field and the development projects of the nation and it has been making significant contribution to the economic development of the country. Today the concept of privatization is also arising in this sector smoothly. NOC has been trying to improve itself as a capable institution copying with the new policy guidelines of the elected government objectives aimed at liberalization of economy and a transition to a market oriented economy based on competition and efficiency.

There are some sources of petroleum goods in our country; they have not been exploited due to the lack of technology, poor economic conditions lack of skilled manpower etc. Therefore, all POL products have to be imported form other countries. Imports as well as distribution of POL products in Nepal

were initiated first by the Burma and then by the standard vacuum oil company and the Indian oil corporation (IOC) in late 1940. Realizing the need to institutionalize the supply as well as distribution of POL products in the country, it was established and has served customers regularly. For over three decades, NOC has been only supplier of POL products in the country. In 1989 (2046) the government adopted a policy of allowing private sector organizations to enter this business. NOC, however, still remains the only one importer of major POL products in the country.

Nepal is developing country. Private enterprise as well as public enterprises are very essential for balanced development of country. Most of public enterprises are in loss form year by year in our country. But they have provided their service to the people in cheaper price than the private enterprise. Before five year plan period, government gave priority to the public enterprises. When the democratic system was reestablished then the government gave less priority to the public enterprises. After seventh plan period, government gave priority to the private enterprises and started to privatize the public enterprises.

NOC is the public enterprise, which is fully owned by the government and it is a single provider of petroleum product in the country. The major objectives of the NOC are to meet the energy requirement of the nation through the import storage and distribution of petroleum oil and lubricant product.

A profit planning and control programme can be one of the more effective communications networks in an enterprise and sales budget and purchase budget are the major component of profit planning. Sales budget is the major or primary factor of all other budgeting system and organizational activities. NOC highly follow the past experience in preparing sales plan and purchase plan. NOC give high priority for the managerial activities and it uses CVP analysis as managerial planning tools. All level of management is not so

committed for development of budget. NOC follow the very low participation of lower manager in decision making and implementation. Management is less serious to improve the discrepancies between budget and actual and employees are moderately responsible for the deviation between budgets and actual. NOC is moderately serious in tackling the probable problem. The sales plan of NOC is not so clear. Sales and purchase of NOC is in increasing trend. The sales and purchase of NOC is positively correlated and also same result in budget and actual sales.

At last, the performance of NOC is very week. NOC is bearing heavy loss for many years. Heavy variable cost shows very week performance of NOC.

5.2 Conclusion

NOC is a state owned enterprises established with social objectives of serving the nation by making the different grades of petroleum products available at reasonable prices. NOC has got enough storage facilities located at different parts of the country for Petrol, Diesel, Kerosene and Aviation fuel. The total storage facilities could sustain nearly a month's national demand of these petroleum products. NOC has got enough distribution depots to cover every year economic region of Nepalese market. The purchase plans depend upon the sales plan but plan is made in adhoc basis.

The sales plan and achievement are satisfactory for expansion but there is no particular person to prepare sales plan. NOC makes sales forecasting on realistic ground because there is highly significant and positive correlation between budget and actual sales which indicate that if targets are high achievement will also be high. NOC has followed a fluctuating inventory policy. Generally, it has a policy of keeping finished goods inventory equal to one-month supply of future sales though the policy is not strictly followed.

NOC has got many dealers in every prime location of the cities and highways. Some of NOCs dealers have built very good retail outlets to further enhance the image of NOC in the market. The corporation has on clear pricing method. NOC does not carry out any kind of sales research to know the consumers' reaction and external forces that could affect NOC's business in the long run. Distribution system of the corporation is adequate. It has five regional offices, six sub branches and about 1800 sales dealer all over the country. Every price hike decision turns out to be a big political propaganda or issue in the country. It is control by a government ministry which has got other major areas of concern like industries and commerce. Mostly the policy matters and necessary pricing decisions are pending in the ministry. NOC is not independent on its policy and can not decide the retail process of the petroleum products on its own. NOC has got sufficient experiences in the third country import of major petroleum products like Kerosene and Diesel from the international market. In case of any eventualities, NOC can do its best for alternative arrangement to meet the demand of major petroleum products.

