CHAPTER-I

INTRODUCTION

1.1 General Background on Industrial Development in Nepal

Located in the central part of Asia, Nepal is the steepest country in the world: descends from the height of Everest (8,848 m) to the lowest [point of Nepal i.e. Musharnia of Dhanusha district (59m) and the deepest valley in the world (The Arun Valley). Nepal is a landlocked, small, dependent Hindu country, surrounded by China in north and by India in south, east and west. It has a total area of one lakh forty-seven thousand, one hundred and eighty-one (147,181) square kilometer, extended from east to west with a length of about eight hundred and eighty five (885) km and with average width of one hundred and ninety-three (193) km from north to south. Total area of Nepal is about 0.3 percent of Asia and 0.03 percent of the whole world. The nearest distance to reach ocean from here is two thousand km. Likewise, it has five hundred mile open boarder with India. In Nepal rock, Barren Mountain and sloppy hill covers seventy seven percent of land, only eighteen percent of land is arable among twenty-three percent of plain land. Even the arable land is less fertile. Mt. Everest is situated in Nepal, therefore it is also known for its natural beauty and Himalayas.

Nepal has per capita income of only $320 per annum. It has predominantly agrarian economy. Where more than eighty percent of the economically active population is estimated to be involved in agriculture. This sector contributes about forty to forty-four percent of GDP. It is the main source of employment and National Income too. About thirty-eight percent of the population lives below absolute poverty line. Since per capita income, saving, capital formation is very low the living standard of people is in decreasing trend. The economic growth rate is only 3.9 percent per annum.

Industrialization is universally accepted as a strategy of economic development as well as fundamental goal of most developing countries. "Like most other developing countries one of the important aspiration of Nepal has been to bring about a structural change that would transform its agricultural economy into and industrial one". Industrialization not only provides goods and services but also creates employment opportunities. It facilitates an effective mobilization of resources of capital and skill one, which might otherwise remain unutilized. It also acts as a vehicle for fostering innovation and technological improvement. Thus, industrialization development has a multiplier effect on the economy. The prevailing state of under development is commonly contributed to lack of adequate industrialization, it is because most of the economically advance nations of the contemporary world reached their living through successful thrust of industrialization. Industrialization the major tool; with the aid of which the vicious of backwardness and poverty can be broken. Industrialization helps the unemployed especially from the agricultural sector to find the alternative models of productive activity and move into much more productive activities, thereby reducing automatically the pressure on land.

Apart from its natural beauty, Nepal is also known as industrial developing country. Nepal is just moving towards industrialization with very small manufacturing sector. The globalization, privatization and liberalization processes have made a worldwide pressure on planners and policy makers to design towards rapid growth. Nepal can't feel from the phenomenon. Nepal is facing a critical juncture in its modern economic situation. The industrialization will be the remedy of such disease. Industrialization can be defined in many ways as according to the existing conditions of a nation and their respective situation of the development.

Industrialization is the major instrument of progress, modernization and social development in the context of Nepal. Industrialization is the process of enabling the idle human and other manufacturing resources in order to develop the nation without worsening the economic condition of the Nation. Industrialization can play a dominant role in a country like Nepal where agro-dominated economy is prevailing. It is because industrial development helps country in enormous ways; it contributes to the National income, absorbs the growing labor forces to reduce significantly the disguised unemployment, lessens the dependence on imports and promotes exports. Mixed economy is

prevailing in Nepal where we can observe both state control cum private participation in the country's economy. Both the Government and private sector are putting their efforts to enhance the condition of the economy from their respects. Nepal is lagging behind in the development process of modern, huge and middle scale industries. An industrial sector is the second leading sector of Nepalese economy after agriculture. Most of the modern industries established within the country are in public Govt. sector with foreign collaboration. It reveals that there is a lack of entrepreneur who accommodates industrial investment. There are prevailing practices of measuring the pace of industrial development of the country in the world by taking contribution made by the industrial sector in GDP as chief economic indicator. Thus, the industrial sector is the key of the advancement of nay country.

Industrialization founded in Nepal 1936 A.D. First industry was established with the first company Act enacted in the same year, industrial development in Nepal however started getting regular attention of the government under the aegis of development plans after the dawn of democracy in 1951 A.D. Particularly after the introduction of first five-year plan in 1956. Nepal witnessed the development with quite a large number of manufacturing industries in the public sector, particularly in area like leather, sugar, paper, brick, cigarette, tiles, soaps, agricultural tools and textiles etc. the industrial development strategy of the Govt., however changed after mid 1980's. The Govt. then shifted its development strategy from state-led development to market led opened economy's. The Govt. decided to speed up and support regular industrial development in the country. Then different Acts and policies were enacted to encourage the industries to come up and regulate the industrial system. Now the manufacturing industry employs about three percent (3%) of the total employment in the country. The management challenges are growing industries in the country. Industrialization is in increasing trend: manufacturing, trading and commercial business enterprises are operated by Govt. as well as by individuals. If organized developed, motivated and managed properly the manufacturing industries like "Nebico Pvt. Ltd." can contribute much more to the upliftment of the country.

1.2 Profile of Nebico Pvt. Ltd.

1.2.1 Company's Introduction

Nebico private limited established in the year 1966 A.D. and started its operation in 1967 A.D. It is the oldest confectionery industry in Nepal. It is situated in Balaju Industrial State and has occupied over one Bigha (app. 13 Ropani) of land. From the early beginning days of its manufacturing it has gained a special status among the Nepalese competitors as a qualitative confectionery company.

With the semi automatic machine the Nebico Company is the first to manufacture biscuit and confectionery. At the time of its establishment its capacity was only two metric tons a day on eight hours a day basis. In the year 1968 A.D. the company changed its name from National Biscuit and Confectionery Limited' to Nebico Private Limited' and was registered accordingly. In 1978, Nebico increased its capacity from two metric tons to five metric tons per day. The pioneer biscuit manufacturer of India named Britannia Industries Limited jointed hands in technical collaboration and production with the Nebico Company in 1980 A.D. Presently the production of biscuit is done on two shifts each of eight hours basis with a capacity of five metric tons per shift. The products are marketed throughout the country and the marketing territories are divided into seven territories of the country. Such as:

(i) General
(ii) Western
(iii) Midwestern
(iv) Far-western
(v) Eastern
(vi) Kathmandu
(vii) Sub-Kathmandu

Nebico Pvt. Ltd. has also adopted different strategies for different strategies for different marketing territories accordingly. Market demand sales of the product of open the door of success. Nebico has been manufacturing different types of biscuits and confectionery. All the products have their own tastes, value as well as market demand. Mostly there are three types of taste available for the biscuits:

salty, sweet and premium sweet. Total number of person currently working the organization is 292; among them 250 are male and 42 are female. Directly and indirectly people working can be categorized as administrative department and production department wise are 93 and 199.

The authorized capital of Nebico Pvt. Ltd. is ten million (101,000,000/-) and paid-up capital is Rs. 6,035,000/- dividend into 2146 and 3859 shares of Rs. 1000/- each with private individuals own the shares. The raw materials for the company are wheat, sugar, fats, milk, other chemicals, packing materials etc. Quality goods are the first preference for Nebico Pvt. Ltd., so it uses only quality raw material for its production. Nebico Pvt. Ltd. is the first company in Nepal to get Nepal Standard Mark since its inspection in 1984 A.D. (Chaitra 2040 B.S.). Due to its qualitative products, it has marked some achievements.

1.2.2 Functions of the Company

Nebico Pvt. Ltd. operates the following necessary activities to achieve mentioned objectives.

1. To import, purchase and maintain necessary raw materials, machines and tools of good quality.
2. To sell the products in the different parts of the country.
3. To manage training for its staffs for their development and improvement and also to reduce the gap and non-availability of specialist when required by company: through development of manpower, technicians and other personnel.
4. To manage the technical and staffs from inside and outside the country.
5. To receive and use and movable properties for the company.

1.3 Statement of the Problem

Economic prosperity depends upon a sustainable economic development. For the attainment of accelerated economic development in the country industrialization is equally more important than that of agricultural and other primary sector. The industrialization in the process

of value added contributes to the creation of new employment opportunities and economic integration. As long as this sector cannot be expanded on a promotional basis, proper development of the economy is also not possible. However, owing to constrains in the supply of raw material, basic infrastructure, low purchasing power of people, under develop capital market, lack of technological advancement and so on. Industrialization has so far been of laggard phenomenon and has not been able to make the desire headway. As long as the pr As long as the private sector investors do not take a leading role in the rapid social-industrial development of the country as desired the role of Govt. owned enterprises becomes very important especially in terms of developing the infrastructure, extending social services and increasing industrial production. Giving this fact, more prominence and greater recognition was given in the various plans of HMG to the role of Govt. corporations.

Success is not a matter of chance, profit does not just happen. It is to be planned to managed. Cost-Volume –Profit analysis provides the technique of profit planning framework. Based on the annual report published, performances of the Nepalese industries can't be considered as satisfactory. Poor performance is the outcome of poor planning, controlling and decision making. This has raised the questions whether Nepalese managers are competent enough or not? Do they practice Cost-Volume-Profit Analysis tools and techniques to carry out planning, decision-making and controlling function?

The research question mainly focused to such problems:

1. Whether Nebico Pvt. Ltd. is practicing CVP analysis or not?
2. Which Parts (i.e. CM, BEP, MOS, etc.) of CVP analysis are mostly used and which are not exercised at all?
3. In which major areas of business operation, CVP analysis could be effective for better competitiveness in the market and for better results?
4. What are the major difficulties they have to face while using CVP analysis?

1.4 Objectives of the Study

The main objective of this study is to examine "Cost-Volume-Profit Analysis as a tool to measure effectiveness of profit planning and control of Nebico Pvt. Ltd.". To achieve this objective, the following objectives need to be set:

1. To explore relationship of Cost Volume and Profit as tool of budgeting.
2. To analyze the Cost-Volume-Profit of the company and it's impact in Profit planning.
3. To evaluate the sensitivity of profitability.
4. To provide suggestion and recommendation for improving Nebico's condition.

1.5 Significance of the Study

The present research work is the study of Cost-Volume-Profit analysis in Nebico Pvt. Ltd. This study will be significant in the following ways:

1. It examines the application of CVP analysis in the company.
2. It provides information for the application of profit planning as a tool in different circumstances.
3. It explores the problems and the potentialities studying the sensitivity of costs.
4. If provides literature to the researcher, who wants to carry on further research in the field.
5. This study is also provides necessary recommendations for the further improvement in Nebico.

1.6 Limitation of the Study

This study is confined only to Cost-Volume-Profit analysis as tools of profit planning and control of Nebico Pvt. Ltd. Following factors have constricted the scope of this study:

- The study is based secondary data.
- The study mainly focuses as on the sensitivity analysis of cost.
- The accuracy of this study is based on true response and the data available from management of the company.

1.7 Organization of the Study

The whole study has been divided into five major chapters, namely

Chapter I	Introduction
Chapter II	Review of Literature
Chapter III	Research Methodology
Chapter IV	Data Presentation and Analysis
Chapter V	Summary, Conclusion and Recommendation

Specifically the **first chapter** includes the General background of on industrial Development in Nepal of NEBICO Company, Company's Introduction, function of the company, Statement of the problem, Objectives of the study, Significance of the study, Limitation of the study and Organization of the study. Therefore, this chapter is for brief introduction of the topic and it highlights the fundamental objectives.

The **second chapter** is for relevant literature and studies. This chapter is the backbone of study and conceptual framework where relevant studies have been reviewed. This chapter introduces the conceptual thoughts and terms of the CVP analysis.

The **third chapter** Research Methodology contains Research design, Sources of data, Population and samples, Period covered, Research variable, Tools used, Mathematical and statistical tools, Diagrammatical and graphical representation and Hypothesis of the study.

The **fourth chapter** Data Presentation and Analysis contains data analysis and major findings and **fifth chapter** deals with summary, conclusion and recommendation.

CHAPTER-II

REVIEW OF LITERATURE

2.1 Conceptual of Framework

Planning and controlling are the primary function of business. Without planning and controlling no business can run smoothly in the competitive and global environment. In fact, profit planning is a managerial technique in written form in which all aspects of business operation for a defined period. It is a formal statement of policy, plan, objectives and goals established by the management. Profit planning is deciding in advance at present, what to achieve in future.

A profit plan is the formal expression of enterprises plan, goals and objectives stated in terms of specific future period time. Mostly profit plan depends upon the objectives of the organization. Plan should achieve the goals of the organization. It determines approach in which the goals or objectives are to be accomplished commonly. The approach is described in the form of strategic, policies, programmers and procedures for achieving the chosen objectives in a given environment. Profit planning programming also provides proper organizational structure to implement the approved plans and policies.

Profit planning function of management rests upon some fundamentals views that are the conviction that a management can help the long range destiny of a manufacturing enterprise by making a continue streamed of well conceived decision. The streamed of managerial decision must generate plans and action to provide the essential inflows that are necessary of support the plans outflow of enterprises so that, realistic profit and return on investment are earned. Continuing generation of profits by managerial manipulation of the inflow and outflow provide the substance of profit planning. The aggregate meaning of the preparation of various functional annual budgets is known as profit planning.

The determination of next year tends to achieve the sales which are directly related with revenue generation. The decision on new capital investment and financial borrowing represents profit planning in all cases the form of deciding now how it will use its resources i.e. manpower, material, machine and money in future. A formal profit planning is the key to corporate survival in a world of rapid social change and intense competition. Profit planning can take the best use of firm's opportunities and resources to meet the targeted profits.

2.2 Profit

An organization is established to achieve some goals. Its has its own objectives.

To achieve the goals of organization should clearly mention. In this competitive globalize business age, an organization whether it is public or private profit is essential. Profit is result of successful management.

Profit is the primary measure of successful business of a firm or company. It is the main test of the business enterprise performance. Simply profit is the excess of income over cost of product or services.

The basic objective of running any business or organization is to earn profit. Profit is taken to measure the competency and efficiency of the management. Profit is not just happened but it is managed. If a firm cannot make profit it cannot generate capital of future. Profit is the primary measurement of successful business in any economy. Profit is residual income left after payment to other factor of production. The difference between the outflows of expenses i.e. sale price is called profit. It is a reward for business activities. Profit is obtained by subtracting the cost from revenue. Profit determines the financial position, liquidity and solvency of the business.

The basic objective of running any business organization is to earn profit. Profit serves as yardstick for judging the competence and efficiency of management.

The word profit implies the comparison of the operation of business between two specific dates, which is usually separated by an interval of one year. In order to optimize those corporate source of wealth in which national prosperity depends on those corporate financial objective of the company is to maximize within socially acceptable limits profit from the use of funds employed by them. The maximization of profit within socially acceptable limit implies a proper regard to public interest has been paid. No company can survive long without profit; profit is the ultimate measure of its effectiveness and in capitalized society. There is no future for private enterprise which always increased losses. The survival measure of the effective performance of a business is a profit which really is a measure of how well business performs economically. Profit is a signal for allocation of resources and a yardstick for judging managerial efficiency. Profit is primary objective of a business in view of heavy investment which is necessary for success of most enterprise. Profit in the accounting sense tends to become a long term objective, which measure not only the success of product but also the development of market of it.

According to economic perception; some economist says that profit is the rent of ability. Some says profit as reward for risk bearing of firm. It is also said that profit is return to uncertainty bearing and it is also reward for innovation. Innovations are those new products of process which increases national income more than they increase national cost (Reeki, 1998: 380-381).

Profit is the dominant goal in business and profit making should be the main objective in terms of which the general effectiveness of organization is measured. In other words, profit is obtained by subtracting the cost from revenue. Profit is the reward of entrepreneur rather of entrepreneur's functions.

Profits differ from the return on other factors in three respects:

- Profit is residual income and not contractual or certain income as in the case of other factors.

- There is much greater fluctuation in profit than the reward of the others factors.
- Profit may be negative but rent, wages and interest must be always being positive.

Dean Joel clearly distinguishes the views of accountant and economist about profit in the following points. The most important point of difference between economist and accountant approaches is:

- The business of cost i.e. what should be subtracted from revenue to get profit.
- The meaning of depreciation.
- The price level basis for valuation of assets.
- The treatment of capital gain and losses and perhaps most important.

2.3 Planning

Planning is the first essence of management and all other function of performing within the framework of planning. Planning means deciding in advance, what is to be done in future? Planning starts from forecasting and pre-determination of future event. Planning is the whole concept of any business organization. No firm can achieve its pre-determined goals and objective in the absence of proper plan. Hence it is lifeblood of any organization which makes efficiently run towards the competitive environment.

Planning is also aimed at giving shape to the future. It is a basic function of management. It may be defined as the selection from among the alternative of courses for actions. It is functioned by the managers' decision what goes out to be accomplished and how they are to be reached.

The planning process which involves the both short term and long term is the most crucial component of the whole system. It is both

foundation and the bond for the other elements because it is through the planning process that we determine what we are going to do, how we are going to do it and who is going to do it. It operates as the brain centre of organization.

Profit doesn't just fall, it should be properly planned. In other words, profit isn't matter of changes. It comes from effective and realistic plan. Planning is the process of developing enterprises objectives and selecting future course of action to accomplish them. It is the methods thinking about acts and purpose before planning starts comes foresting and determination of future events. It is the first essence of management and all other functions are performs within the framework of planning. So, planning is the basic foundation of profit plans.

Planning assesses the future makes provision for it and assumes the achievement of pre-defined goals. Simply the planning means the determination of any works in advance of actions. Basically, it is a decision making process that provides a base for economic and effective future course of action.

Planning means assessing the future making provision for it and assuring that establishment goal can be met with acceptable home frame. Define the planning it simplest term as determination of anything in advance of action. It is essentially a decision making process that provides a basis for economical and effective action in future. Effective planning sets the stage for integrated action to take place, reduce the number of enforceable crisis, promotes to use of more efficient methods and provides the basis for managerial function of control (Filppo, 1996:49).

Management planning as the design of desired future state for an entity and effective ways of bringing about. He further explains that a fundamental purpose of management is to provide for a feed forward process. The concept of feed forward planning is generally recognized as the most difficult task facing the manager and it is one on which it is very easy to procrastinate. It is clearly indicated that

planning is a decision making process of highest order, it requires management time and dedication and systemic approach. The decisions made in planning process are:

- Anticipatory, since they are made something in advance of action and
- Interrelated, since they comprise broad groups of interdependent choice from alternatives of government.

Planning is the basic foundation of profit planning and a plan is a projected course of action. Planning is a technique whereby the use of pattern of resources is carried out calculating, foresting by different methods and formulating a master plan (Agrawal, 1989: 348).

A planning process includes goal setting, resource upon the organized objectives. For the planning purpose, a firm's objective can distinguish mainly three types: prime, instrumental and specific. The prime objective is to complete the action. Instrumental objectives are for accomplishment of divisional and individual goal. Specific objectives are those objectives that have been specified as to time and magnitude, which are known as organizational goals. Therefore, companies objective provide the ultimate criteria for resolving difficulties of company and company objectives are the bases for long range profit planning.

Planning is the conscious recognition of the future of present decision. Planning is the feed forward process to reduce uncertainty about future. So planning is an intellectual process, rational way and the goal oriented task. Primary function of management and planning provides all managerial activities and it is directed towards efficiency.

In operational terms, planning process involves four stages; (Welsch, et.al., 1995:75).

Objective

The first stage in the planning and control system is setting the objectives which are designed as the broad and long range desired state

or position in the future. They are motivational or directional in nature and expressed in qualitative terms.

Goals

The second stage in the planning process is specifying the goals. The term goals as an element in planning represent targets, specified in qualitative terms to be achieved in a specific period of time.

Strategies

The next step involves laying down the strategies denote specific methods or of actions to achieve the goals. Strategies are the basic thrusts ways and tactics that will be used to attain planned objectives and goals. A particular strategy may be short term and long term strategies focus.

Budgets/Plans

The final step is the preparation of budgets/Plans. Basically budgeting is the periodic planning to implement the alternative during a particular fiscal period, usually, one year. It converts goals and strategies into annual operating plan.

2.4 Profit Planning

Profit planning is the primary function of management in any organization. A company always wants to earn maximum profit through optimum utilization of available resources. Profit planning measures the success of any organization. Various budgets are major elements of profit planning. It is a key which helps to predict the future, minimizes risks, estimates output from the scare resources and help for revenues and help for various managerial decision making processes.

A profit plan is estimation and determination of revenues and expenses that evaluates how much income will be generated in order to

meet the financial requirements. It present a plan for spending income for profit generation. It represents an overall plan of operation for definite period of time and formulates the planning decision of the management.

Profit planning is, therefore a fundamental part of overall management function and is vital part of the total budgeting process. The management determines the profit goals and prepare budgets that will led them to realization of theses goals. Profit planning can be done only when the management has the information about the cost of product both fix and variable and selling price at which it will be position to sell the product (Maheshwori, 2000:171).

Profit planning is planning for future operation in such a way as to maximize the profit or maintain a specified level of profit. A comprehensive profit planning is also known as broad budgeting schedule developed in financial statements, Profit planning deals with the development of objectives, specification of short term goals, development of strategies and tactical profit plans. In other words, profit plan is a detail expression of the expected result from the planning decisions. Profit planning is an important approach developed to facilitate for effective performance of management process like as planning, organizing, staffing, controlling etc. Therefore, profit planning carry out the responsibility of forward thinking about the future operation of the organization. It is the precise measurement of operation in terms of quantity (i.e. the matters of profit planning are expressed in numerical value).

Profit planning is a comprehensive statement of intentions expressed in financial terms for both short term and long term operation of the firm. It is a plan for the accomplishment of organizational expectations. It is a base for measuring the variation between planned and actual performances. The success of each organization will be determined by reaching or exceeding those targeted plans.

Profit planning is one of the comprehensive approaches that have been developed to facilitate effective performance of management process. It is a systematic and formalized approach for performing significant phases of management planning and control functions. It

includes following activities:

Development and application of broad and long term objectives of organization.

- Specification of organization goals.
- Development of long run profit plan in broad terms.
- Development of short run profit plan detailed by assigned responsibilities.
- System of periodical performance report detailed by assigned responsibilities.
- Follow up the procedure.

The main aim of profit planning is to forecast about future. So it plays the vital role in the development of organization. It is the most important tool in the field of managerial decision making in enterprises. Main purpose of profit planning and control are as follows: (Welsch, et.al., 1992:44).

- To state the firms expectations (goals) in clearly format terms to avoid confusion and facilitate their attainability.
- To communicate expectation to all concerned with management of the firms so that they are understand, supported and implemented.
- To avoid a detailed plan of action for reducing uncertainty and for its proper direction of individual and group efforts to achieve goals.

Profit planning is a part of an overall planning process and is an area in which finance function play a major roles. The success of each enterprise in realizing its optimum profit each year will be determined by the extent to which it establishes, develops, co-coordinate plans to meet those objectives and exercise control of all facts of its activity so as to have actual results reach or exceed those planned.

This entire process constitutes the further stated that profit planning and control has the ultimate objectives of attaining the optimum profits (Lynch & Willianson, 1998:388).

2.5 Process of Profit Planning

The profit planning process should involve periodic consistent and in-depth re- planning so that all aspect of operation are carefully re-examined and re-evaluated. Therefore, individual manager engaged in the planning process should help knowledge about the components of profit planning are explained below;

The steps of profit planning are explained below:

a. Identification and Evaluation of Relevant Variables

In order to implement PPC efficiently management should evaluate the relevant variables that present on the function of an enterprise.

Identification also involves separate consideration of variables that are non- controllable and those that are controllable. This means, management planning must focus on how to manipulate the controllable variables. Moreover there must be managerial planning of how to work with the non-controllable variables. By relevant variables we obviously imply those that will have a direct and significant impact on the enterprise. However, in most enterprise there is a strong need for a periodic evaluation of the relevant variables, usually on an annual basis. A comprehensive PPC programmed uses such a periodic evaluation in depth. So, analysis and evaluation of the environmental variables must be a continuing concern of management. This activity should involve all executive managers; who in turn should expect various staff groups to provide data and recommendations. A particularly significant phase of this analysis includes an evaluation of the present strength and weakness of the enterprise (Welsch, 1992:75).

b. Development of the Broad Objective of the Enterprise

On the basis of evaluation of the enterprise and practical assessment strength and weakness of the management is in a position to develop the realistic objective of the enterprises.

Development of the broad objective of enterprise is a relevant variable and an assessment of strength and weakness of the executive management can specify this phase of profit planning. The statement of brad objective should express the mission, vision, and ethical tone of the enterprises. It tends to provide identify continuing of purpose and identification (Welsch, et.al., 1992:65).

c. Development and Establish Specific Goals for the Enterprise

The purpose of the steps is to bring the statement of broad objectives into sharp focus and at the same time to move from the realm of general information to the confines of internal management. This component of comprehensive PPC program deals specific short range and long range goals for the enterprises. This step provides definite and measurable goals for the whole enterprise and for each of the major sub-division.

d. Develop and Evaluation of Company Strategies

Company strategies are the basic trust ways and practice that will be used to attained planed objectives and goals. The management should develop the strategy for the strategic or long range profit plan and tactical (short range) plan.

The purpose of development of strategies is to find the best alternatives for attaining the plan broad objectives and specific goals. It focuses on how to plan. Here are some examples of basic strategies: (Welsch, et.al., 1992:77).

- Increase long-term market penetration by using technology to develop new product and improve current product.

- Emphasize product quality and price for top of the market.
- Price of product with low market price to expand sales volume.
- Improve employee moral and productivity by initiating a behavioral management programmed.

e. Preparation of Planning Premises

When the objectives for the periodic plan are developed the executive management should provide with the certain instruction and guidelines to the owner management in order to develop the profit plan of the other respective responsibilities centre. Thus, instruction and format guidelines as communicated by the top management at this point in the planning process have come to be generally identified as the statement of planning premises. It is simply a communication step from executive management to the lower level of management.

f. Preparation and Evaluation of Projects Plan

When the planning premises is received from the top management, the executive responsible for the enterprises sub unit most develop the project plan. The project owns prepare and evaluate the periodic plans should be develop with help of project plans must be coincided with project plan. Periodic and project plans are different in nature and function, project plan encompass variable time horizons because each project has a unique time dimension. Project plan encompass such items for improvement of present production, new and physical facilities etc. the nature of project is such that they must be planned as separate unit. In planning for a project the time span considered most normally is the anticipated life span of the project. The preparation and evaluation of current and future project plan are essential of the planning phase (Welsch, et.al., 1992:79).

g. Development and Approval of Tactical Profit Plans

When the managers of various responsibility centers in the enterprise receive the executive management planning structure and

the project plans they can begin intensive activities to develop their respective strategic and tactical profit plans. The strategic long range plan and tactical short range plan are usually developed.

It is possible that executive management or the chief financial executive will develop the strategic and tactical profit plans (Welsch, et.al., 1992:80).

h. Implementation of Profit Plans

Implementation of plan requires the timely performance reports to be prepared and forwarded by respective organizational sub units. For this Welch explained, as profit plans are being implemented during the period of time specified in the tactical plan, periodic performance report are needed. These performance reports are prepared by the accounting department on monthly basis. Also some special performance reports are prepared more often as per need. These performance reports;

1. Compare actual result and planned performance and
2. So each difference as favorable or unfavorable performance variation.

A clear distinction must be made between external and internal financial report. Internal reports can be further be classified as (Welsch, et.al., 1992:85)

Statistical reports that give the basic quantitative internal statistics about the operation of the enterprises.

- Special managerial reports about none recurring and special problems.
- Periodic performance reports which are focus on dynamic and continuous control tailored to assigned managerial responsibilities.

Follow up action is an important fact of effective control and re-planning performance reports are the bases for effective follow up action. this is the part of effective control. It is important to distinguish between causes and effect. The performance variation is effect, the management must determine the underlying causes, and the identification of causes is primarily a responsibility of line of management. Analysis to determine the underline causes of both favorable and unfavorable performance variance should be given immediate priority. In the cases of unfavorable performance variance, after identifying the basis causes, as opposed to the results, an alternative for corrective action must be selected. Then the corrective action must be implemented. In the case of favorable performance, the underlying causes should also be identified (Welsch, et.al., 1992:88).

2.6 Elements of Profit Planning

The basic elements of profit planning are as follows:

2.6.1 Comprehensive and Co-ordinate Plan

The profit planning considers all activities and operations of an organization. The budgets prepared by different departments inside an organization are to be complied to and coordinated to make profit planning.

2.6.2 Expressed in Financial Terms

All activities covered by budgets are related with funds. Therefore, the budget has to be expressed in money units (i.e. in rupees, dollars, pounds etc.)

2.6.3 Plans for Operational Resources and Expenses

It is a plan for the firms operation and resources. Budget is a mechanization to plan for the firm's all operations or activities. The two aspects of every operation are revenue and expenses. The budgets must plan for any quantity of revenue and expenses related to specific activity. The plan should be made to carry out the operations. The planning for resources will include planning assets and sources of funds.

2.6.4 Future Plan

It is a plan for specific period. Time dimension must be added to a budget because it will be meaningful only when it is related to a specific time. The budget estimates will be relevant only for some specific period.

2.6.5 Components of Profit Planning

Profit planning and control is a systematic and formalized approach for accomplishing the planning, co-ordination and control responsibilities of management. Components of PPC are bones of a business/an enterprise, which help it operate properly, effectively.

The components of PPC are as follows; (Welsch, et.al., 1992:74).

2.6.6 The Substantive Plan

This plan represents the following:

- Broad objectives, missions and short term goals of the enterprise.
- Specified enterprise goals, structure, responsibility and authority.
- Enterprise policies and strategies.
- Instruction and communication of executive management planning.

2.6.7 The Financial Plan

The financial plan includes:

A) Strategic Long Range Profit Plan

- Sales, cost, and profit projections.
- Major projects and capital additions.
- Cash flow financing.

B) Tactical Short Range Profit Plan

i) Operating Profit Plan

The operating profit plan includes:

- Planned income statement.
- Sales plan.

- Production or merchandise purchase plan.
- Administrative expenses budget.
- Distribution expenses budget.
- Appropriation type budget (e.g. research and development, promotion, advertising.)

ii) Financial Position Plan

It includes planned balance sheet (i.e. assets, liabilities, and owner's equity.)

iii) Cash Flow Plan

- Planned cash flow statement
- Cash from operating activities
- Cash from investing activities
- Cash from financing activities

C) Variables Expenses Budgets (i.e. Expenses Formula)

D) Supplementary Data (i.e. CVP Analysis, Ratio Analysis)

E) Performance Reports (i.e. Each Month and as Per Need)

F) Follow up Corrective Action and re- Planning Reports

2.7 Major Tools used in Profit Planning and Control

Profit planning and control represents an overall plan of operations, which covers a definite period and formulates of planning

decision of management. It consists of three main budgets which are:

2.7.1 Operating Budget

The operating budgets cover revenue and expenses. In other words, operating budgets relates to the physical activities or operations of a firm such as sales, production, purchases material, labor and other different expenses budgets. Operating budget has the following term:

i) Sales Budget

Sales budget is starting point in the preparation of the comprehensive PPC. It is an estimate of the goods that will be sold. After knowing creating the idea of what it sales be, it can be then decide how much to produce or purchase. All the other plans and budget are dependent upon the sales budget.

A sales budget is a detailed schedule of expected sales for coming period, which is usually expressed in both amounts and units. Once the sales budget has been set a decision can be made on the level of production that will be needed to support sales and the production budget can be set well. The sales budget is constructed by multiplying the expected sales in units by the sales price (Garrison, 1985:173).

Sales budget is prepared from sales forecast where as a sales forecast encompasses potential sales for the entire industry as well as potential sales for the firm preparing the forecast (Welsch, et.al., 1995:173).

It should be broken down not only in time periods but also into geographical or responsibility areas by the use of sales quotas.

ii) Production Budget

The second step of PPC is the production budget. The production budget is an estimate of the quantity of goods to be manufactured during the budgeted period.

After the sales budget has been prepared, the production requirement for the forth coming budget period can be determined and organized in the form of a production budget. Sufficient goods will have to be available to meet sales need and provide for desired ending inventory. A portion of these will already exit in the form of beginning inventory. The remainder will have to be produced. Thus, the production budget can be determined by adding budgeted sales units to be desired ending inventory and deducting the beginning inventory from the total (Horngren, et.al., 1999:182).

iii) Purchase Budget

In case of non manufacturing concern it would prepare merchandise purchase budget to plan the amount of goods to be purchased during the period. The merchandise purchase budget is in the same basis format as the production budget. It shows goods to be purchased but it doesn't show the goods to be produced.

iv) Direct Material Budget

After the production needs have been computed, a direct material budget should be prepared to show the material that will be require on the production process. Sufficient raw material will have to be available to meet production needs and to provide for desired ending raw material inventory for the budget period. Parts of this raw material require will be already existing in the form of beginning raw material inventory. The remainder will have to be purchased from supplier.

v) Direct Labor Budget

The direct labor budget is also developed from the production budget. Direct labor requirement must be computed so that the company will know whether sufficient labor time is available to meet the production needs. Just knowing the requirement in advance, direct labor requirement can be computed so that the company can be computed multiplying product to be produced by each period by number of direct labor hours require to produce a single unit. Many different type of labor will be involved. If so, then computation should be by type of labor needed. The hours of direct labor time resulting from computation can be multiplied by the direct labor cost per hour to obtain budged total direct labor cost.

vi) Manufacturing Overhead Budget

The manufacturing overhead budget provides a schedule of all costs of production other than direct material and direct labor. These costs should be broken down by cost behaviors for budgeting purpose and predetermined overhead rate developed. This rate will be used to apply manufacturing overhead to units of product throughout the budget period.

vii) Selling and Administrative Overhead Budget

The selling and administrative expenses overhead budget contains a listing of anticipated expenses for the budget period that will be incurred in areas other than manufacturing. The budget will be made up of many smaller individual budget submitted by various person having responsibility for cost control in selling and administrative matters. If the number of expenses item is very large separate budget is needed for the selling and administrative functions.

2.7.2 Financial Budgets

Financial budgets are concerned with expected cash receipt or disbursements, financial position and result of operation. The components of financial budgets are;

i) Budget Income Statement

The budgeted income statement is one of the key schedules in the budget process. It is the document that tells how profitable operations are anticipated to be in the forth coming period. After it has been prepared, it stands as a benchmark against which subsequent company performance can be measured (Garrison, 1985:313).

ii) Cash Budget

Cash budget is the detail showing cash receipt cash disbursement and the balance cash. The cash budget is composed of four major sections. The receipts section, the disbursements section, the cash excess or deficiency section, and the financing section. The receipt section consists of the opening balance of cash added to whatever is expected in the way of cash receipts during the budget period. The disbursement section consists of cash payments that are planned for the budget period. The cash excess or deficiency section consists of the difference between the cash receipts section total and the cash disbursement section total. The financing section provides a detailed account of the borrowing and repayments projected to take place during the budget period. It is also includes a detail interest payment that will due on money borrowed.

iii) Budgeted Balance Sheet

Budgeted balance sheet is a statement of assets and liabilities prepared after the operating budget and financing budgets. It is based on functional or operating budget, cash budget, income statement and previous year's asset and liabilities. In other words, budgeted balance sheet developed by beginning with current balance sheet and adjusting it for the data contained in the other budgets.

2.7.3 Appropriation Budget

The appropriation budget covers all type of expenditure on advertising and research sectors. Apart from the above budget, PPC also has relationship with following additional budgets such as flexible budget, capital expenditure budget, CVP analysis, completion of profit planning and performance reports.

i) Flexible Budgets

Flexible expense budget relate to expenses or cost. They are also called dynamic, activity or output adjusted expenses budgets. The concept of flexible expense budget is that all expenses are incurred because of passage of time, output activity or

combination of time and activity; therefore, it is complementary to tactical profit plan, which helps to provide and expenses in periodic performance report. Expenses or cost must be identified into fixed and variable expenses or costs in flexible budget.

ii) Capital Expenditure Budget

Capital expenditure budgeting is a process of planning and controlling of the long term and short term expenditure for expansion, replacement and contraction of fixed assets. Capital budgeting is useful to earn future profit and reduce cost. The major element of capital expenditure budgets are cash outflows and cash inflows. Cash outflows include the cost of project as cash outlays at different times during life of a project. The cash outflows are affected by the provision of the residual value of old equipment, tax provision, additional working capital needed etc. cash inflows are expected cash revenue during the life of a project. The non cash expenses like depreciation and tax position affect the inflows.

iii) Zero Base Budgeting

Zero base budgeting is the method of budgeting in which managers are required to start at zero budget levels every year and to justify all cost as if the programmed involved were being initiated for the first time. No costs are viewed as being ongoing in nature; the manager must start at the ground level each year and present justification for all costs in the proposed budget regardless of the type of cost involved. Zero based budgeting differs from traditional budgeting in which budgets are generally initiated on an incremental basis, the manager start with last years budget and simply adds to it according to anticipated needs. The manager doesn't have to start at the ground each year and justify ongoing for existing programmed.

iv) Activity Based Budgeting

Activity based costing can lead to improved decision making. Activity based costing focuses on the cost of activities to produce and sell products and services.

It separates indirect cost into separate homogeneous activity cost pools. Management uses the cause and effect criterion to identify cost drivers for each of these indirect cost pools.

v) Completion of Profit Plan

The principal output of budgeting is a comprehensive profit plan that ties together all phases of an organizations operations. The completion or profit plan is compromised of many separate budgets or schedules that are interdependent. In other words, completion of profit plans means the process of profit planning ends with the planned income statement and planned balance sheet.

vi) Performance Report

Performance report is an important portion of comprehensive profit planning system. The performance reporting phase of a comprehensive PPC programmed significantly influences the extent to which the organizations planned goals and objectives are attained. Performance report deal with control aspect of PPC or management control function of management defined as "the action necessary to assure the objectives, plans, policies and standards are being attend" or in other words, the objectives of control is to guarantee the achievement of the planned objectives of the management by introducing periodic systemic correction measure. Performance report is one of the vital tools of management to exercise its control function effectively.

2.8 Cost Volume Profit Analysis

The dictionary meaning of cost is the price paid to acquire, produce, accomplish, or maintain anything. Volume is a mass or quantity of something or amount. Profit is the ratio of such pecuniary gain to the amount of capital invested and analysis is resolution, separation or breaking into parts. But actually cost volume profit analysis is the examining the relationship among revenues, cost, and profit for

relevant range of activity and for a particular time frame. Basically, CVP analysis involves finding the most favorable combination of variable, fixed cost, selling price, sales volume, and mix of products sold. CVP analysis provides the managers with a powerful tool for identifying those courses of action that will and not improve profitability.