NOC highly prefer the past experience to prepare sales plan and give less priority for external expertism which is very important for planning of sales. It gives high priority for economic forces, financial strength, and managerial activities and give less priority for socio-cultural forces, technological strength and financial activities which is very important for good planning system. NOC highly use CVP analysis as planning tools and give less priority for flexible budgeting and responsibility accounting. NOC adopt the periodic control as well as feedback control also. Top managers are less committed for budgeting although they have high participation in decision making and implementation. Employees are moderately responsible for deviation between budgets and actual. Seriousness shown by NOC is not so much in tackling the probable problem and top management is not so concerned and committed in implementation of plan. In decision making planning practice there is no involvement of lower manager. Only top

management and middle management are responsible for preparing sales plan. At least overall sales plan also is not so clear. In this way, we can say that the budgeting procedure followed by NOC is not so clear and reliable.

Middle manager is highly committed for development of budget. Participation of lower manager in decision making and implementation is very weak. Employees are moderately responsible for the deviation between actual and budget. NOC is moderately serious in tackling the probable problems. Top management shows the moderate concentration and commitment in implementation of plan. NOC have no proper mechanism for forecasting sales. NOC make purchase plan and sales plan only in quantity basis. NOC have not so high difference between target and actual sales. Target sales and actual sales are positively correlated. Sales and purchase are also positively correlated. The performance of NOC is very weak. Variable cost of NOC is higher than sales.

5.3 Recommendations

Based on the major findings of the study of sales budgeting and planning of NOC some suggestions have been recommended in this part. It seems necessary to develop implementation improvement process of sales planning in the public enterprises from the very beginning to the end. It is hoped that those recommendations will prove to be useful for the management of corporation and other concerned offices, institutions and individuals.

1. NOC must have clear –cut goal, objectives, policies, long term plans, strategic program etc. Sales and purchase budget must be prepared on realistic, responsible and committed manner to accomplish them within the specified period of time. There should be continuous flow of information among various levels of management and various groups of employees. The goals and objectives and strategies of this enterprise should be carefully communicated to lower level management.

2. NOC can establish a different set of pricing approaches for different consumers. The corporation should have depth analysis of corporation's strength and weakness. It should try to overcome the weakness by using the strength.
3. The corporation should give proper attention to manpower planning; unnecessary pressure from the government should be avoided. The manager should be selected by the corporation, who is more familiar having advanced knowledge about concerned business. When the problems arise he can deal easily and handle effectively.
4. Role of budgets and planning should be understood by every manager of the corporation. Leakage should be completely controlled. Adulteration of different type of products must be controlled. Corporation should develop the detailed systematic periodic performance reports to locate by responsible person for accomplishing planning objective.
5. There should be evaluation of the statement of the board of objective of the corporation by the executive committee. For the better marketing plan and quick decisions in the competitive atmosphere, NOC should computerize all its activities so as to understand the exact financial position of the company at any point of time. The availability of online information regarding import, storage, and sales of the products would greatly help in planning certain strategic marketing moved in the field. Moreover, the use of modern technologies in its various activities will help to increase the productivity and reduce the cost.
6. Regarding the transportation of the POL, NOC should issue tenders for the transpiration in some areas and try to segment and transporters in different categories so as to bring down the transportation cost and make the transportation business a competitive one. NOC should carry out research to understand the problem, difficulties and the possible shortcoming of dealers in the delivering the products and services to the different customers ranging from kerosene lamp user, living in the village to the industries using diesel as their fuel. The feed back should

be treated as valuable comment and NOC should try to avoid those incidents by enforcing new regulation and practices so as to improve the quality of the products and better services to the concerned.