Cost volume profit analysis is important tool of profit planning because it provides the information about the behaviors of cost in relation to volume, volume of production or sales where the business will break even, sensitivity of profit due to variation of output, amount of profit for a projected sales volume and quantity of production and sales for a target profit level etc. CVP analysis may therefore be defined as a managerial tool showing the relationship between various ingredients of profit planning, (cost, selling price and volume of activity). CVP analysis is an important media through which the management can have an insight into effects in profit on account of variations in cost and sales and take appropriate decisions. CVP analysis is great helpful in managerial decision making. Specially, cost control and profit planning is possible with the help of CVP analysis. Profit planning is the fundamental part of the overall management functions. Profit planning can be done only when the management has the information about the cost of production and selling price of the product.

CVP analysis is an analytical tool for analyzing the relationship among cost, price, profit, sales and production volume. Mainly, there are three elements in CVP analysis. They are cost, sales or production volume and profit. All these terms are interconnected and dependent on another. For instant, profit per unit of a product depends on its selling price and cost of sales. The selling price to a greater extent will depend in cost and cost depends on the volume of production. It is highly essential for the management to have the complete knowledge about the interrelationship among the cost, volume and profit. CVP analysis is extremely helpful in profit planning and control, management decisions and cost control etc.

CVP analysis can be regarded as a sophisticated method or analytical tool used in management. The use of this method helps in

determining the different levels of product of sales to avoid losses to earn a desired net profit and so on.

CVP analysis is one of the most important and powerful tool to analyze the financial statement of the firms. It is one of the important parts of the profit planning or budgeting.

CVP analysis is one of the most important and powerful tools that managers have at their command in short term planning. It helps managers understand inter relationship between cost volume of profit in an organization by focusing on interaction between the following five elements.

1. Price of the product
2. Volume or level of activity
3. Total fixed costs
4. Per unit variable costs
5. Mixed product sold

Generally cost volume profit analysis provides information regarding (Munankarmi, 2003:124).

- Minimum level of sales to avoid losses.
- Sales levels to earn profit.
- Effect of changes in process, costs and volume on profits.
- Effect of changes in sales mix on profit.
- New break even point for changes.
- Impact of expansion plan on CVP relationship.

- Products those are most profitable and least profitable.
- Whether to continue or discontinue the sales of products or operation of plant.
- Whether to close or not the firm for a short term.
- Effect on operating profit with the increase in fixed cost etc.

Cost volume profit analysis provides information for the management decision about effective budgeting of a company. It is an organized approach for planning, appraisal or coordinating and control.

Cost volume profit analysis examines the behavior of total revenues, total cost and operating income as changes occur in the output level, the selling price, the variable cost per unit and fixed cost of a product (Hongren Datar and Foster, 2003:136).

CVP analysis is a systematic method of examining the relationship between changes in activity (i.e. output) and change in total sales revenue, expenses and net profit. CVP analysis is subject to number of underlying assumptions and limitations. Nevertheless it is powerful tool for decision making in certain situations (Drury, 2001:17).

Most of the business fails after a few years sometimes month of starting because they tend to anything for volume without thinking how it's going to affect to bottom line. CVP analysis is a management accounting tool to show the relationship between the elements of profit planning. Profit planning is a function of selling price of product demand, variable cost, fixed cost, taxes etc (Bajrachrya, et.al., 2004:225).

CVP analysis is the analysis of three variables i.e. cost, volume and profit. Such an analysis explores the relationship existing among cost, revenue, activity levels and the resulting profit. It aims at measuring variation of cost with volume. In the profit planning of a business, cost volume profit relationships is the most significant factor. The CVP analysis is an extension of marginal costing. It makes use of principles of marginal costing. It is an important tool of planning. It is quite useful in making short run decisions.

The key motive of business enterprises is to make and maximize profit. Profit doesn't happen by chance. It is to be managed. CVP analysis is supplementary tool of planning for profit. CVP is immensely helpful for developing alternative strategies in sales planning and cost estimation. Cost volume profit analysis is an accounting technique showing the relationship between variables. It is equally applicable for non profit making organization to allocate scarce economic resources most effectively among the competing alternative. Allocation of scarce resource among the various demanding sectors is the most important part of national planning.

2.9 Use of CVP Analysis in Profit Planning

Planning, controlling and decision making are the essential managerial function. Cost volume profit analysis helps the managers to plan for profit to control cost and make decision. As such it helps.

- To determine the break even point in rupees and units.
- To determine profit and loss at different levels of activity.
- To determine the margin of safety in units and rupees.
- To determine new break even points in rupees and units after change on variable cost or fixed cost or selling price.
- To determine sales volume in rupees and units at which the profit goal of organization will be achieved.
- To determine the most profitable and least profitable product or project.
- To determine the maximum sales volume in units and rupees to avoid losses.

- To determine the optimum selling price.
- To help management to find the most profitable combination of cost and volume.
- Go find out effect on profit after increase in or decrease in selling price, variable cost and fixed cost.

2.10 Application of Cost Volume Profit Analysis

Cost volume profit analysis is applied specially for break even analysis and profit planning. Business organization is run to earn profit. Profit planning is the fundamental part of the overall management function. Profit planning can be done only when the management has the information about the cost of the product, both fixed and variable cost and the selling price of the product.

CVP analysis can be applied in the following respects; (Dangol, 2004:36)

- It helps in fixation of selling price.
- It is helpful in cost control.
- It also assists the management in understanding the behaviors of cost and helps in budgeting control.
- It helps in determining the level of output where all the costs can be met.
- It assists the management in profit planning.
- It also assists the management on performance evaluation for the purpose of management control.
- It helps very much in making managerial decisions such as make or buy a part, drop or continue a department or product line, accept or reject a special order, selection of profitable product mix etc.

2.11 Approaches to CVP Analysis

There are three approaches to CVP analysis. They are:

- The contribution margin (CM) approach
- Cost revenue equation approach
- Graphic approach

2.12 Contribution Margin Approach

In general sense, contribution is to leave something for some purpose. CM reflects the revenue remaining after covering all variable costs.

The profit potential of a business enterprise is indicated by contribution margin approach. It highlights the relationship among cost, sales and profit.

Contribution margin is the excess of sales revenue over variable costs, so contribution margin means how much is left from sales revenue after covering variable expenses that are contributed toward profit for the period. Contribution margin is used to first to cover the fixed expenses and then whatever remains, after the fixed expenses are covered goes toward profit.

If the contribution margin is not sufficient to cover the fixed expenses then a loss occurs for the period. Basically contribution margin indicates why operating income changes as the volume of sales changes.

The difference between selling price and variable cost (i.e. the marginal cost) is known as 'Contribution margin'. In other words, fixed cost plus the amount of profit is equivalent to contribution margin. It can be expressed by the following formula:

Contribution Margin = Sales Revenue – Variable Cost or,

Contribution Margin = Fixed Cost + Profit and,

Contribution Margin per Unit = Selling Price per Unit − Variable Cost per Unit

CVP analysis is the amount of contribution margin available from the sales volume of absorbs fixed cost and also contributes towards company's profit goal after deducting all variable cost of sales. When the contribution margin is high, then also profit is high.

Companies that separately identify and measure the fixed and variable components of cost often use a contribution margin approach on their periodic income statement prepared for internal management uses. These income statements provide financial data that are uniquely useful for management planning purpose because of the emphasis on fixes and variable costs. Most of the managerial decisions that relate to operations (either directly or indirectly) are based in some way to knowledge of the fixed and variable components of cost (Hilton and Paul, 1995: 498-499).

Contribution Margin Ratio (CM Ratio)

Contribution margin ratio is also known as profit volume ratio P/V Ratio) CM ratio equals to contribution margin divide by revenue. The analysis of relationship between profit and volume is known as profit volume analysis. Profit volume ratio or contribution margin ratio establishes a relationship between the contribution and sales value. Percentage of contribution margin to total sales is referred to as the cm ratio. Cm ratio can be calculated by using either per unit or total revenue minus total variable cost information as follows.

Sales Revenue–Variable Costs

$$\text{CM X}\frac{\text{Sales Revenue Z Variable Costs}}{\text{Sales Revenue}}$$

$$\text{Or, X}\frac{\text{Contribution Margin}}{\text{Sales Revenue}}$$

Or, $X\frac{SPPU - VCPU}{SPPU}$

It is also the remaining percent of the variable cost ratio:

CM Ratio=1-Variable Cost Ratio

Or, $X1\,Z\frac{\text{Variable Cost}}{\text{Sales Revenue}}$

Fixed costs do not change within the relevant range in the short period so profit change by the same amount as the contribution margin changes.

$\text{CM Ratio} = X\frac{\text{Changes in Contribution Margin}}{\text{Change in Sales Revenue}}$

Or, $X\frac{\text{Change in Net Profit}}{\text{Change in Sales Revenue}}$

This ratio is helpful for determination of the desired level of output or profit and for the calculation of variable costs for any value of sales.

VC = Sales (1 – CM Ratio)

Comparison of different ratio is usually made by management to find out which product is more profitable. Management tries to increase the value of the ratio by reducing the variable cost or by increasing the selling price.

A business enterprise can improve its profit by improving a profit volume ratio. The management can eliminate the unprofitable lines which are having either a lower profit volume ratio can be increased by:

- Increased sales price per unit.
- Decreasing variable cost.
- Increasing the production of products having high profit volume ratio and vice versa.

2.13 Use of Profit Volume Ratio

Profit volume ratio can be taken as a significant tool for an evaluation of earning capacity of a business enterprise. The earning capacity of an enterprise can be measured by the profit volume ratio. The higher profit volume ratio reflects the firm's ability for increasing profitability.

The profit volume ratio is used to determine the following facts:

- For the analysis of the break even point.
- For ascertaining of profit at a budgeted sales volume.
- For calculation of sales amount needed to keep up with previous profit while decreasing selling price.
- For ascertaining profit on margin of safety.
- For determination of selling price.
- For calculation of sales amount required to earn target profit.

2.14 Cost and Revenue Equation Approach

The cost and revenue equation approach is based on the income statement concept.

It represents the most convenient and accurate approach to cost-volume-profit analysis. The various formulations in CVP analysis are derived from the revenue and cost function. The relationship between cost, volume and profit can be expressed algebraically as:

Profit = Total Revenue – Total Cost

Total revenue and total cost are affected by sales volume. The addition of quality in the above equation will provide useful information for knowing the effect of revenue, costs and volume as operating profits. When the quantity is included in the above equation, its algebraic form will be as follows:

Profit = Total Revenue – Total Variable Cost – Fixed Cost

Or Profit=(Unit Selling | Price Sales Unit)–(Unit Variable Cost | Sales Units)–Fixed Cost

Or, P =(S | Q) – (V | Q) – FC

Or, P = Q (S – V) – FC

Where,

P = Profits

Q = Sales Units

S = Unit Selling Price

V = Unit Variable Cost

FC = Fixed Cost

2.15 Break Even Analysis

Break even analysis is used to determine the level of sales of products required to just recover all cost incurred during the period.

Break even analysis is widely used technique to study cost volume profit relationship. The narrow interpretation of the term break even analysis refers to system of determination of that level of activity where total cost equals total selling price. The broader interpretation refers to system analysis, which determines probable profit at any level of activity (Maheshwori, 2000:175).

Cost volume profit analysis is sometimes referred to simply as a break even analysis. This may be misleading because break even analysis is just one part of the entire CVP concept. It is always taken as an important part of profit planning as it gives the planet many insights into the data with which he or she is working. Profit planning of each firm begins from break even analysis.

A popular technique to study cost volume profit relationships is break even analysis. It concerns with the study of revenue and costs in relation to sales at which the firm's revenue and total cost will be exactly equals or the net income will be zero. It is a no profit no loss situation.

2.16 Approaches to Break Even Analysis

The cost volume profit relationships and break even point can be analyzed through different approaches.

A. Contribution Margin Approach

The contribution margin income statement approach to CPV analysis allows the preparation of Performa statement from the available information. BEP and other required CVP relationships can be explained through a contribution margin statement.

B. Formula Approach

The most popular practiced approach to the break even point and cost volume profit analysis is the formula also known as the equation. The formula approach uses an algebraic equation to calculate the break even point (Rainborn et.al., 1993:89).

The calculation in the equation approach is similar to that of the contribution margin statement approach. The equation is merely restatement of the other.

Table 2.1

Formula Approach of CVP Analysis

Contribution Margin Approach	**Symbol or Equation**
Sales Volume (units)	Q
Selling Price Per Units	SPPU
Sales Revenue (Rs.)	Q ׀ SPPU
Less: Variable Costs	Q ׀ VCPU
Contribution Margin	Q ׀ SPPU – Q ׀ VCPU
Less: Fixed Cost	FC
Net Profit	Q ׀ SPPU – Q ׀ VCPU – FC

Equation:

Sales – Variable Cost – Fixed Cost = Net Profit

Or, Sales = Variable Cost – Fixed Cost + Net Profit

Or, Q ׀ SPPU = Q ׀ VCPU + FC + Net Profit

Therefore,

$$Q\ X\frac{FC\ \Gamma\ Pr\ ofit}{CMPU}$$

Where, SPPU-VCPU=CMPU

BEP in units $X\frac{FC}{CMPU}$

BEP in RS $X\frac{FC}{P/V\ Ratio}$

There is no profit no loss at BEP. IN case the volume of output or sales is to be computed for a desired profit, the amount of desired profit should be added to fixed cost in the formula given above.

Required sales to Earn Desired Profit in Units $X\frac{FC\ \Gamma\ DP}{CMPU}$

Required sales to Earn DP in Rs. $X\frac{FC\ \Gamma\ DP}{P/V\ Ratio}$

Required Sales to Earn DPAT in Units $X\frac{FC\ \Gamma\ \frac{DPAT}{(1-Tax\ Rate)}}{CMPU}$

Required Sales to Earn DPAT in Rs. $X\frac{FC\ \Gamma\ \frac{DPAT}{(1-T)}}{P/V\ Ratio}$

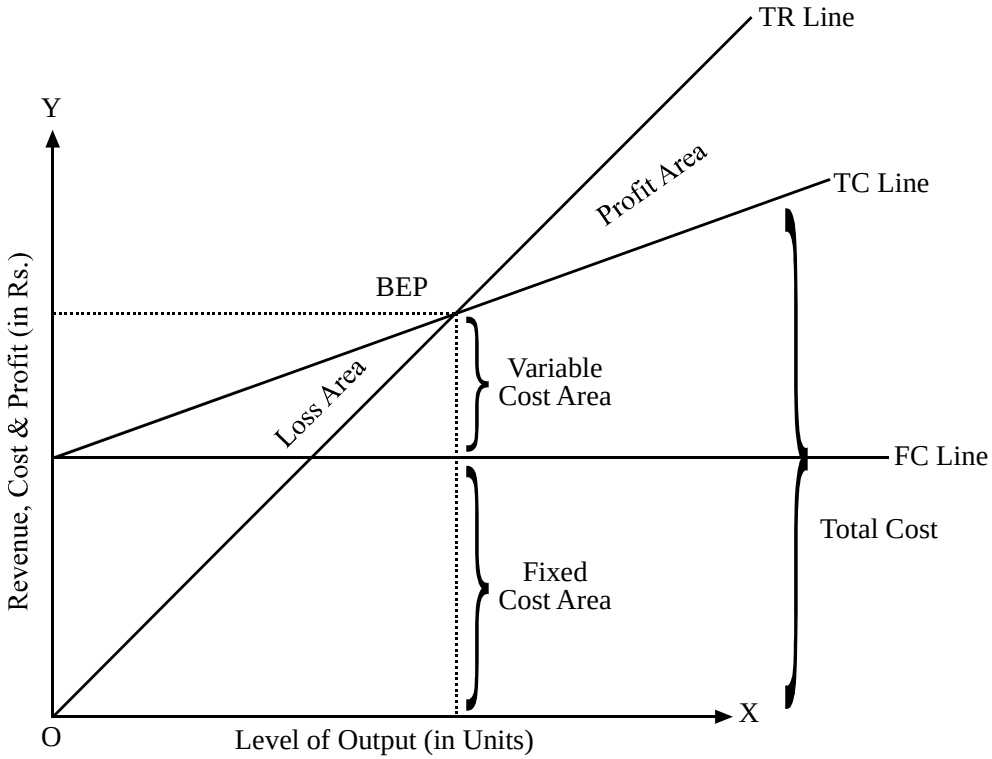
The contribution margin and equation approaches are two equivalents for finding the BEP. Both methods reach the same conclusion, so personal preference dictates which approach should be used.

C The Graphic Approach

A break even chart is used to graphically depict the relationships among revenues, variable costs, fixed costs and profit or losses. The no profit no loss point (BEP) is located at the point where the total cost and total revenue line cross as below this point the firms bears losses and above this point, the firms earns profit.

Figure 2.1

Graphic Approach of BEP Analysis



The sales and production unit is plotted on horizontal or x-axis and vertical or y-axis represents cost and revenue. In graph the fixed costs remain constant with relevant range; the fixed cost curve is parallel to 'ox' axis. Variable cost slope upward from the origin to right but depends on variable cost curve. BEP is located where the total cost line crosses the sales revenue line.

The above graph clearly states that if the company can reach the point BEP, it can generate sufficient revenues to cover all its operating expenses. At this point total revenues equal the total cost. Here, the revenue curve break up (intersects) the total cost curve, that's why this point is called break even point. (Bajracharya, et.al., 2004:230).

If the actual sales are more than the break even sales, the organization will earn profit and if the actual sales are les than the break even sales, the organization will suffer from loss.

D Cash Break Even Point

Some of the firms fixed costs are non cash outlays, and for a period, some of its revenue may be in receivable. It may be therefore important to find BEP on cash basis for accounting and financial decision making. If non cash items are eliminated from revenues and costs, the BEP analysis on cash basis can be easily be computed.

It is the point of sales where cash break even the cash expenses. While calculating this sales the cash fixed cost (i.e. excluding depreciation and deferred expenses) and cash contribution (i.e. selling price less the cash variable costs) are considered. The point helps the management in determining the level of activity below which there are chances of insolvency on account of the firms inability to meet cash obligations unless alternative arrangement are made (Maheshwari, 2000:178).

The cash break even point can be computed by the following formula.

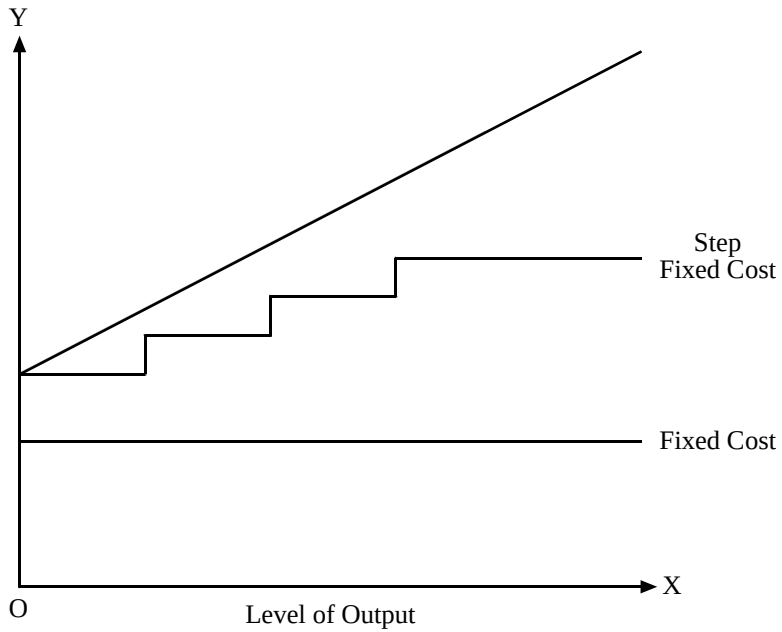
$$\text{Cash BEP } X = \frac{\text{FC } \Gamma \text{ Non Cash Expenses}}{\text{CM Ratio}}$$

Step Fixed Costs and BEP Analysis

Step fixed cost are those which neither remain the same for tall levels of the output nor change proportionately. Step fixed costs jump if the level of activity exceeds a certain level. so, these costs are unknown before estimating the required level of sales. Step fixed costs are to be critically estimated at the problem. It is particularly because these are unknown previously for the required level of activity.

Figure No. 2.2

Step Fixed Cost



Applications of Break Even Analysis

Break even concept can be used to formulate different policies in a business enterprise, some or these applications are:

- Determination of profit at different level of sales and margin of safety.
- To find the level of output to get the desired profit.
- Effect of price reduction on sales volume and changes in sale mix.
- Effect of fixed cost or variable cost changes on sales volume.
- Selection of most profitable alternative, make or buy decisions and drop or add decisions.

Assumptions of Break Even Analysis

The assumptions underlying the construction of break even points are as follows.

- All costs can be classified into fixed and variable cost. There is no other cost than fixed cast and variable cost.
- Selling price per unit remains constant. It is not affected by sales volume.
- Fixed cost will remain constant and variable cost varies proportionately with activity. Either the firm produces only one product or the product mix is constant at all level of output.
- General price level will remain essentially stable in the short run.
- Changes in the opening and closing inventories are not significant.
- That the level of production and sales remain unchanged during the period.

Limitations of Break Even Analysis

The break even analysis is based on some unrealistic assumptions. It main limitations are as follows:

- According to the assumption of break even point, total cost can be divided into only fixed and variable costs, which is

not practicable in real life. There are some costs, which are neither fixed nor variable. Those costs are described as semi fixed or semi variable costs.

- The assumption that fixed cost always remains constant is not true.
- Sometimes it can be increased, especially in that situation, when production or operation technique is changed. The assumption that variable cost per unit always remains constant can not be entirely true.
- Constant selling price is also not true. In case of increase in sales volume, some modification can be made in selling price by considering the nature of demand for the goods.
- The assumption that either the firm produces only a single product or production mix ratio remains constants is also obviously quite unrealistic. Industries producing several types of goods have to bring about modification in the production mix ratio from time to time.
- The assumption that the production level and sales levels should be equal is another drawback of break even point. Such a condition is hardly found in practice.
- The capital invested in business is also a significant element of profit planning and control. However, it is not given a place in break even point.

2.17 Required Sales for Desired Profit

Desired profit for the firm may be the 'Profit before Tax, Profit after Tax, % of Profit on Sales Revenue, % of Profit on Investment Amount' etc.

1. If the company wants to earn certain amount of profit before tax:

$$\text{Required Sales (Units) } X = \frac{FC + DPBT}{CMPU}$$

$$\text{Required Sales (Rs.)} = \frac{\text{FC} + \text{DPBT}}{\text{C/M Ratio}}$$

2. If the company wants to earn certain amount of profit after tax:

$$\text{Required Sales (Units)} = \frac{\text{FC} + \frac{\text{DPAT}}{1 - \text{Tax}}}{\text{CMPU}}$$

$$\text{Required Sales (Rs.)} = \frac{\text{FC} + \frac{\text{DPAT}}{1 - \text{Tax}}}{\text{C/M Ratio}}$$

3. If the company wants to earn certain % of profit before tax on sales revenue:

$$\text{Required Sales (Units)} = \frac{\text{FC}}{\text{CMPU} - \text{PPU}}$$

$$\text{Required Sales (Rs.)} = \frac{\text{FC}}{\text{C/M Ratio} - \text{Profit Ratio}}$$

4. If the company wants to earn certain % of profit after tax on sales revenue:

$$\text{Required Sales (Units)} = \frac{\text{FC}}{\text{CMPU} - \frac{\text{PPU}}{1 - \text{Tax}}}$$

$$\text{Required Sales (Rs.)} = \frac{FC}{\text{C/M Ratio} - \frac{\text{Profit Ratio}}{1 - \text{Tax}}}$$

5. If the company wants to earn certain % of profit after tax on sales revenue:

$$\text{Required Sales (Units)} = \frac{FC + \text{Investment} \times ROI}{CMPU}$$

$$\text{Required Sales (Rs.)} = \frac{FC + \text{Investment} \times ROI}{\text{C/M Ratio}}$$

2.18 Margin of Safety

Margin of safety is the excess of budgeted or actual sale over the break even sales. In other words, it is the difference between the budgeted or actual sales revenue and the break even sales revenue. It is the position above the break even point. It serves as a cushion or spring plate that enables a business firm to absorb the shocks of adverse business conditions. It indicates the extent to which sales may fall before suffering any loss i.e. greater the margin, safer the firm.

The soundness of business is indicated by margin of safety. The difference between total sales and break even sales is identified by margin of safety. The high margin of safety is good for business. It indicates that there can be substantial falling on sale and profit can still be made. On the other hand, if the margin of safety is small, it indicates the weak position of business. The small margin of safety shows that even a small reduction in sale or production will adversely affect the profit position of business.

It gives management a feel for how close projected operations are to be organizations break even point. Managers often consider the size of the company's margin of safety when making decisions about various business opportunities. The larger is the safety margin, the

greater is the chances for the company to earn profit (i.e. larger the margin of safety, safer the company).

Margin of Safety can be ascertained by using the following formula:

…Margin of Safety in units = Actual Sales in Units – Break even sales in units

Or, Margin of Safety = Total Sales – BE Sales

Or, Margin of Safety in Rs. = Actual Sales in Rs. – Break even Sales in Rs.

$$\text{Or, Margin of Safety } X\frac{FC\Gamma Profit}{CMPU}Z\frac{FC}{CMPU}$$

$$\text{Or, Margin of Safety } X\frac{1}{CMPU}(FC\Gamma Profit - FC)$$

$$\text{Or, Margin of Safety in Units } X\frac{Profit}{CMPU}\ ]$$

$$\text{Or, Margin of Safety Ratio } X\frac{MOS}{Total\ Sales}X1Z\frac{BE\ Sales}{Total\ Sales}$$

$$\text{Or, Margin of Safety in Rs. } X\frac{Profit}{C/M\ Ratio}$$

If margin of safety is unsatisfactory, it can be improved through the following steps:

- By increasing the sales and production volume.
- By increasing the selling price.
- By decreasing the fixed costs.

- By reducing the variable costs.
- By changing the sales or production mix ratio.

CVP Analysis for Multi Product Firm

Sales mix can be defined as the relative combination of two or more products represented in total. It is not only the sales revenue the makes profit. The proportion of the sales contributed by different products greatly changes the amount of profit. Managers try to achieve that combination, or mix, that will yield the greatest amount of profit. If a company sells more than one product, these may not be equally profitable. So the company's profit will depend upon the ratio or each products sale to total sales revenues. Profit will be greater if high margin items make up a relatively large proportion of total sales than if sales consist mostly of low margin items. Changes in sales mix can cause great variations in a company's profit, A shift to low margin items can cause the total profit to decrease even through total sales increase. In the contrary, a shift in the sales mix from low margin items to high margin items can cause the reverse effect total profit may increase even through total sales decrease.

The relative proportion of sales of product is called the sales mix or the product mix. In the case of a multi product firm, the contribution for each product can be found ort by deducting its variable costs from sales revenue. The break even point for each product can be calculated only if the total fixed costs of the firm are distributed and fixed cist for each product is known. The firms overall break even point can be calculate by dividing total fixed costs by the contribution ratio for the firm. The multi product firm's P/V ratio will be the weighted average of the p/v ratios for all the products, the weights being the relative proportion of each products sale. The p/v ratio for the multi product firm can also be calculated by dividing total contribution from all products by total sales. A change in the product mix will not affect the firms break even point and profit if each product has the same p| v ratio. However, a change in the product mix will change the break even point and profit when products have unequal P/V ratios.

In case of single product, the solution of a problem required is much simple. But if the company has more than one product the solution for the problem required may be a little complex.

The product mix and sales mix are used interchangeably, when a firm produce or sells more than one type of commodity, it is described as product or sales mix. In such a situation different selling price, variable cost result in different unit contribution margin and contribution margin ratio. As a result, break even points vary with the relative proportion of the commodities produced or sold. However, the assumption has to be made that sales mix remains constant. It does not change for a specified period.

2.19 Break Even Point for Multi Product Firm

The different products may have their own different production facilities and fixed cost separately. In that case cost volume profit analysis can be done for each product separately. But if common facilities and common fixed costs are being used by different products, CVP analysis is performed by averaging data using sales mix as weight. In that case, break even point is calculated as follows:

Table 2.2

Determination of Break Even Point in Terms of Unit

Step-1	To find out sales mix ratio in units
Step-2	To find out unit contribution margin for each product
Step-3	To multiply the sales mix ratio and contribution margin of each product separately.
Step-4	To find out weighed average contribution margin by adding product of step-3
Step-5	To find out overall break even units by using formula: Overall BEP in units $X\frac{\text{Total Fixed Cost}}{\text{Weighted CMPU}}$

Table 2.3

Determination of Break Even Point In Terms of Rs.

Step-1	To find sales mix ratio in sales amount
Step-2	To find out P/V ratio of each product separately
Step-3	To multiply the sales mix ratio and P/V ratio of each product separately
Step-4	To find out overall P/V ratio by adding product of step-3
Step-5	To find out overall BEP BY using formula: Overall BEP in Rs. $X\frac{\text{Total Fixed Cost}}{\text{Weighted P/V Ratio}}$

Some Important Formula

Overall BEP in unit $= \frac{\text{Total Fixed Cost}}{\text{Weighted CMPU}}$

Overall BEP in Rs. $= \frac{\text{Total Fixed Cost}}{\text{Weighted P/V Ratio}}$

Product wise BEP in unit = Overall BEP in unit × Respective Proportion (From Sales Units)

Product wise BEP in Rs. = Overall BEP in Rs. × Respective Proportion (From Sales Rs.)

Required Sales to Earn DP (in units) $= \frac{\text{Total Fixed Cost} + \text{DP}}{\text{Weighted CMPU}}$

Required Sales to Earn DP (in Rs) $= \frac{\text{Total Fixed Cost} + \text{DP}}{\text{Weighted CM Ratio}}$

Required sales for DPAT (in Rs) $= \frac{\text{Total Fixed Cost} + \frac{\text{DP}}{(1 - t)}}{\text{Weighted CMPU Ratio}}$

2.20 Cost Volume profit Analysis and Limiting Factors

CVP analysis is more helpful in profit planning for a company producing a number of outputs of its choice. But in real word, it is not possible because of some critical factors like shortage of finishing machine time or raw material or labor. These critical factors in the CVP analysis are known as constraints.

2.21 CVP Analysis with Single Constraint

Single production constraint exists when the production is constrained by only one resource or bottleneck resource. For example, if all the firms' products require the same basic raw materials, then the firms output will be limited by the available quantity raw materials. Likewise if the products require the same labor, then the firms output will be limited by the available labor hours.

Scarce resource should be efficiently be allocated in order to maximize the contribution margin. A particular simple and instructive situation arises when there is only one constraining resource. This can occur if the firm products are all produced on single machine and output is limited by hours available on this machine. In the same way, single output is limited by availability for that material. When there is a constraint for a scarce resource to have alternative uses, the contribution per unit should be calculated for each of these uses. Then the available capacity for such scarce resource should be allocated to the alternative uses on the basis of contribution per scarce resource.

2.22 CVP Analysis with Multiple Constraints

Where more than one scarce resource exists the optimum production programmed cannot easily be established by the simple process applied in single resource constraint. Under the circumstances single allocation of resource or the basis of contribution margin per unit is neither feasible nor desirable. Contribution margin per unit of scarce resource may be constrains factors rather than single constraint.

In such situation, linear programming technique may used to optimize product mix. The linear programming formulation is required to determine a production plan which maximizes contribution from the product mix. Linear programming is a mathematical technique which shows how to arrive the optimum results, allocation available resources in a meaningful manner. It is basically concerned with the problem of allocating limit resources among competitive activities in an optimum manner. It is a technique to optimize the allocation of scarce resources in product mix problems which provides a valuable extension to cost volume profit analysis (Munankarmi, 2003:2008).

Multiple production constraints exists when more than one resources limits the quantity that can be produced any time in an aggregate manner. In situation of multiple production constraints, contribution margin per unit of scarce resource approach used in single

production constraints does not work, as ranking of products across different constraining resources will generally differ. Instead, linear programming helps us to make and optimal allocation or to determine an optimal product mix.

Linear programming is a mathematical model for finding the best uses of firm's limited resources. The basic requirements of a linear programming problem that's fits to multiple production constraints problem also can be enumerated as:

- There must be an objective the firm wants to achieve i.e. criterion in which alternatives are assessed e.g. profit maximization (which is our concern at present) or cost minimization. As profits are not linearly related to sales volume, contribution is the appropriate term to be used instead of profit.
- There must be alternative courses of action; one of which will assist in achieving the objectives.
- Resources or facilities must be in limited supply.
- The variables in the problem must be interrelated.
- Objectives and constraints must be able to be expressed as mathematical equations or inequalities and these must be linear equations or inequalities.

2.23 CVP Analysis under Condition of Uncertainty

CVP analysis can be used for various purposes such as choosing between machine and products, planning of profit and most significant fixing up of selling price. Management uses this as a convenient tool of profit planning with giving consideration of risk and uncertainty involved in it.

Our discussion of cost volume profit so far was based on the very assumptions that all cost and revenues were known with certainty. This assumption of single value estimate, which is so far from reality naturally, limits the usefulness of CVP analysis for profit planning and other decision purposes. To prove it –self a better tool in the hands of manager, CVP analysis should incorporate risk and

uncertainty in its parameters.

The fundamental variables used in the CVP analysis are (1) the selling price per unit, (2) the variables cost per unit, (3) the total fixed cost and (4) the expected sales volume of each product. In any given decision problem, all four of these factors can be uncertain. To simplify the problem, however, we can first start with the uncertainties in sales volume assuming other factors are equivalent to certainty. Moreover, Relative to the expected sales quantity, the costs and selling prices are quite certain; that is, for analytical purpose, the decision maker may be justified in treating several factors as certainty equivalents.

A possible approach to incorporate risk and uncertainty in CVP analysis is to apply normal distribution theory. A normal distribution theory normally estimates the likelihood than the random variable will take in various possible values. Such an estimate is more or less based on personal judgment and id called subjective probability distribution.

The normal probability distribution approach can be used to further analysis the element of risk in cost volume profit analysis. The use of normal probability distribution will enable the decision maker to have an idea of the probability of different expected values of sales or cost or profit, that is the probability of sales or cost or profit having the value of probability distribution is an important statistical technique in the hand of decision maker for evaluation the riskyness of a firm.

The parameters of the normal probability distribution are mean and standard deviation. A particular normal probability distribution can be completely determined, if it's mean and standard deviations are known. The standard deviation is a measure of dispersion of the distribution about its mean. The larger the standard deviation, the more spread out is the distribution.

2.24 Assumptions Underlying CVP Analysis

Break even analysis is the most useful technique of profit planning and control. It is a device to explain the relationship between cost,

volume and profit. The discussion of the CVP analysis (or break even analysis) so far is based on the following assumptions:

A. Cost Segregation

The total cost can be separated into fixed and variable components. Constant fixed cost is the total fixed cost that remains unchanged with changes in sales volume. Constant unit variable cost is the variable cost per unit is constant and total variable cost changes in direct proportion to sales volume.

B. Constant Selling Price

The selling price per unit remains the constant; that is, it does not change with volume or because of other factors.

C. Constant Sales Mix

The firm manufactures only one product or if there are multiple products the sales mix does not change.

D. Coordinated Production and Sales

Production and sales are coordinated, that is inventories remain the same.

2.25 Limitation of CVP Analysis

Assumptions limit the utility and general applicability of the CVP analysis. Therefore, the analysis should recognize these limitations and adjust data, wherever possible, to get meaningful results. The CVP analysis suffers from the following limitations.

- It is difficult to separate cost into fixed and variable components.
- It is not correct to assume that fixed cost would remain unchanged over the entire rage of volume.
- The assumption of constant selling price and unit variable cost is not valid.
- It is difficult to use the break even analysis for a multi product firm.
- The break even analysis is a short run concept and has a limited use in long range planning.
- The break even analysis is a static tool.

2.26 Special Problems in CVP Analysis

There are three special problems in CVP analysis hat are as follows:

A. The Activity Base

When two or more production or activities are combined for break even analysis, the activity is usually in amount. Product unit s used for single product. The activity base must be in additive units using a common denominator of volume or output in multiple products. For the company as a whole, net sale amount are usually the only satisfactory common denominators because manufacturing. Selling and administrative activities are expressed in combination.

B. The Change in Inventory

Usually, the budgeted change in inventories (i.e. finished goods and work in progress) is immaterial in amount and thus may be disregarded in CVP analysis.

On the other hand, when the change in budget inventory is significant, it should be included in the analysis. Management policy in inventory change is:

- Disregard the inventory changes.
- Included the inventory changes.

C. The Non operating Incomes and Expenses

The non operating incomes and expenses (extra ordinary gains and losses) cause another problem in CVP analysis. The main problem is that whether they should be included or excluded in the analysis. Management Policy may be to;

- Include the non operating income and expenses.
- Exclude the non operating income and expenses.

2.27 Sensitivity Analysis

Sensitivity analysis is the measurement of effect of the change in CVP factors on break even point or given profit. The strategist should focus more on the factor, which is more sensitive or responsive for profit. To measure the sensitivity of CVP factors one can see the impact of certain percentage or amount change in volume price or cost factors on net profit. In other words, sensitivity analysis is the measurement of responsiveness in outcome with the changes in determinant variables. We know that the goal of a business enterprise is to maximize profit. Profit is the excess of revenue over the total costs.

Profit=Total Sales –Total Cost – Taxes
Or, Net Profit = Total Sales Revenue – (FC+VC) – Taxes
Or, Profit =Sales Units × SPPU – Sales Units × VCPU –Fixed Cost –Taxes
So that, Profit = F (Sales Volume, Variable Cost, Fixed Cost, Taxes etc.)

But none of the factors remain unchanged; sometime the manager can be intentionally change the price and cost factors as a part of strategic decision. But the strategy should focus more on the factor, which in the more sensitive or responsive for profit. So to measure the sensitivity of CVP factors, we can see the impact of certain percentage or amount change in volume, price, or cost factors on net profit (Bajracharya, et.al., 2004:245).

2.28 Risk Measurement: The Operating Leverage and Break Even Point

Operating leverage is a measures of the extent to which fixed costs are being use in organization. The relationship of a company's

variable and fixed cost is reflected in its operating leverage. Generally, highly labor intensive organization has high variable costs and low fixed costs and this has low operating leverage and a relatively low break even point. Conversely, the organization that are highly capital intensive has a cost structure that includes low variable and high fixed costs which reflects high operating leverage with high break even point. It shows that fixed costs and operating leverage have direct relationship. Higher the amount of fixed costs higher the operating leverage and break even point and vice versa.

In other words, the firm with relative high operating leverage has proportionally high fixed expenses; the firms break even point will be relatively high.