7. As NOC does not have any retail selling stations as their properties, they should either try to buy or enter into separate agreement with most of the petrol pumps located in the prime areas of the country. Finally, NOC should re-structure its pricing modalities and try to fix the price as per the actual cost basis. Whenever NOC gets new pricing from IOC, selling price and the details of tentative breakdowns and justifications have to be provided to the public and press.

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APPENDIX-1

Dear Sir,

I would like to introduce myself as the student of Tribhuvan University, M. B. S. (final year). In order to fulfill the partial requirement of Master's Degree in Management, I am concluding a research work entitled "Analysis of Sales Budget and Purchase Budget in Non Manufacturing Company: A case study of Nepal Oil Corporation Limited." I would very much appreciate of you kindly spare few of your busy &valuable time for completing my research work. Your views are purely used for my academic purpose only. I anticipate your suggestions as soon as possible.

Sincerely Yours
Jeevan Giri

Questionnaire

- i. Name of Respondent: _____
- ii. Position in NOC: _____
- iii. Tenure of service: _____
- iv. Department: _____

Please help the research by giving correct information of the question listed in this questionnaire. Tick () for the correct answer, give the rank of options and give the marks for options according to the nature of question.

1. Who in your organization are responsible for preparing sales plan?
 - Top management
 - Middle management
 - Lower management

2. To what extent are the following criteria followed in preparing sales plan?

Very High High Moderate Less Very

less

 - Intention
 - Past experience
 - External experts
 - Statistical Method

3. To what extent are the following external forces evaluated and considered preparing sales plan?

Very High High Moderate Less Very

less

 - Economic forces
 - Socio-Cultural forces
 - Political and legal forces
 - Competition

4. How much consideration do you think, your organization gives in preparing sales plan?

Very High High Moderate Less Very

less

 - Financial strength
 - Managerial strength
 - Technological strength

5. How clear are the sales goals of your organization?
- Adequately clear
 - Clear
 - Moderately Clear
 - Ambiguous
 - Vague
6. What practice of decision making and planning exists in your organization?
- Top management makes all decision and just communities to tethers.
 - Top management along with middle level managers makes decisions.
 - Participation of managers of all levels are encouraged and sought.
7. To what extent does the top management show concern and commitment in implementation of plans?
- Very much More Moderate Less Very less*
8. What extent of seriousness does the organization show in anticipating and tackling the probable problem?
- Very much serious Much serious Less serious No serious*
9. To what extent are the following activities planned in order to achieve the sales goals?
- | | | | | | |
|----------------------------|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Marketing activities | | | | | |
| Financial activities | | | | | |
| Managerial activities | | | | | |
| Human resources activities | | | | | |
10. Is sales budget prepared on the basis of
- | | | |
|--------------|-----|----|
| a. Product | Yes | No |
| b. Time | Yes | No |
| c. Territory | Yes | No |
11. To what extent are the following managerial planning used?
- | | | | | | |
|-----------------------------|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Responsibility accounting | | | | | |
| Cost-volume profit analysis | | | | | |
| Flexible Budgeting | | | | | |
| Zero-based budgeting | | | | | |
12. To what extent are the following controlling practice adopted?
- | | | | | | |
|--|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|

Periodic control
Feedback control

13. To what extent are the employees held responsible for the deviation between the budget and actual?

To high High Moderate Less Very less

14. Is there system of reward and punishment in your organization for the performance of the employees?

Yes No

15. What level of participation on exists in your organization in decision making and implementation?

High Participation Medium Participation Low Participation

Top manager
Middle manager
Lower manager

APPENDIX - 2

Calculation of Mean, Standard Deviation, Coefficient of Variance, Coefficient of Correlation and Probable Error of Target Sales and Actual Sales