Operating leverage tells us how profit change with change in sales. It is evident that profit change more rapidly than sales. Why do profit change more rapidly than sales? It is because some costs do not change say if sales decline variable costs also decline so, the net operating income decline more rapidly. Sales revenue changes but some parts of costs, known as fixed costs, remain unchanged. This usually net income changes more rapidly. This change is called the operating leverage.

Operating leverage can be measured in terms of the Degree of Operating Leverage (DOL). DOL shows the items of percentage change in net operating income of the given percentage change in sales. DOL may be defined as the percentage change in net operating income (NOI) or EBIT associated with a given percentage change in sales (Pandey, et.al., 2004).

$$\text{DOL } X \frac{\text{Percentage Change in Net Operating Income or EBIT}}{\text{Percentage Change in Sales}} X \frac{\zeta \text{EBIT} / \text{EBIT}}{\zeta \text{Sales} / \text{Sales}}$$

DOL & BEP Relationship

Leverage decision is meant to substitute variables costs by the fixed costs. To create a degree of operating leverage means the employment of higher amount of fixed cost which eventually increases the break even point also. No DOL is to be used when the DOL occur "1" and in this situation BEP comes to "0". Higher the fixed cost increases the DOL and they also increase the break even point, so there is close relationship between the degree of operating leverage and the break even point. A high DOL and high BEP both are indicators of high risk.

2.29 Financial Statement Analysis

Financial statement at least refers to the two statements which are prepared by a business concern at the end of the year. These are;

- **Income Statement or Trading and Profit and Loss Account**

  It is prepared by a business concern in order to know the profit earned and loss sustained during a specified period.

- **Position Statement or Balance Sheet**

  It is prepared by a business concern on a particular date in order to know its financial position.

The above mentioned statements collectively called financial statement of a company. Analysis is the process of critically examining in detail accounting information given in the financial statement. For the purpose of analysis, individual items are studied; their interrelationships with other related figures established, the data are sometimes rearranged to have better understanding of the information with the help of different techniques or tools for the purpose. Financial analysis is helpful in assessing the financial position and profitability of a concern. This is done through the comparison of ratios over the period (Khan and Jain, 1991:1).

Absolute figures are valuable but they standing alone convey no meaning unless compared with another. Accounting ratios show inter- relationship which exists among various accounting data. When relationships among various accounting data supplied by financial statements are worked out, they are known as accounting ratios.

Ratio may be classified in a number of ways keeping in view the particular purpose. Ratios indicating profitability are calculated on the basis of the profit and loss account are called profitability ratios and those indicating financial position are calculated on the basis of the balance sheet are called financial ratios.

2.30 Profitability Ratios

Profitability ratios are of utmost importance for a concern. These ratios are calculated to enlighten the end results of business activities which are the sole criterion of the overall efficiency of a business concern. The following are the important ratios:

2.31 Review of Related Studies

2.31.1 Review of Books

The study of the interrelationship of sales costs and net income is usually called cost volume profit analysis. CVP analysis examines the response of profit to change in volume. It relies on linear cost analysis and on linear revenue assumptions. To gain understanding of CVP analysis, the common examples of a firm which produces only single product will be used. The analysis will be expanded to cover firms with several products by multiple divisions.

CVP analysis consists essentially in examining the relationship between changes in volume and changes in profit. The scope of CVP analysis ranges from the determination of the optimal output level of a single product department to the determination of the optimal mix of large multi product firm.

C-V-P analysis is concerned with examining the relationship between changes in volume and changes in total revenue and costs in the short term. Drury has compared the economist's and accountant's models of CVP behavior. The major differences are that the total cost and total revenue functions are curvilinear in the economist's model, whereas the accountant's model assumes linear relationships.

However, we have noted that the accountant's model was intended to predict CVP behavior only within the relevant range, where a firm is likely to be operating on constant returns to sale. A comparison of the two models suggested that, within the relevant production range, the total costs and revenue functions are fairly similar (Drury, 1989:215).

2.31.2 Brief Review of the Previous Research Work

Researches in the area of CVP analysis as a tool to measure effectiveness of PPC (budgeting) of a company in Nepalese context are not made sufficiently. As profit planning and control and covers major aspects of CVP analysis, researchers made on these sectors are taken into consideration for review. Many researches have been made on manufacturing concern expect only a few of them are profound.

Here, an attempt is made to review some of the researches submitted on the CVP in the context of Nepal.

Pratima Dangol, (2001) had conducted a research entitled "Profit planning in manufacturing public enterprise; a case study in Hetauda cement industry ltd". Miss Dangol had focused her study in the application of profit planning concepts. The time period covered by the research is five years from FY 2051/2052 to 2055/2056. It was submitted to Shanker Dev Campus.

The required data and information were collected from both primary and secondary source. Miss Dangol had reached at the conclusion from the analysis making several remarkable findings.

Some of the Major findings were as follows:

- No proper application of any effective sales forecasting technique.
- Planning of budgeting policy of the company is very poor and there is no system of taking corrective action for pre planning.
- Decision making powers are centralized.

- There is no clear cut duties and responsibilities of the employees.

Indira Ghimire, (2004) had conducted a research entitled "Profit planning in manufacturing company in Nepal; A Case Study of Bottlers of Nepal Ltd". Miss Ghimire had concerned her study to examine the practice of profit planning and control in the manufacturing companies in Nepal. It was submitted to Nepal Commerce Campus, T.U. Nepal.

Her major findings are as follows:

- The company has not maintained the broad and long range objectives and periodic report and objectives are limited to high ranking official only.
- Relevant internal and external market variables are not fully explored.
- Cost classification is not systematic. There is no practice of segregating semi variable cost.

Dipendra Raj Dhakal, (2005) has submitted a thesis on the topic of "Cost-Volume Profit Analysis as a tool to Measure the effectiveness of profit planning and control: A case study of Gorkhkali Rubber Industry Limited." He has focused his study to examine CVP as a tool to measure the effectiveness of profit planning and control by using both primary and secondary data.

Some of the major findings were as follows:

- Sales plan are not property maintained by GRIL.
- There is very low contribution margin of GRIL.
- Goals and objectives are not communicated to the lower level of management.

Udaya Kumar Dahal, (2006) has studies on the topics of "Cost Volume Profit Analysis as Tool to Measure the Effectiveness of Profit Planning with Special Reference to Dabur Nepal Ltd." This was submitted to Nepal Commerce Cumpus, TU in partial fulfillment of Master's degree in the year 2006.

His objectives are as follows:

- To analysis financial performance.
- To forecast future production and sales.
- To analysis the CVP of company and its impact in profit planning.

Some of the major findings were as follows:

- Dabur Nepal Pvt. Ltd. constitutes lack of adequate inventory policy.
- No control over external factor i.e. it has poor SWOT analysis.
- Dabur Nepal Pvt. Ltd. is not able to co-ordinate among various departments.

Timsina, Dharma Raj (2007) had studied on the topic "Cost Volume Profit Analysis of Himalayan Distillery Limited." this was submitted to Nepal commerce campus, TU in partial fulfillment of Master's Degree in the year 2007.

The general objective of this study is to evaluate the CVP analysis of multi products manufacturing company.

The specific objectives of this study are as follows:

- To analyze different components of cost as per cost behavior.
- To analyze the impact of fixed cost on profit.

- To analyze break even point of overall firm as well as individual product.
- To show the relationship of cost, volume and profit between multi products.

Some of the major findings were as follows:

- Company has no clear cut boundaries to separate cost into fixed and variable.
- The classification of cost is not scientific and systematic.
- HDL has not been able to use CVP analysis and make the realistic and smart budget.

2.32 Research Gap

There is the gap between the present research and the previous researches. Most of the previous researches were conducted in accounting on profit planning & control covered only the budgeting practices of manufacturing company, especially in public enterprises. The previous researches could not give a clear answer to better results through PPC tools. Thus to fill out the gap, the current research is conducted. It examines the current practices of C.V.P. , as a tools of profit planning in Nebico Pvt. Ltd. whether the company can make any drastic changes in its practices through C.V.P. analysis is prime objective of this research .

The main purpose of CVP analysis tools in profit planning is forecasting based on historical data. To fulfill such research gap, this research forecasted sales, variable cost, fixed cost and net profit based on past data. Projected income statement are shown based on these forecasted data.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Introduction

"Research methodology is the way to solve systematically the search problem". The study attempts to highlight C.V.P Analysis of Nebico Pvt. Ltd. The research methodology of the study includes research design, population sampling and nature of data, source of data, survey methodology, data processing and analysis.

3.2 Research Design

"The formidable problem that follows in task of defining the research is the preparation of the design of research project popularly known as research design". Research design is the main part of the thesis or any research work. In this study, attempt is being made to show the relationship among cost, value and profit of Nebico Pvt. Ltd. To accomplish the objective, it had adopted the descriptive and analytical for the purpose of the study. A study design is the arrangement of conditions for collection and analysis of data in the manner that aims to combine relevance to the study with economy in procedure.

According to Claire Selltiz, "A research design is the arrangement of the conditions or collection and analysis of the data in a manner that aims to combine relevance to the research purpose with economy in procedure." (Selltiz, 1959:50) Therefore, we can say that without research design no researcher can conduct the research work. This study is based on the analysis of past financial performance, depending upon the primary data are used.

3.3 Population and Sample

Nebico Pvt. Ltd is a sample and population in itself. This study is based on revenue planning and cost volume profit analysis of Nebico Pvt. Ltd .Therefore, no specific product or branch is taken for analysis but the whole is considered for analysis through financial data available.

3.4 Nature of Data

Both the primary and secondary information has been collected from the concerned industry's personal and from available documents. Thus, the primary level of data available from the company as well a the secondary data like publications, booklets magazine, newspaper, financial statements etc. have been taken into account while preparing the dissertation.

3.5 Sources of Data

Both the primary and secondary level of information have been used to meet specified objectives. Both the sources are used throughout the study. Personal visit in Nebico was the most important sources of primary data. Almost all the information has been collected in detail through a structure questionnaire from Nebico. The company's record as the observation has helped to fill the questionnaire in proper way. Beside this, the secondary levels of data are analyzed using accounting. Statistical and mathematical tool, charts and graphs as per need are demonstrated. Accounting tools like contributions margin and BEP is used, whereas statistical tools like average mean and standard derivation and utilized.

3.6 Survey Methodology

The management personnel it the company gave permission to visit and observe the department as well as helped whole heartedly thought out the study fill the questionnaire as well as providing co-operating. When problem arise while making calculation of field study, different information where gathered from the industry.

3.7 Data Processing

Data have been taken mainly from annual reports, auditors report, balance sheet, profit and loss account, cost detail sheet, previous thesis and all the relevant publication relieving two company's performance are taken into account of achieving the defined result.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Profit planning is an action plan to guide the managers in achieving the objectives of a firm. A profit plan is a comprehensive and coordinated plan of an enterprise for same specific period in future. In overall planning of an organization profit planning is an area in which, the financial function plays a major role. Planning is carried out to fulfill the responsibility of forward thinking and future operation of the organization. Cost, volume and profit analysis is an analytical tool for studying the relationship among cost, profit and volume. Cost control and profit planning are possible with the help of cost, volume and profit analysis. It is also considered as a powerful tool in managerial decision-making in profit planning and control. CVP analysis provides management with comprehensive overview of the effect on revenue and cost of all the financial changes. An understanding of cost, volume and profit relation is necessary for the successful management of any enterprise.

The basic objective in this study is to examine the C.V.P analysis as a tool to measure the effective of profit planning and control in Nebico Pvt. Ltd. Practice of C.V.P analysis and to identify new areas where it can be fruitful to apply will be identified. This chapter is mostly concentrated on analysis and presentation of available data.

Primary data like segregation of fixed and variable cost, wages; salary cost analysis is done here. The questionnaire distribution and discussion with different levels of authority persons were done to acquire data. Similarly, the secondary data is used for sales analysis, cost analysis, inventory analysis, profitability analysis, operation leverage analysis and cost, volume, profit analysis etc. Those available secondary data's were Balance sheet, Profit and Loss account, cost sheet, cash flow statement etc from the accounts department of Nebico Pvt. Ltd.

The available information and data where analyzed and interpreted in the following pages accordingly. The study covers the last live fiscal year from 2060/61 to 2064/65 of Nebico Pvt. Ltd.

4.1 Sales Plan of Nebico Pvt. Ltd.

Realistic sales plan is needed for achieving the company's goal. Only with the help of properly planned budgets the sales target can be achieved. A sales plan is detailed schedule of expected sales for coming year; it can provide basic management decision about marketing. For making a considerable sales plan a proper research of market as well as past trend analysis, study of market opportunities, threats and responsibility etc are needed.

4.1.1 Sales Plan

The previous records of past sales trend need to be evaluated to figure out the future sales of the company. In Nebico's record there is no abnormal sale, which is beyond ten percent, increase or decrease in sales plan within five years.

Table 4.1

Budgeted Sales Value

(in 000)

Years	**2060/2061**	**2061/2062**	**2062/2063**	**2063/2064**	**2064/2065**
Sales	1,23.086	1,25,647	1,32,824	1,34,461	1.38,200

4.1.2 Sales Value Analysis

Sales values are the total exchangeable market rate that can be obtained from the sold products. On annual basis, the total biscuits and confectioneries that are sold in the market, which receives money value, can be shown in the sales analysis of Nebico Pvt. Ltd. The following table shows the sales trend on yearly basis of "Nebico in units and also in monetary sales value:

Table 4.2

Actual Sales trend

Details	2059/60	2060/61	2061/62	2062/63	2063/64	2064/65
Units (In metric tone) Biscuits		1,685	1,609	1,700	1,645	l,380
Confectionaries		12	10	12	5	3
Amount (In Rs. '000') Biscuits		124,852	120,330	129,540	131.324	108,030
Confectionaries		804	737	1457	426	26
Total Amount	107,736	125,656	121,067	130,997	131,750	108,29
Increase/Decrease in sales %		16.63%	(3.65%)	8,2%	0.57%	(21.67%)

The above table shows that the fiscal year 2060/61 to 2064/66. It can be said that the difference is caused by various external factors like political instability, government policy, competition, market inflation etc as well as internal factors like lack of consideration of proper plan, product pricing, market research etc. Confectioneries contain very small portion of market share in comparison to biscuit market. Even though the market share of confectioneries are increasing un-proportionately.

In the fiscal year 2060/61, the total biscuits produced in metric ton was 1,685, where as confectioneries are only 12 metric ton. The market value achieved was Rs. 124,852,000 for biscuits and Rs. 804,000 for confectioneries was received. This is the increase in sales value by 16.63% in comparison to the fiscal year 2060/061 with 2059/60. But in the year 2061/62 Nebico has decreasing sales in comparison to 2060/61 by 3.65%. Again in the year 2062/63 the company receives a positive response in sales with an increase in sales by 8.2% and the total sales value of Rs. 130,997,000. In the fiscal year 2063/64 the sales trend increase is not up to the satisfactory level because only 0.57% increase in sales can be seen which is very low in comparison to fiscal year 2062/63, which received 8.2% increase

in sales. Similarly, in the fiscal year 2064/65 the company's sale decreased by 21.67% compared to the fiscal year 2063/64. The sales of biscuits were 1380 metric ton and confectioneries are 3 metric ton only. The total amount received was Rs. 108,291.000 in the fiscal year 2064/65.

It can be figure out through sales table that even though the sales of biscuits are increasing trend, the sales of confectioneries are constantly decreasing except in the fiscal year 2064/65 during which sales increased by 150% the fiscal year 2061/62.

4.1.3 Analysis of Budgeted Sales and Actual Sales

To forecast the future sales, the past sales need to be considered by making future prediction in a correct manner. For this the company needs to closely monitor the past sales and its budgeted sales. Their effective tools for planned sales are to be applied. The table presented below helps to make comparison of budgeted and actual sales for last five fiscal year i.e. 2060/61 to 2064/65.

Table 4.3

Budgeted and Actual Sales Value Evaluation

(In Rs. '000')

Details	Year				
	2060/61	**2061/62**	**2062/63**	**2063/64**	**2064/65**
Budgeted	123,086	125,647	132,824	134,461	138,200
Actual	125,656	121.067	130,997	131,750	108,291
Achievement	102.09%	96.35%	98.62%	97.98%	78.36%

The above table shows that the sales plan is made on the basis of past years sales because there is no specific or sudden change in sales other than 10% increase or decrease as sales planning policy. So it can be said that there is a great lack of effective sales plan for sales budget. In the fiscal year 2060/061 the company made extra sales by 2.09% and the budgeted sales, but in the later year the company made lesser sales than planned. This shows that the company has not made any such changes except increase or decrease in sales in special cases. All this shows that there is a lack of systematic and attractive sales plan.

To figure out the nature of variability of budgeted and actual sales of different years, it necessary to calculate the arithmetic mean, standard deviation with co-efficient of variation.

Table 4.4

Summary of Statistical Calculation (From Appendix -I)

Details	Budgeted Sales 'X'	Actual Sales 'Y'

	(In Rs. '00,000')	(In Rs. '00.000')
Mean	1310.436	1235.522
Standard Deviation (σ)	54.54	85.57
Co-efficient Variation (c.v)	4.16%	6.93%'
Correlation (r)		**– 3.16**
Probable error of correlation (P.E. r)		**0.271**

The above 4.4 table shows the coefficient of variation of budgeted sales (i.e. c.v 'X') and actual sales (i.e. c.v 'Y'). Distribution with smaller c.v indicates less variability or uniformity. In this case, budgeted sales have less variability than the actual sales. The actual sales has higher variability rate showing higher percentage of coefficient of variation. Lower co-efficient variation also verifies the lower efficiency of planning.

To figure out the correlation between actual and budgeted sales, the popular statistical tool known as Karl Pearson's co-efficient of correlation denoted by 'r'. Correlation of co-efficient analyzes the degree and the direction of relationship between budgeted and actual sales variables. There should be positive or perfect positive correlation between the budgeted and actual sales. Negative correlation shows the variables are moving in opposite direction i.e. if the value of one variable increase, then the value of other variable decreases and vice versa. While calculating 'r' budgeted figure represented by 'X' are always said to be independent variable where as actual figure 'Y' are presumed to be dependent variable.

The probable error (P.E) of the correlation co-efficient (r) is the basis for the interpretation of its value. In other words, the significance of 'r' is tested with probable error of 'r'. The value of 'r' is less than 6XP.E of 'r' (i.e. -.3 16<1 .626). This indicated that the value of "r' is highly insignificant so in brief it can be said that the actual sales and budgeted sales move towards opposite direction.

The regression line can also be fitted to show the degree of relationship between the actual sales and the budgeted sales and to forecast the possible actual sales with the past given budgeted data. For this purpose, the actual sales have been assumed to be dependent on the budgeted sale, which is independent. The regression line of actual sales 'Y' on budgeted sales 'X' i.e. 'Y' on 'X' is as follows:

We have,

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

Y–1235.522= [0.271x85.57/54.54 (X–1310.436)]

Y–1235.522= [0.271x1.569 (X-1310.436)]

Y–1235.522= [0.4252(X–13 10.436)

Y–1235.522= 0.4252X–557.196

Y = 0.4252X+678.326

Through this regression equation, the relation between actual and budgeted sales can be distinguished; which helps to estimate the expected sales achievement for the coming period (i.e. fiscal year 2064/066) with the given value of targeted sales.

Lets 'X' (budgeted sales for the fiscal year 2065/066) = 2019.58 lakh

Now, the expected sales,

Y= 0.4252X + 678.326

= (0.4252x2019.58) + 678.326

= 1537.051 Lakh

4.2 Cost Plan of Nebico Pvt. Ltd.

Cost planning and controlling should not focus only on decreasing the future costs or expenses but also need to focus on efficient and better utilization of limited resources. It should also focus the relationship between expenditures and benefits derived from those expenditures. Reduction of cost without considering its effect on benefits can cause higher cost due to break down, inefficient machines, frustrated employees, lower quality of production etc. Mostly costs are categorized into three sectors:

a) Cost of Sales
b) Administrative Cost
c) Distribution Cost

a) Cost of Sales

If is a production cost which is related with raw material, packing material, lab chemical, provident fund, production salary and wages, fuel and oil, water cost, electricity cost, launch cost, rent on land and building, repair of machinery and miscellaneous cost etc.

b) Administrative Cost

It is a management cost. It has not been directly traceable to specific jobs and product, it is related with administrative salary and wages, operative allowances and incentives, provident fund, employees subsidies, employee provident fund, technical and computer fees and other administrative related costs.

c) Distribution Cost

It affects the potential profit of a company. It is a significant portion of total cost. Distribution expenditures include all cost related to selling, distribution and delivery of product to customers. Distribution costs are not product cost and are not allocated to special products. So that minimization of the sales expenses directly creates impact on the selling price and profit.

Nebico Pvt. Ltd classified its total cost into fixed cost and variable cost; categorized into cost of sales, administrative cost and distribution cost. For C.V.P analysis and sensitivity study of available data, the cost can be classified into following heads.

4.2.1 Fixed Cost Analysis

The fixed cost remain unchanged in total despite the changes in output level within a year; the fixed cost on per unit basis decreases as the level of activity increases and vice versa. Fixed cost of Nebico Pvt. Ltd. has also remains constant in total amount even when there is change in level of activity in each fiscal year. Due to confusion and difficulty involved in calculating fixed cost it is not expressed in per unit basis. Fixed cost in total varies for different fiscal year because of internal and external environment factor of company. The fixed costs are presented below on the basis of nature of costs.

Table 4.5

Fixed Cost Sheet

('In Rupees')

Details	Year				
	2060/61	**2061/62**	**2062/63**	**2063/64**	**2064/65**
1. Costs of Sales:					
Production salary and wages	3286871	3232854	3462832	3500560	3675587
Provident fund and subsidies	803179	857452	882014	909994	928193
Land and Building Rent	37715	39323	40928	41979	42818
Repairs of Machinery and Building	1264314	1080975	1245670	1215053	1202903
Miscellaneous	227053	217386	236045	237012	238195

Total	**5619132**	**5428000**	**5867489**	**5904598**	**6087696**
2. Administrative Cost:					
Salary and wages	3401425	3011982	3271077	3326818	3396811
Launch Cost (time basis)	493415	461116	487365	502503	5 1 7562
Provident fund and employee subsidies	689932	472451	588026	559883	560443
Employees Quarter	149784	102943	127899	121880	124434
Office repairs and maintenance	68184	71538	71649	75948	73856
Printing and Stationary	115884	115631	118537	124143	128835
Telephone, wire and postage	490562	490088	502074	525996	528550
Advertisement, books and newspapers	168952	127220	150297	146653	148778
Licenses and Insurance Fees	462376	375647	426263	424206	432607
Hospitality and puja cost	554379	543058	561601	585519	592314
Vehicle Repair cost	533456	414126	481280	473423	465233
Adviser and auditing cost	226000	209798	222612	229070	231581
Bank commission and interest	65728	79235	74663	81738	90535
Training and dress cost	138319	112532	127620	127041	128305
Technical and computer fees	1278972	1180317	1255957	1290549	135922
Security cost	642682	571162	619175	630296	628801
Donation and membership fee	120698	106211	115813	117568	122325
Depreciation	2200978	2146770	2436569	2413390	243028

Interest	3339274	3539756	3197225	3289837	3314627
Miscellaneous	34822	31371	33798	34512	36486'
Total	**15175822**	**14162952**	**14869500**	**15080973**	**17888129**
3. Distribution Costs	**3796447**	**3359267**	**4157138**	**4018190**	**3879578**
4. Jotal Fixed Cost (1+2+3)	**24591401**	**22950219**	**24894127**	**25003761**	**27855403**
5. Increase/Decrease in %	**27.24%**	**(6.67%)**	**8.47%**	**0.44%**	**11.14%**

The table no. 4.5 shows that there are variation in fixed administrative costs, cost of sales and distribution cost for different years because various internal and external factors of company effected to those cost from different angles. All those fixed cost are in fluctuating trend. In the above table, salary and wages, technical and computer fees, depreciation and interest cost contribute to increase amount of fixed administration cost for every year. Similarly, production salary and wages, provident fund and subsidies, repairs cost contribute to increase amount of fixed cost of sales for every year.

In the above table, the total fixed cost are in increasing trend in the fiscal year 2060/061, 2061/062, 2062/063, 2063/064 and 2064/065, but the fixed cost is in decreasing position in the year 2061/062. Taking the last year as base year for every year, total fixed cost are increased by 27.24%, 8.47%, 0.44% and 1 1.14% accordingly for the year 2060/061, 2061/062, 2062/063, 2063/064 and 2064/065 respectively. But in the year 2061/062 total fixed cost is in decreasing manner by 6.67% compared to base year 2060/061. fixed cost of Nebico Pvt. Ltd. is in fluctuating trend as in 2060/061; it has the highest percentage of increment in fixed cost i.e. 27.24% compared to other years of operation and low increment rate percent in the year 2063/064 by 0.44% only compared to 2062/063. The fluctuation is made by various factors like different level of output, changes in the rate of different items every year, proportion of distribution cost and other factors etc.

4.2.2 Variable Cost Analysis

Variable costs are those cost which varies in direct proportion to change in level of activity or output. But per unit cost is constant. Nebico's variable costs per unit are different in different financial year due to internal and external environment of the company. As per company's cost detail sheet the variable cost are presented by nature and cost of sales, administrative cost and distribution cost.

Table No. 4.6

Variable Cost Sheet

(In Rupees)

Details	**Year**				
	2060/61	**2061/62**	**2062/63**	**2063/64**	**2064/65**
1 .Cost of Sales:					
Raw materials	45394312	47218182	49189253	50423836	51 142347
Packing materials	24212798	22673538	24902824	24863983	24991528
Lab chemicals	588099	605431	633929	648171	654527
Production salary and wages	7669365	7543325	8079944	8167973	8252177
Fuel and oil	434176	373386	428940	419023	421824
Electricity cost	6806750	6899248	7279683	7414557	7521636
Water cost	67745	63947	69963	69989	70585
Launch cost (output basis)	1754378	1717661	1844089	1862052	1867188
Miscellaneous	97309	93166	101162	101576	105265
Total	**87024932**	**87187884**	**92529787**	**93971160**	**95027077**
2. Administrative Cost					
Salary and wages	1457753	1290849	1401889	1425779	1419537

Employee bonus (out put basis)	258718	177810	220917	210516	217768
Operating allowance and incentives	513359	465570	499681	5 1 1 220	509261
Fuel and moving cost	1259851	1141400	1225627	1253621	1279541
Miscellaneous	14924	13445	14485	14791	15263
Total	**3504605**	**3089074**	**3362599**	**3415927**	**3441370**
3. Distribution Costs	**8858375**	**7838290**	**9699987**	**9375775**	**9197457**
4. Total Variable Costs (1+2+3)	**99387912**	**98115248**	**105592373**	**106762862**	**107665904**
Increase/Decrease in %	**12.84%**	**(1.28%)**	**7.62%**	**1.11%**	**0.846%**

The table no. 4.6 shows the fluctuating trend in the variable cost sheet. Variation' in variable cost of sales, administrative cost and distribution cost for different year is because of different external and internal factors. Price of raw material are in increasing manner, electricity cost, fuel oil. salary and wages etc has greater contribution towards increase in amount of cost of sales every year. Similarly, the administrative cost: salary wages, fuel and moving cost, operating allowance and incentives has greater influences over the increment of variable cost each year.

Variable cost is in increasing manner in fiscal year 2060/061, 2063/064, and 2064/065 by 12.84%, 7.62%, 1.11% and 0.846% respectively taking last year as base year. But in the year 2061/062 the total variable cost is decreased by 1.28% i.e. Rs 1272.664 then the fiscal year 2060/061, sub-factor cost of sales and distribution cost has greater contribution towards increment of total variable cost.

Even though administrative variable cost is in increasing trend, it has lower proportion in total variable cost then cost of sales and distribution cost of variable cost.

4.2.3 Semi-Variable Cost Analysis

Costs containing both the element of fixed and variable are considered as semi- variable or mixed cost. In semi-variable cost some portion is of fixed nature and the rest are of variable nature. According to there nature and uses the semi-variable cost of Nebico Pvt. Ltd. are listed below:-

Table No. 4.7

Semi-Variable Cost Sheet

(In Rupees)

Details	Year				
	2060/61	**2061/62**	**2062/63**	**2063/64**	**2064/65**
1. Costs of Sales					
Salary and wages	10956236	10776179	11542776	11668533	11827610
Miscellaneous	324362	310552	337207	338588	340232
Total	**11280598**	**11086731**	**11879983**	**12007121**	**12167842**
2. Administrative Costs					
Salary and wages	10956236	10776179	11542776	11668533	11827610
Miscellaneous	324362	310552	337207	338588	340232
Total	**11280598**	**11086731**	**11879983**	**12007121**	**12167842**
3. Distribution Costs	12654822	11197557	13857125	13393965	13604516
4. Total Mixed Cost (1+2+3)	28844344	26631935	30458357	30202986	30639083
5. Increase/ Decrease	39.13%	(7.67%)	14.37%	(0.84%)	1.45%

The classification of cost into fixed and variable is very important to plan and control of cost. It helps to determine the volume of operation required maintaining the desired profitability. There are various methods to segregate the mixed cost, but 'Degree of variability method' contains 30% and 70% proportion is suitable for the organization like Nebico. Nebico has not maintained any clear- cut boundaries about cost classification into fixed and variable component.

On the above table 4.7, semi- variable production salary and wages are segregated by 70% of variable cost and 30% of fixed cost in proportion. On the other hand, administration salary and wages are segregated by 30% of variable cost and 70% of fixed cost portion. Similarly, cost of sales miscellaneous cost and administration miscellaneous cost are segregated into 30% variable and 70% of fixed cost in proportion. The semi-variable distribution cost is segregated by 70% of variable coat and 30% of fixed cost proportion. All the segregated semi-variable cost are included in above variable cost sheet and fixed cost sheet tables. All the semi-variable cost is classified into fixed and variable proportion using 'Degree of Variability method'. The degree of variability is determined by the Nebico's own staffs intuition, hunches, prediction, judgment and nature of expenses.

As per Nebico's employee and manager's its major costs are operating, administrative and distribution cost because of difference in variable cost and fixed cost in every fiscal year. Mixed cost is segregated only through 'Degree of variability method'. Practice of other segregation method id almost impossible due to its fluctuating nature in Nebico Pvt Ltd.

4.2.4 Production Salary and Wages Cost Analysis

On the basis of their sexes the workers are distinguished into two groups i.e. male and female. Out of 189 employee there are only 31 females in the organization. Distribution of workers as skill - wise and sex wise are given below:

Table No. 4.8

Sex-wise and Skill-wise Workers Distribution

S.N.	Level of Skill	Male	%	Female	%	Total	%
1	Un-skilled	132	83.54	27	87.10	159	84.13
2	Semi-skilled	6	3.8	4	12.9	10	5.29
3	Skilled	20	12.66	0	0	20	10.58
4	Highly-ski lied	0	0	0	0	0	0
	Total	**158**	**100.00**	**31**	**100.00**	**189**	**100.00**

Above table 4.8 represents, large portion of workers are un-skilled i.e. 159 out of 189 workers in total, which contains 84.13% in total. Among that 159 unskilled workers: male are 132 which is 83.54% and female are 27 which is 87.1% in present distribution of male and female. There are 6 semi- skilled male and 4 semi- skilled female i.e. 3.8% and 10% respectively. Only 20 male are skilled with no skilled female present. Most highly skilled person are present in the group. Though highly skilled workers have no mention in the above group, the company might cover them in lowest number.

Company lacks presence of skilled workers as well as highly skilled workers and female participation in the work force.

On the basis of amount or wages earned, the workers are divided into four groups. As per company's rules and regulation minimum wages fixed on per month basis for the unskilled workers is Rs. 1300, semi - skilled workers Rs. 1350, skilled workers Rs. 1460 and highly skilled workers Rsl650. The distributions of wages to total 1 89 workers are presented below:

Table No. 4.9

Wages Structure

S.N.	Wages per Month	Number of Workers	% of Distribution

1.	Rs 1300-1324	159	84.13
2.	Rs 1350-1396	10	5.29
3.	Rs 1460-1550	20	10.58
4.	Rs 1650-1777	0	0
Total		**189**	**100.00**

Above table 4.9 describes that only Rs. 1300-1324 is earned by majority of the workers which is 84.13% out of total 189 workers. 10 person earned between Rs. 1350-1396 which is 5.29% of the total workers. 20 workers are considered as high pay workers, they earn from Rs. 1460-1550 which is 10.58% of the total 100%. Few people are paid the highest amount i.e. Rs. 1650-1777 and they are not mentioned in the pay chart.

Considering the wage payment of the employee, they are very low and not up to the standard so we asked if they are satisfied with the wages or not? The answer we get was mostly negative i.e. they are not satisfied with their pay cheque, only few of them are satisfied. Employees belonging to the low skills are mostly provided with the low income so they are not satisfied at all in comparison to the skilled or semi- skilled groups having income i.e. Rs. 1350 to 1550. No any such drastic changes in wages are made from last few years.

4.3 Inventory Consideration of Nebico Pvt. Ltd.

Operation of manufacturing company is almost impossible without inventory. Major parts of working capital are invested upon inventory of the company. Stock in hand of raw material, goods in process, finished goods are all considered as inventory of a company. The main purpose of holding inventories by the manufacturing company is to continue work and supply finish goods regularly without interruption. So we can say inventory is maintained against uncertainties. If there are no adequate raw materials when demand is high in the market, the company can't supply adequate production goods in time then it might lead to failure of the company. The company is always compelled to meet certain goods as an inventory for awe times. Over investment on inventories may lead to burden on cost price of the product so the company needs to foresee and calculate cost, demand, supply and its effect before making inventories. The investments on inventories need to be minimized at the minimum level. Over investment or under investment on inventories may be a conflicting factor but acute inventory management is the prime necessity of every organization. Through JIT system or Zero based budgeting method the inventories can be maintained at low margin and cost burden is also reduced.

The sales, production and inventory are inter-related with each other. If any one of them changes the other will make chance automatically in volume. In Nehico Pvt. Ltd., the inventories are expressed in total amount 'Rs' and not in volumes. Finished good inventories bridge the gap between production and sales. If production is higher than sales, the over production is transferred into inventor and if sales exceeds production, the excess sales is recovered from inventory supply. So certain level of inventory is always needed for smooth sales operation of the company. Mostly nature of operating company and its raw material affects the size of inventory. Like for instance wheat flour is the prime raw material for Nebico so the company needs to make adequate stock of wheat at its season of wheat production.

If the raw material used for production is seasonal than the production activities are operated only for few months in a year, at this situation the size of finished goods inventory will automatically exceeds. Following table represents the actual inventory amount of Nebico from the fiscal year 2060/061 to 2064/065.

Table No. 4.10

Total Inventory/Stock Level

From the Fiscal Year 2060/061 to 2064/065

('In Rupees')

Fiscal Year	Opening Inventory	Closing Inventory
2060/061	3080132	3005423
2061/062	3005423	2877520
2062/063	2877520	2769716
2063/064	2769716	2646050
2064/065	2646050	12724824

The above table 4.10 shows that the inventory amount of Nebico Pvt. Ltd. is in decreasing trend each year. But the inventory in the year 2064/065 shows drastic change in inventory amount by more than 500%, it may be due to less sales and other external factors.

The decreasing trend of closing inventory of fiscal year 2061/062 from 2060/061 is by 4.26%. Closing inventory amount shows decrease by 3.75% in the fiscal year 2062/063 compared to last year. Again in the fiscal year 2063/064 it shows inventory decrease by 4.47% compare to last fiscal year amount. But in the fiscal year 2064/065 closing inventory is increased by 500% (i.e. Rs 127,24,824) it may be

due to other factors compare to fiscal year 2063/064 (i.e. Rs 26,46,050). The total of inventories during the fiscal year 2064/065 is I 1.75% of total sales value i.e. Rs 10.82,91,000.

4.4 Nebico's Profitability Ratio Analysis

An analysis of financial statement with the help of ratio is termed as ratio analysis. A mathematical relationship between two related items expressed in quantitative form is also known as ratio analysis. The ratio is the measurement of quantitative relationship between two or more items of financial statement connected with each other. Ratio analysis is a technique of analysis and interpretation of financial statement. To evaluate the performance of an organization by creating the ratio from the figure of different accounts consisting in balance sheet and income statement is known as ratio analysis.

From four broad groups of ratios, profitability ratio is of great use. It shows the overall efficiency of the business organization by return generated from sales and investment. Higher the profitability ratio shows greater response. The relation of the return of firm is either its sales or its equity or its assets are known as profitability ratio. It is of two types: Profitability in elation to sales and profitability in relation to investment. But here we are concentrating only on profitability in relation to sales of Nebico Pvt. Ltd.

Table No. 4.11

Income Statement

(In Rupees)

Year / Particular	2060/61	2061/62	2062/63	2063/64	2064/65
Sales Revenue	125656.000	121067,000	130997,000	131750,000	108291,000
Less: Cost of Sales					
Variable Cost	(87024.932)	(87187.884)	(92529,787)	(93971,160)	(95027.077)

Fixed Cost	(561,0.132)	(5428,000)	(5867,489)	(5904,598)	(6087,696)
Gross Profit	3301 1.936	32599,724	28451.116	31874.242	7176.227
Less: Other Operating Costs					
Administrative Costs:					
Variable Cost	(3504.605)	(3362.599)	(3089,074)	(3415,927)	(3441,370)
Fixed Cost	(15175,822)	(14162,952)	(14869,500)	(15080,973)	(1788,812)
Distribution Cost:					
Variable Cost	(88,58,375)	(7838,290)	(9699,987)	(9375,775)	(9197',457)
Fixed Cost	(37,96,447)	(3359,267)	(4157,138)	(4018,190)	(3879,578)
Net profit before tax	16,76,687	1,533	510,500	(16,623)	(11130,990)
Net profit before tax percentage of sales	1.33%	0.00095%	0.29%	–	–
Gross profit margin ratio	26.27%	23.50%	24.89%	24.19%	6.63%
Operating ratio	98.67%	99.99%	99.61%	100.013%	119.5%
Operating leverage	5.24	6.48	6.85	7.63	7.99

a) Gross Profit Margin Ratio

Gross profit margin ratio expresses the relationship between gross profit margin and the sales amount during the year. Gross profit margin ratio can be expressed as:

Gross profit margin ratio (GPMR) = Gross Profit/Sales Amount

"GPMR" for the base year 2060/061 = 33011,936/1256.56,000

= 26.27%

Higher ratio percent of base year 2057/058 shows positive sign towards good management of Nebico. But company has low gross profit ratio in 2064/065, that reflects higher cost of goods sold and inefficiency of the company comes out. To avoid low gross profit company need to purchase goods at favorable terms and prices.