F.Y.	Target Sales (X)	$(X - \bar{X})$	$(X - \bar{X})^2$	Actual Sales(Y)	$(Y - \bar{Y})$	$(Y - \bar{Y})^2$	$(X - \bar{X})(Y - \bar{Y})$
2060/061	10110	1180.48	1393533.03	8401.22	482.41	232719.41	569475.3
2061/062	8755.40	-174.12	30317.77	8215.91	297.1	88268.41	51731.0
2062/063	8650.68	-278.84	77751.75	7778.88	-139.93	19580.41	39018.0
2063/064	8652.70	-276.82	76629.31	7512.80	-406.01	164844.12	112391.6
2064/065	8658.80	-27.72	73289.32	7685.25	-233.56	54550.27	63229.3
	44647.58	$\sum (X - \bar{X})$ =0	$\sum (X - \bar{X})^2$ =1651521.18	39594.06	$\sum (Y - \bar{Y})$ =0	$\sum (Y - \bar{Y})^2$ =559962.62	$\sum (X - \bar{X})(Y - \bar{Y})$ = 835845.1

For Target Sales

(i) Mean $(\bar{X}) = \frac{\sum X}{n} = \frac{44647.58}{5} = 8929.516$

(ii) Standard Deviation $\sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N}} = \sqrt{\frac{1651521.18}{5}} = 179.73$

(iii) Coefficient of Variance (CV) = $\frac{\sigma}{\bar{X}} \times 100 = \frac{179.73}{8929.52} \times 100 = 2.01$

For Actual Sales

(i) Mean $(\bar{Y}) = \frac{\sum Y}{N} = \frac{39594.06}{5} = 7918.81$

(ii) Standard Deviation $\sigma = \sqrt{\frac{\sum (Y - \bar{Y})^2}{N}} = \sqrt{\frac{559962.62}{5}} = 334.65$

(iii) Coefficient of Variance (CV) = $\frac{\sigma}{\bar{Y}} \times 100 = \frac{334.65}{7918.81} \times 100 = 4.23$

Karl's Pearson's correlation Coefficient between Target Sales and Actual Sales (X and Y is given by;

$$r_{xy} = \frac{\sum(X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum(X - \bar{X})^2} \sqrt{\sum(Y - \bar{Y})^2}} = \frac{835845.54}{\sqrt{1651521.18} \sqrt{559962.62}} = \frac{835845.54}{961663.65} = 0.87$$

$$\begin{aligned} \text{Probable Error of } r &= .6745 \sqrt{\frac{1 - r^2}{N}} \\ &= 0.6745 \times \frac{\sqrt{1 - (0.87)^2}}{\sqrt{5}} \\ &= 0.6745 \times \frac{.2431}{2.24} = 0.0732 \end{aligned}$$

APPENDIX - 3

Calculation of Mean, Standard Deviation, Coefficient of Variance, Coefficient of Correlation and Probable Error of Target Purchase and Actual Purchase

F.Y.	Target Sales (X)	$(X - \bar{X})$	$(X - \bar{X})^2$	Actual Sales (Y)	$(Y - \bar{Y})$	$(Y - \bar{Y})^2$	$(X - \bar{X})(Y - \bar{Y})$
2060/061	10155.4	1509.67	2279103.508	8466.35	583.72	340726.70	881224.57
	6						
2061/062	8710	64.21	4123.44	8275.70	393.07	154502.45	25239.025
2062/063	8833.47	187.684	35225.28	7643.09	-239.54	57380.36	-44957.83
2063/064	7800	-845.786	715353.96	7503.56	-379.07	143695.58	320612.01
2064/065	7730	-915.78	838664	7524.46	-358.172	128287.18	328006.75
	43228.93	$\Sigma (X - \bar{X})$ =0	$\Sigma (X - \bar{X})^2$ =3872470.188	ΣY =39413.16	$\Sigma (Y - \bar{Y})$ =0	$\Sigma (Y - \bar{Y})^2$ =824592.27	$\Sigma (X - \bar{X})(Y - \bar{Y})$ =1510124.52

For Target Purchase

(i) Mean $(\bar{X}) = \frac{\Sigma X}{n} = \frac{43228.93}{5} = 8645.786$

(ii) Standard Deviation $(\dagger) = \sqrt{\frac{\Sigma (X - \bar{X})^2}{N}} = \sqrt{\frac{3872470.188}{5}} = 409.55$