In the base year 2060/061, Nebico's data represents favorable gross profit margin ratio of 26.27%. Gross profit margin of last five year from 2060/061 to 2064/065 are 26.27%, 23.50%, 24.89%, 24.19% and 6.63% respectively for 2060/061, 2061/062, 2062/063, 2063/064 and 2064/065.

(b) Net Profit Margin Ratio

Net profit margin ratio establishes a relationship between net profit after tax and the sales amount. Net profit margin ratio can be expressed as follows in formula:-

Net profit margin ratio (NPMR)= Net profit after tax/Sales amount

"NPMR" for the base year 2060/061 = (Net profit before tax–Tax amount)/Sale amount)

= 1676,687-(25% of 1676.687) / 1256.56.000

= 1%

Data of base year 2060/061 shows that the company has low percentage of net profit margin ratio i.e. 1%, which shows low overall efficiency of the business. To achieve higher net profit the company need to utilize all the resources available. Net profit margin is in fluctuating trend i.e. 0.0095%, 0.29% in the fiscal year 2060/061, 2064/065 and 2062/063. But it is nil in past two years i.e. 2063/064 and 2064/065.

(c) Operating Ratio

Operating ratio expresses the relationship between total operating expenses and the sales amount. Operating ratio shows the operational efficiency of the management. This ratio is calculated by:

Operating ratio = Total operating cost/Sales amount

Operating ratio for the base year 2060/061 = (Cost of goods sold + other Operating Expenses)/Sales Amount

= 926,44,064 + 3 1 3,35,249/1 256,56,000

= 1239793 13 / 125656000

= 98.67%

In the fiscal year 2060/061, the company's data presents high percentage of operating ratio, which leads to low operating profit. Low operating ratio indicates the higher operating profit. So minimum percentage of operating ratio is preferable. But it is in increasing trend for the past five year i.e. 98.67%, 99.99%, 99.61%, 100.013% and 119.5% for 2060/061, 2061/062, 2062/063, 2063/064 and 2064/065.

4.5 Operating Leverage of Nebico Pvt. Ltd.

A ratio between contribution margin and earning before interest and tax (EBIT) is known as operating leverage. A ratio between the percentage change in EBIT and percentage change in sales amount is known as operating leverage. Operating leverage of Nebico Pvt. Ltd. can be expressed as:

Degree of operating leverage (DOL) = (Sales–Variable cost)/EBIT "DOL" for the base year 2060/61 = (125656000–99387912)/ (1676687+3339274)
=5.24

The greater degree of operating leverage indicates the greater amount of business risk. For the base year 20-57/058 operating leverage of Nebico is 5.24 times, which indicated that if sales increases by I00%> the amount of EBIT increases by 524 time more. It shows that Nebico need to absorb more fixed cost to aim for more profit. This indicates that return efficiency area is covered by capital structure. Degree of operating leverage for 2061/062 is 6.48, 2062/063 is 6.85, 2063/064 is 7.63 and 2064/065 is 7.99. This indicates that Degree of operating leverage is in increasing manner.

4.6 Cost–Volume–Profit Analysis of Nebico Pvt. Ltd.

The cost-volume-profit analysis is the process of studying relationship between cost, volume and profit. C.V.P. analysis is a power instrument in managerial decision making. C.V.P. analysis deals with how profit and cost changes with the change in volume. It helps to determine minimum sales requirement to avoid loss, especially helps in cost control, cost reduction and profit planking. In other words, C.V.P. analysis helps to analyze the interrelationship between costs, volume, profit and to attain the objective of profit maximization and control program.

Table No. 4.12

Income Statement for the year 2060/061 to 2064/065

(In Rupees)

Details	Years				
	2060/61	**2061/62**	**2062/63**	**2063/64**	**2064/65**
1. Sales Amount	125656000	121067000	130997000	131750000	108291000
2. Variable Costs					
Cost of Sales	87024932	87187884	92529787	93971160	95027077
Administrative Cost	3504605	30890074	3362599	3415927	3441370
Distribution Costs	8858375	9838290	9699987	9375775	9197457
Total Variable Cost	99387912	98115248	105592373	106762862	107665904
3. Contribution Margin (1–2)	26268088	22951752	25404627	24987138	625096
4. Fixed Costs:					
Cost of Sales	5619132	5428000	5867489	5904598	6087696
Administrative Costs	15175822	14162952	14869500	15080973	1788812
Distribution Costs	3796447	3359267	4157138	4018190	3879578
Total Fixed Cost	24591401	22950219	24894127	25003761	27855403
Less: Other Income	(817627)	(683601)	(628562)	(867325)	(804674)
Net Fixed Cost	23773774	22266618	24265565	24136436	27050729
5. Profit (3–4)	2494314	685134	1139062	850702	(26425633)

6. P/V Ratio = (CM/Sales)	0.2090	0.1896	0.1939	0.1897	0.577
7. BEP=(Net Fixed Cost / PV ratio)	113750115	117439968	125144740	127234771	46881679
8. Margin of Safety = (AS–BES)	11905885	3627032	5852260	4515229	61409320
9. % of (BHP/ Sales)	90.53%	97.0%	95.53%	96.57%	43.29%
10. % of (MOS/ Sales)	9.47%	3.0%	4.47%	3.43%	5.67%

Planning of profit is possible only when the management has desired recent information about the cost of product, both fixed and variable cost as well as sales price of the product. C.V.P analysis helps to determine the break even point at which total revenue are exactly equal to total cost or the point at which losses ends and profit begins. C.V.P analysis helps to determine most profitable alternative margin of safety and profit at different levels of sales. Also develops the optimum combination of product mix at desired profit.

4.6.1 Contribution Margin

Contribution Margin is the excess of sales amount over its variable cost. It is the difference between the portion or Rupees that is left after variable expenses are deducted. In other words, fixed cost plus the amount of profit is equivalent to contribution margin. It is particularly useful in determining the break even point and target profit. It can be expressed as:

Contribution Margin = Sales cost - Variable cost

'CM' for the base year 2060/061 = Rs (125656000–99387912)

= Rs 262,68,088

The above table no. 4.12 shows that the calculation of contribution margin of Nebico Pvt. Ltd. for the last five year 2060/061 to 2064/065. Contribution margin for year shows that there is fluctuation in trend. They are Rs. 26268.088, Rs. 22951,752, Rs. 25404,627, Rs. 24987,138 and Rs. 625,096 for the fiscal year 2060/061, 2061/062, 2062/063, 2063/064 and 2064/065 respectively. High contribution margin shows positive signal for high profit and low contribution margin leads to no profit or loss situation. Above table shows that in the year 2060/061 there is high contribution margin but in the year 2064/065 there is no profit at all or we can say there is loss in the year 2064/065.

4.6.2 Profit-Volume-Ratio

Profit volume ratio establishes a relationship between the contribution margin and the sales volume. The two factors profit and volume are interconnected as well as dependent with each other. Profit depends upon sales, sales price to a great extent depends upon the volume of production. It can be expressed as:

Profit volume ratio (P/V Ratio) = C.M / Sales

P/V Ratio for the base year 2060/061= 26268,088 / 125656,000

= 0.2090

From above calculation we figured out the profit volume ratio for the base year 2060/061 of Nebico is 0.2090 i.e. 20.9%. Similarly, through table no. 4.12 we can figure out the P/V ratio of last five years i.e. from 2060/061 to 2064/065. We can clearly see in the table 4.12 that P/v ratios are in fluctuating trend. P/V ratio is maximum in the year 2060/061 and its negative in the year 2064/065.

The company always tries to reduce variable cost and increase the value of ratio to achieve more profit. Any increase in contribution margin would mean increase in profit only because fixed cost are assumed to be constant at all levels of production in the year. The ratio would also remain constant at different levels of production since variable cost as a proportion to sales remain constant at various levels too.

4.6.3 Break Even Point

B.E.P is a point at which the firm's total revenue are exactly equal to total cost yielding zero income or the point at which losses ceases and profit begins. Through contribution margin approach, break even point can be expressed as:

B.E.P in Rs. = Net fixed cost/P/v Ratio

B.E.P for the base year 2060/061 = 23773774 / 0.204

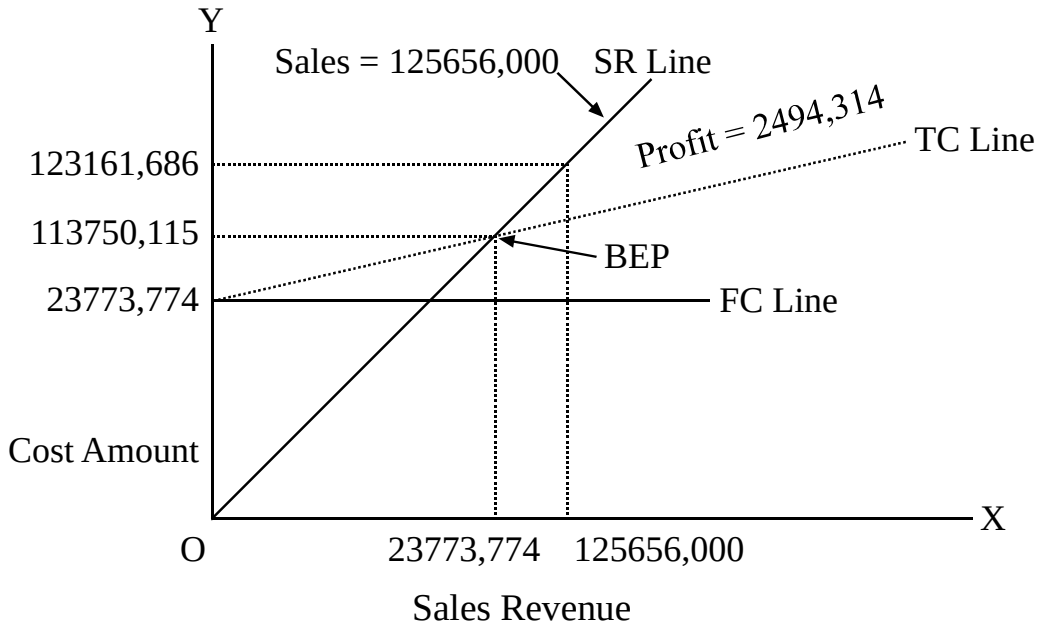
= Rs. 1137,50,115

Therefore, the break even point of Nebico Pvt Ltd for the base year 3060/061 is Rs. 113750,115. From table no 4.12, we can see the break even point of last five fiscal year i.e. from 2060/061 to 2064/065. The Break even points in rupees are Rs. 113750,115 Rs. 117439,968 Rs. 125144,740, Rs. 127234,771 and Rs. 4688,1679 for the year 2060/061, 2061/062, 2062/063, 2063/064 and 2064/065 respectively. Break even point is in increasing trend from the past five years. Break even point (in amount) for the fiscal year 2060/061 is the lowest but the break even point for the fiscal year 2064/065 is the highest among the five years BEP. To achieve profit, actual sales revenue needs to exceed the break even point (amount) of that fiscal year. Due to small difference between sales revenue and Break even Point amount of Nebico, it has been able to receive low amount of profit every year; but in the year 2064/065 Nebico fails to achieve the B.E.P (amount) so the company has to suffer loss in the year.

Through another method popularly known as geographic method the B.E.P can be determined. With the help of illustration, Nebico's Break even chart for the base year 2060/061 is presented below:

Figure 4.1

Nebico's Break Even Point Chart



Where sales revenue is shown as 'X-axis' and cost amount is shown as 'Y-axis'. In the above chart, total cost curve is in increasing trend as increase in sales value. But fixed cost curve is parallel to X-axis because fixed cost curve is in upward direction. Total cost curve of base year 2060/061 starts from fixed cost Rs. 23773,774. When sales revenue is zero, fixed cost is equal to total cost i.e. Rs 23773,774. Sales revenue curve originate from the origin because when there is no sales volume there is no sales revenue. As the sales volume starts taking size sales revenue starts increasing so the sales revenue line slopping towards upward position at right side. The meeting point of

total cost curve and total revenue curve is known as break even point or equilibrium point i.e. Rs. 113750,115. As we know that actual sales revenue need to exceed break even sales point to gain profit; the above table shows that the actual sales is greater than total cost, which generates profit of Rs2494,8I4. But if total cost exceeds the actual sales and lies below break even point the company has to suffer loss.

4.6.4 Margin of Safety

The difference between the actual sales revenue and the break even sales revenue, it is known as margin of safety. It is the position above the Break even point. Safety margin can be expressed as:

Margin of Safety (MOS) =Actual sales – Break even sales

'MOS' for the base year 2060/061 = Rs. (1256,56,000–1137,50,115)

= Rs 119,05,885

For better profitability situation larger margin of safety is required. The above calculation sows that the margin of safety for the base year 2060/061 is Rs. 119,05,885. But in the table no. 4.12 it shows that the margin of safety is in fluctuating trend for the last five fiscal year i.e. 2060/061 to 2064/65. The amount of margin of safety are Rs. 11905,885, Rs. 3627,032, Rs. 5852.260, Rs. 4515,229 and Rs. (1217725,127) for the year 2060/061, 2061/062, 2062/063, 2063/064 and 2064/065 respectively. Comparing the last five fiscal year, the fiscal year 2060/061 shows high margin of safety. But in the year 2064/065 shows negative margin of safety, which means actual sales is lower then break even sales point. Such situation in Nebico Pvt. Ltd is not fruitful so the company needs to increase its sales to achieve greater margin of safety.

4.7 Change Effect and Relationship of C.V.P. Analysis with its Sub-Factors

Profit is the main function among the variety of factors. Factors of C.V.P. analysis can be affected by change in volume, cost and prices. Profit may be affected by the change in price, volume, variable cost, fixed cost and combinations of factors; which shows proportionate relationship, positive relationship, inverse relationship and no relationship.

4.7.1 Change Effect of Fixed Costs

Only change in fixed cost and other factors remaining constant or unchanged shows effect in BEP and profit. If fixed cost rises in any special conditions like change in management policy, inflation and due to some external factors; the BEP will rise and profit falls. But if fixed cost falls, however, it will lower the BEP and raises profit. Any change in fixed cost does not influence the profit volume ratio. Usually fixed cost does not change much or not in fluctuating position, other then in special circumstances. Lets increase or decrease fixed cost by 10% for the base year 2060/061 and other things remaining constant or same we get the following result.

Table No. 4.13

Income Statement with Change in Fixed Cost

For the Base Year 2060/061

(In Rupees)

Details	Change of Sales Value		
	Original	**10% Increase**	**10% Decrease**
Sales Value	125656000	125656000	125656000
Less: Variable Cost	(99387912)	(99387912)	(99387912)
Contribution Margin	26268088	26268088	26268088
Less: Fixed Cost (Net)	(23773774)	26151154	21396397

Profit / Loss	2494314	116937	4871691
P/V Ratio=(CM / Sales)	0.2090	0.2090	0.2090
BEP=(Net Fixed Cost)/(P/V Ratio)	113750115	125125124	1023775105

Above table 4.13 shows that, with 10% increase in fixed cost leads to again 10% increase in Break even and with 10% decrease in fixed cost it leads to 10% decrease in Break even point. So we can say that there is proportionate relationship between Break even point and fixed cost, where one leads to change another proportionately.

4.7.2 Change in Effect of Variable Cost

Increase change in variable cost decreases contribution margin, profit and increases IM'P. Chain effect appears with any change in variable cost towards profit, other things remaining constant if variable cost is lowered then, P/v ratio will increase, BEP will lower and profit rises. But if variable cost is increased then, it will lower p/v ratio, increases BEP and finally reduces profit. Lets increase or decrease variable cost by 10% for the base year 2060/061 keeping other things same or constant, we achieve the *it* following result:

Table No. 4.14

Income Statement with Change in Variable Cost

For the Base year 2060/061

('In Rupees')

Details	**Change of Sales Value**		
	Original	**10% Increase**	**10% Decrease**
Sales Value	125656000	125656000	125656000

Less: Variable Cost	(99387912)	(109326703)	(89449121)
Contribution Margin	26268088	16329297	36206879
Less: Fixed Cost (Net)	(23773774)	(23773774)	(23773774)
Profit / Loss	2494314	(7444477)	12433105
P/V Ratio=(CM / Sales)	0.209	0.13	0.29
BEP=(Net Fixed Cost)/(P/V Ratio)	113750115	182875185	81978531

Above table 4.14 shows that, with 10% increase in variable cost, increases BEP by 60.77%, which indicates that there is positive relation between variable cost and break even amount. With 10% decrease in variable cost, it decreases the BEP by 27.93%. There is no proportionate change in BEP with change in Variable cost like fixed cost.

4.7.3 Change Effect of Sales Value

Any positive change in sales will lead to increase in profit volume ratio, lowering' the BEP and finally increasing profit. On the other hand if any negative change appears in sales value, it results decrease in P/V ratio, increases BEP and decreases Profit. Increase in sales is mostly desirable whereas decrease in sales is not much thinkable. To see the effect of change in sales value, we increase and decrease sales of base year-2060/061 by 10%, making other things constant. We get the following result:

Table No. 4.15

Income Statement with Change in Sales Value

For the Base year

('In Rupees')

Details	Change of Sales Value		
	Original	**10% Increase**	**10% Decrease**
Sales Value	125656000	138221600	113090400
Less: Variable Cost	(99387912)	(99387912)	(99387912)
Contribution Margin	26268088	38833688	13702488
Less: Fixed Cost (Net)	(23773774)	(23773774)	(23773774)
Profit/Loss	2494314	15059914	(10071286)
P/V Ratio=(CM / Sales)	0.29	0.281	0.1212
BEP=(Net Fixed Cost)/(P/V Ratio)	1 13750115	84604178	196153251

Above table 4.15 shows that, with the 10% increase in sales value 26% decrease in break even amount is received where as 10% decrease in sales value leads to 72.44% increase in break even amount. So we can say that there is inverse relationship between sales price and break even point.

4.8 Major Findings Regarding Nebico Pvt. Ltd.

- The major findings upon analysis of Nebico Pvt. Ltd.'s activities for last five years are as follows:
- There is great lack of skilled employees to prepare budgeting and analyze their financial position.
- Nebico has relatively high fixed cost (i.e. Interest, depreciation, repair, salary and wages, provident fund subsidies etc)
- The Company has no detailed lists of fixed, variable expenses. No specific list is available for mixed expenses planning which is significant in profit planning and ' control.
- Sales trend of the company is fluctuating and lacks efforts to improve them.
- Variable cost of Nebico is proportionately higher than fixed or total costs, hampering the overall company's profit.
- Like other manufacturing company of Nepal, Nebico has no effective plan and technique to reduce costs.
- Goals and objectives of Nebico are not clearly communicated to all levels of management.
- The Company lacks effective inventory policy. Raw material handling, stocking and controlling system are not systematic and efficient.
- Lacks new and systematic techniques of forecasting sales and purchase.
- Nebico is not utilizing its full capacity. No reasonable practice of segregating costs into fixed and variable or controllable and uncontrollable.
- Only one way communication channel is followed in the company and BOD holds the authority to fix prices and recruitment of employees.

- Most-employees are male and employees are classified as per their skill, female participation in work force is very low.
- Nebico products biscuits and confectioneries are supplied all over Nepal and in foreign countries too. Therefore Nebico is partially successful to substitute the important of biscuits and confectioneries.
- Nebico has tried to adopt new technology for improving quality products.
- Financial state of the company is at declining stage and requires new and effective marketing strategies to improve current position through utilizing available resources to the possible extent.
- Proper co-ordination among the production, administrative, distribution, sales and inventory department is required.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Efficient management is the prime necessity in today's world as resources are limited and scarce, proper uses in an effective and efficient way need to be done. As future is uncertain so risk is present in the business world. To avoid or reduce risk proper management is very necessary. Management effectively achieves organizational objectives through the efficient use of the scarce resources in a changing environment. Cost- Volume and Profit analysis is an analytical technique which helps to study the relationship between cost, volume and profit. Cost volume and profit analysis helps to manage profit without bearing loss in future business. So profit planning is done as a written plan in every aspect of business operations for definite period. Through inter relationship between Cost, volume and profit; profit planning is performed in an organization. Without Cost, volume and profit planning tools determination of profit planning processes are almost impossible or useless.

The objective behiikl this research study is to examine the effectiveness of profit planning and control with the help of cost, volume and profit analysis tools in Nebico Pvt. Ltd. Focus of this study is to evaluate Cost, volume and profit analysis of Nebico Pvt. Ltd. It is observe red that Nebico has succeeded in living upto the expectation of general position and as main producer company of biscuits and confectioneries. As per the nature and its requirement, the secondary and primary data with descriptive and analytical approach for cost analysis, sales analysis, inventory analysis, profitability ratio analysis, contribution margin analysis, P/v ratio analysis, break even analysis and salary wages cost analysis etc are used. Table analysis and questionnaire distribution were made for gathering information and tabulating them as per requirement.

From the above study and analysis, C.V.P analysis shows that Nebico has low contribution margin, low P/V ratio. High break even point and low margin of safety. The sensitivity test of C.V.P analysis shows that if variable and fixed cost increases, the break even point will also increases and if they were decreased then, the break even point also decreases. Hut at the lime of increase in sales price the break even point will decrease. It indicates that the relationship between cost and break even point is positively correlated where as relationship between sells price and break even point is negatively correlated. To fulfill the company's objective, it makes burden on fixed cost in an uncontrolled manner. Company is facing loss in the year 2061/062. With the help of other incomes company manages to make small profit in the year 2060/061 which is not satisfactory. Company's condition is very poor and requires effect changes to improve its position. Lack of detailed information and extra cost burden, company is unsuccessful in practicing Profit planning and control tools like Cost, volume and profit analysis.

5.2 Conclusion

Nebico Pvt. Ltd. has substantial gap between budgeted and actual achievement. Company's goals and objectives are clearly communicating with its employees. Various popular profit planning tools like JIT. Zero based budgeting, C.V.P analysis are not practiced in Nebico Pvt. Ltd. Cost segregation into fixed, variable and semi-variable are not done. Fixed costs are in increasing trend each year. Long-term liability is also rising; big portion of income is spent over paying interest. Even though the operating and maintenance cost are in rising trend no specific technique is utilized till now to control cost or reduce them. Classification of cost is not maintained on scientific and systematic basis rather they are based on hunches and prediction of employees. Nebico still lags behind for the realistic budget and not been able to practice C.V.P analysis as a tool to profit planning and control.

Study of Nebico Pvt. Ltd through C.V.P analysis shows, company has low and decreasing contribution margin affecting profit. Even though company has succeeded to some portion to increase contribution margin by increasing sales revenue but the increasing fixed cost has increased BEP to high level. The sensitivity of C.V.P analysis in response to change in fixed cost is proportionate where as it is very

high in response to change in sales revenue and variable cost. Through increase in sales revenue, the company can increase profit and safety margin. C.V.P relationship is not considered in Nebico while developing sales plan, production plan and pricing strategy. The company is at risky situation as there is a certain percentage decrease in sales revenue and certain percentage increase in total cost, company has suffered loss in the year 2061/062. To avoid further losses in coming years Nebico has to increase gap between total revenue and total cost; by taking action to stabilize fixed cost and decrease variable cost.

Company's management need lo lake corrective action as soon as possible by controlling costs and their behavior through effective technique, if not Nebico have to bear further losses in coming years.

5.3 Recommendations

As per study of Nebico Pvt. Ltd. utilizing Cost volume profit analysis as a tool to measure effectiveness of profit planning and control, it is very necessary for the organization to develop and implement the C.V.P analysis process in the organization. Nebico is having hard time to adjust Profit planning and control as company is going through a tough phase of its life. Nepal is moving towards globalization with membership of WTO, Nepalese company now have to prepare themselves to compete with International market through better management policy and scientific technologies. Application of advance profit planning tools could be a better help while struggling with limited resources and its availability. Profit planning and control also helps organization to achieve goals in a cut throat competition without much difficulty. Nepalese organization lacks effective tools for its improvement. Thus the following recommendations are made according to the above research study.

1. Like other manufacturing companies in Nepal, Nebico lacks Profit planning and control tools for import substitution and increase in profit. Better planning tools are needed to be utilized like C.V.P analysis and Budgeting.
2. As broad objectives are the basic guideline for the organization, Nebico needs to clearly define them and assign duties and responsibilities to its staffs.

3. Nebico should follow C.V.P analysis to reach Break even point which helps in preparation of sales plan, purchase plan, production plan and setting prices of its products.
4. Classifications of controllable, uncontrollable, fixed and variable expenses are needed to be done within a specific frame work of time period.
5. Big portions of investments are done over fixed costs which stress profit so Nebico need to diversify its investments and make optimum use of fixed costs to generate maximum profit.
6. Separate cost control department need to be established to control cost, which will divide the cost by product and can give suggestion on dropping or developing new products at time.
7. Lacks effective inventory policy, therefore effective tools like JIT system, zero base budgeting etc need to be implemented for efficient inventory management and controlling.
8. Decentralization of decision making power and two way communication channel is required.
9. Lack of better training programs is hampering employee's proficiency and productivity so regular training need to be introduced and produce more skilled workers in the organization.
10. Wages payment is not at satisfactory level.
11. To increase profit, Nebico need to minimize wasteful expenses and adopt new effective planning processes.
12. Market research is required for the company's products for better market opportunities.
13. Company need to restructure its capital structure as huge amount is paid as interest on long term loan every year. Such burden could be minimized through internal financing.
14. Regular market surveys need to be performed for products demand, supply and pricing under market research and development department. Through market research and development department new product line and opportunities could be captured.
15. Profit can't happen immediately so systematic approaches need to be made towards comprehensive profit planning.

16. Systematic performance report should he followed by company. Be more conscious about poor performances and take corrective actions immediately and timely as per requirement.
17. Improvement maintenance of quality products are recommended as Nebico is selling its product all over Nepal and exporting too.

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APPENDIX-I

Nebico Pvt. Ltd., Kathmandu

Sales and Target Achievement

Year	Target Sales ('X' in '00000')	Actual Sales ('Y' in '00000')	$u = (X - \bar{X})$	$u^2 = (X - \bar{X})^2$	$v = (Y - \bar{Y})$	$v^2 = (Y - \bar{Y})^2$	uv
2060/061	1230.86	1256.56	–79.576	6332.34	21.038	442.60	–1675.12
2061/062	1266.47	1210.67	–43.966	1933.00	–24.852	617.627	10952.642
2062/063	1328.24	1309.97	17.804	316.982	74.448	5542.504	1325.472
2063/064	1344.61	1317.50	34.174	1167.862	81.978	6720.392	2801.52
2064/05	1382.00	1082.90	71.564	6121.406	–152.612	23290.422	–10921.52
Total	**∑X=6552.18**	**∑Y=6177.61**	**∑u=0**	**$\sum u^2$=14871.59**	**∑v=0**	**$\sum v^2$=36613.545**	**∑uv=7376.00**

Now,

∑X=6552.18 **∑Y=6177.61** **$\sum u^2$=14871.59** **$\sum v^2$=36613.545** **∑uv=7376.00** **N= 5**

$\bar{X}$ = ∑X/N=1310.436 **$\bar{Y}$ = ∑Y/N=123.522**

Calculation of mean, standard deviation and coefficient of variation suppose 'x' is the target sales.

$$\text{Mean}(\bar{X}) = \frac{X}{N} = \frac{6552.18}{5} = 1310.436$$

$$\text{Standard Deviation}(\sigma_x) = \sqrt{\frac{1}{N}(X - \bar{X})^2} = \sqrt{\frac{1}{5}14571.59} = 54.54$$

$$\text{Coefficient Variation (C.V.x)} = \frac{6x}{\bar{x}} = \frac{54.54}{1310.436} = 4.16\%$$

For Actual Sales

$$\text{Mean}(\bar{Y}) = \frac{Y}{N} = \frac{6177.61}{5} = 1235.522$$

$$\text{Standard Deviation}(\sigma_y) = \sqrt{\frac{1}{N}(Y - \bar{Y})^2} = \sqrt{\frac{1}{5}36613.545} = 85.57$$

$$\text{Coefficient Variation (C.V.y)} = \frac{6y}{\bar{y}} = \frac{85.57}{1235.522} = 6.93\%$$

Now,

$$\text{Correlation Coefficient } (\sigma) = \frac{uv}{\sqrt{u^2}\sqrt{v^2}}$$

$$= \frac{-7376}{23335.1325}$$

$$= -0.316$$

$$\text{Probeble Error 'r'} = \frac{0.6745 \mid (1 - r^2)}{\sqrt{N}}$$

$$= \frac{0.6745(1 - 0.09856)}{2.236}$$

$$= 0.271$$

Coefficient of Determination = r^2

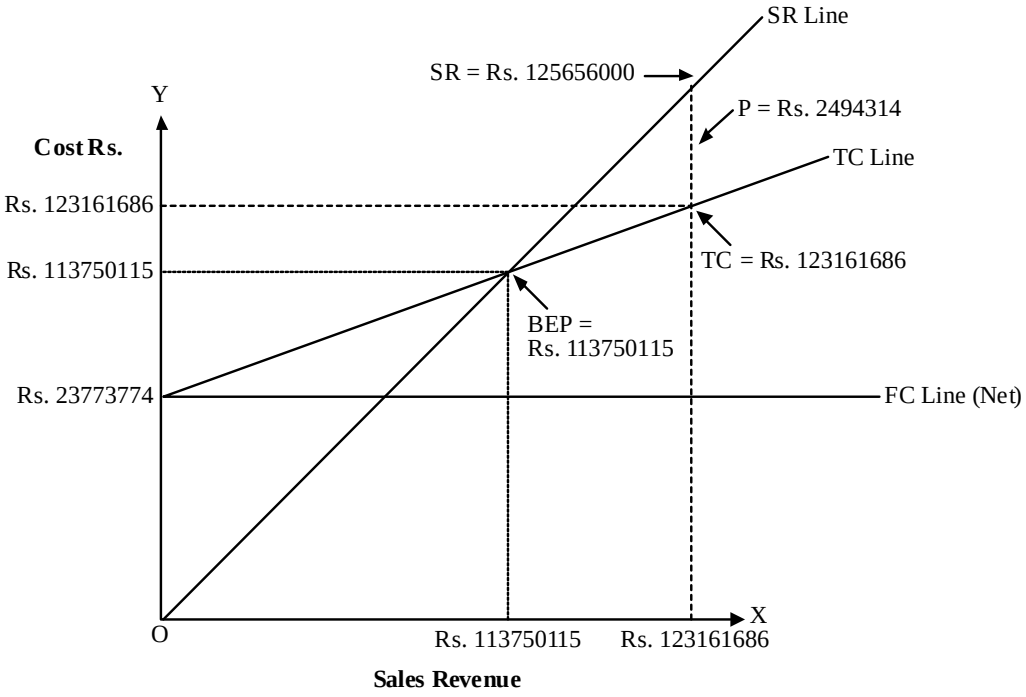
$= (-3.16)^2$

$= 0.0999$

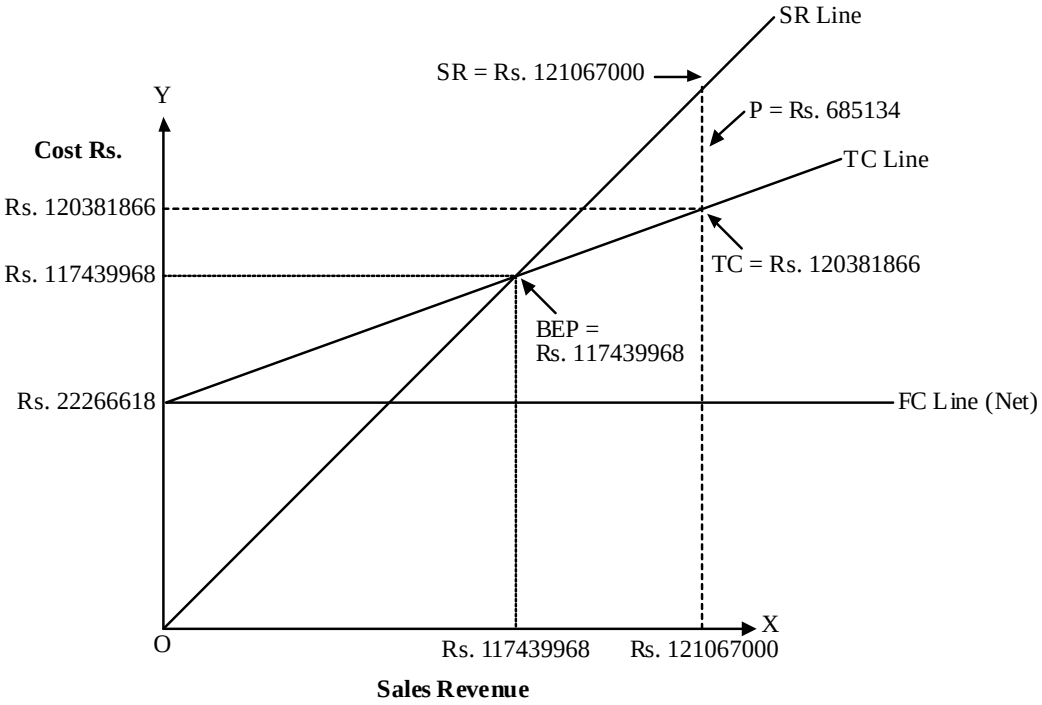
APPENDIX-II

Simple Graphic Structure of Break-Even Point (BEP), Sales Revenue (SR), Total Cost (TC), Fixed Cost (FC) and Profit (P)
For the Fiscal Year 2060/061 to 2064/065

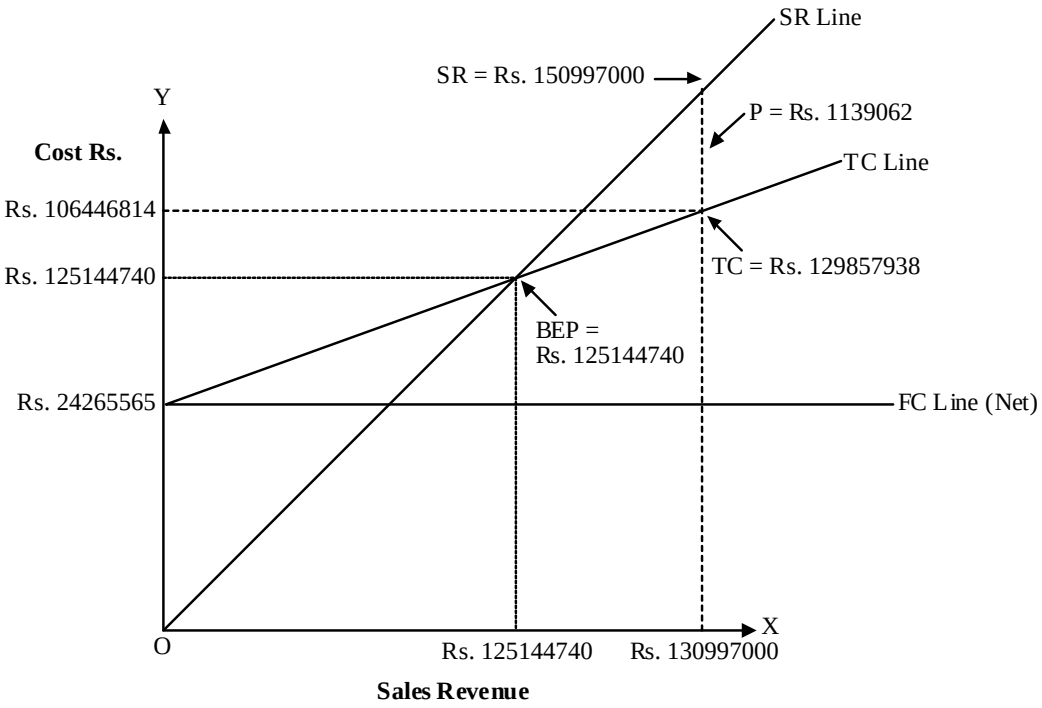
Fiscal Year 2060/061



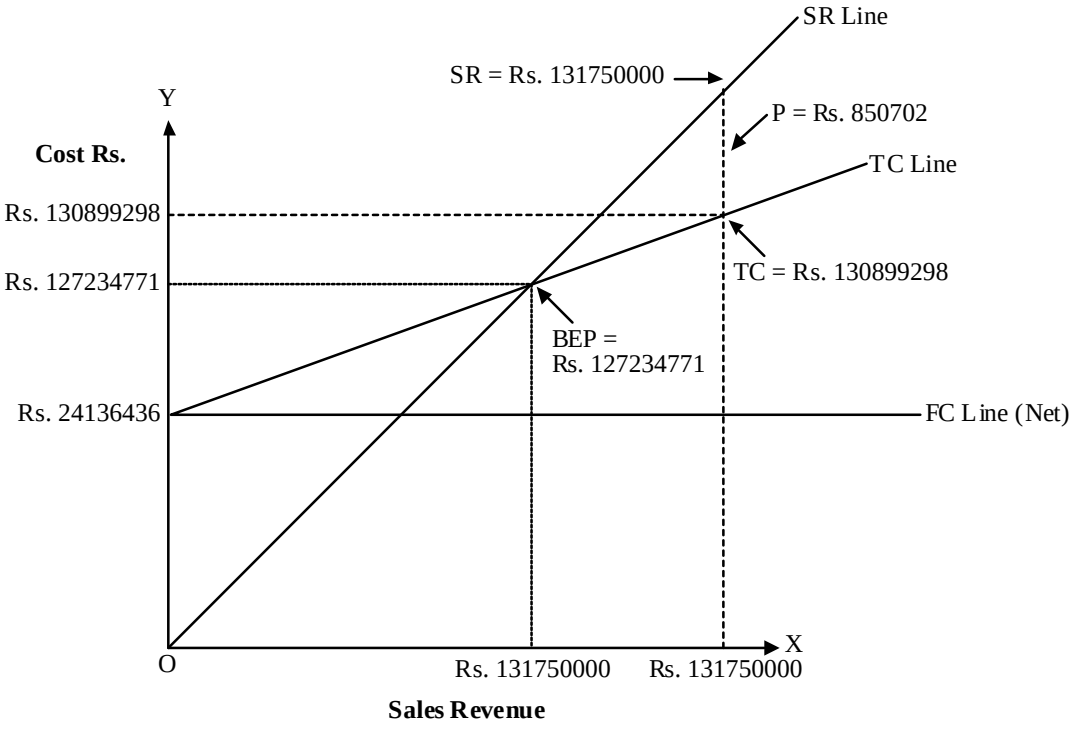
Fiscal Year 2061/062



Fiscal Year 2062/063



Fiscal Year 2063/064



Fiscal Year 2064/065