(iii) Coefficient of Variance (CV) = $\frac{\dagger}{\bar{X}} \times 100 = \frac{409.55}{8645.786} \times 100 = 4.74\%$

For Actual Purchase

(i) Mean $(\bar{Y}) = \frac{\Sigma Y}{N} = \frac{39413.16}{5} = 7882.632$

(ii) Standard Deviation $\dagger = \sqrt{\frac{\Sigma (Y - \bar{Y})^2}{N}} = \sqrt{\frac{824592.27}{5}} = 406.10$

(iii) Coefficient of Variance (CV) = $\frac{\dagger}{\bar{Y}} \times 100 = \frac{406.10}{7882.632} \times 100 = 5.152\%$

Karl's Pearson's correlation Coefficient between Target Purchase X and Actual Purchase Y is given by;

$$r_{xy} = \frac{\sum (X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum (X - \bar{X})^2} \sqrt{\sum (Y - \bar{Y})^2}} = \frac{1510124 \cdot 525}{\sqrt{3872470 \cdot 188} \sqrt{824542 \cdot 27}} = \frac{1510124 \cdot 525}{1967 \cdot 86} = 0.85$$

$$\begin{aligned} \text{Probable Error of } r &= .6745 \left| \frac{1 - r^2}{\sqrt{N}} \right| \\ &= 0.6745 \times \frac{1 - 0.85^2}{\sqrt{5}} \\ &= 0.6745 \times \frac{.286}{2.24} = 0.086 \end{aligned}$$

$$Y - 7882.632 = 0.85 \left| \frac{406.1}{409.55} (X - 8645.786) \right|$$

$$Y - 7882.632 = 0.843x - 7287.01$$

$$Y = 0.843x + 595.62$$

APPENDIX - 4

Calculation of Correlation Between Target Sales and Target purchase and Actual Sales and Actual Purchase

F.Y.	Target			Actual		
	(X Z \bar{X})	(Y Z \bar{Y})	(X Z \bar{X}) (Y Z \bar{Y})	(X Z \bar{X})	(Y Z \bar{Y})	(X Z \bar{X}) (Y Z \bar{Y})
2060/061	1180.48	1509.67	1782135.24	482.40	583.72	281586.528
2061/062	-174.12	64.21	-11190.69	297.1	393.07	116781.097
2062/063	-278.84	187.684	-52333.81	139.93	-239.54	33518.18
2063/064	-276.82	-845	234130.48	-406.10	-379.07	153940.327
2064/065	-270.72	-915.78	247919.96	-233.56	358.172	83654.65
	ϕ (X Z \bar{X}) =0		ϕ (X Z \bar{X}) (Y Z \bar{Y}) =2200661.181			ϕ (X Z \bar{X}) (Y Z \bar{Y}) =669486.432

Karl's Pearson's Correlation Coefficient between Target Purchase and Target Sales (X and Y) is given

by,

$$\begin{aligned}
 r_{xy} &= \frac{\phi(X Z\bar{X})(Y Z\bar{Y})}{\sqrt{\phi(X Z\bar{X})^2} \sqrt{(Y Z\bar{Y})^2}} \\
 &= \frac{2200661.181}{\sqrt{1651521.18} \sqrt{3872470.188}} \\
 &= \frac{2200661.181}{2528929.227} \\
 &= 0.87
 \end{aligned}$$

Karl's Pearson's Correlation Coefficient Between Actual Purchase and Actual Sales (X and Y) is given by,

$$\begin{aligned}
 r_{xy} &= \frac{\phi(X Z\bar{X})(Y Z\bar{Y})}{\sqrt{\phi(X Z\bar{X})^2} \sqrt{(Y Z\bar{Y})^2}} \\
 &= \frac{669486.432}{\sqrt{559962} \sqrt{824592.27}} \\
 &= \frac{669486.432}{679515.1564} \\
 &= 0.9852
 \end{aligned}$$

(Note: Mean, Standard Deviation and Co-efficient of Variance have already calculated in Appendix –A and Appendix- B)