CHAPTER- ONE

Introduction

1.1 General Background

Nepal is one of the richest landlocked countries in the world in terms of biodiversity due to its unique geographical position. Nepal is an independent, republic, multiparty, sovereign and developing country. It is situated in the top of the Himalayas locating in the latitude 26^0 22' N to 30^0 27' N and 80^0 4' E and 88^0 12' E with the elevation ranging from 90 meters to 8848 meters. The average length is 885 km east to west and average breadth about 193 km North to South. Total area of the country is 1,47,181 sq km which covers 0.03% occupied Asian area. Ecological, Nepal is divided into three region called Himalayan region that account 35% of total land area 7% of the total population and is covered with snow cover the year where the highest peak of the world i.e Mt. Everest stands. It includes 8 of the 14 highest summits in the world which exceed an altitude of 8000 meter. The Hilly region is captured by high peaks, hill, valley, and lakes account for about 42% of land area and 46% of the total population. The low land of Terai occupied about 23% of the total land area and 47% of the total population of the country.[1] Currently there are five development regions, 3914 VDC's and 58 Municipalities. There is also a great deviation in the race. At least thirty-two aboriginals with their own Culture, and reside in Nepal. The diversity is 234 million people with more than 100 ethnics groups within one province is itself a quintessence of harmony and peace, is itself a proud history of unity in an independent state.[2]

In multiparty democracy and republic people exercise rights of adult franchise. Executive, legislative and Judiciary function and exercise their rights independency. The prime minister of the ruling party heads of the government for a maximum period of 5 years till the next general poll president is preserved the Constitution of the country. Now a days, The country was finished constitutional assembly election, So thus the country are going to exercise to debate how all the population participate their rights to achieve seats and vote. Self-decision rights, federal system, racial, regional, and sexual and languagibal base are the main issue adjusted to Nepal problems holding. So, many times interim constitutional correction is being adjusted to all people what they say. Also, Maoists are come in multiparty democracy track.

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[1] Nepal Guide Book, 2002, P-3

[2] Introducing Nepal, 2006, P-15

Nepal is also rich in natural resources. The natural resources and energies are the two vital inputs of productivity. Economic activity and economic environment are very closely interlinked because business firms depend on nature for inputs. Nepal is known for its water resources. Approximately, 225 billion cubic meters of water flows in it's for major river systems every year. Natural resources of the Himalayas are waiting for the magic touch of modern science to enrich the country. Nepal has a large no of snow flowing streams, which is second richest country in water resources. But it can not utilize its capacity optimally. It is also the home of unique flora and fauna. Mineral potentiality of the country is yet to be properly assessed. Due to the lacking of scientific and extensive geological survey of the country, the actual statistics of the mineral resources are not available yet. The preliminary surveys shows that a number of commercially potential deposits like magnetite lime stone, iron ore, lead zinc, stone and state do exist. There are also indications of possible deposits of copper, oil and gas, tin etc.[1]

Today, industrialization and foreign trade are well-known phenomenon economic growth throughout the world. There are effective means of achieving economic development in the developing countries like Nepal. Nepalese economy is agriculture dependent. More than 80% of the economical active production is dependent on agriculture. Agricultural contribution for GDP is nearly about 40% .[2] Nepal's economies is largely at the pre-industrial stage. In 1936 "Gharelu Ilam prachar Adda" has been established. Before 1936 and 1935 a development agency named "Udyog Parisad" was constituted for accelerating the development at industrial and commercial activities in the country. In the following year i.e. in 1936 in Nepal Company Act, was enacted. This act was formulated with the aim of establishment of industries by the domestic and foreign private investors. In the same year Biratnagar Jute mill was established as a joint venture of India and Nepal. It was first modern industry of Nepal. The flow of foreign capital and technology are an effective means to mobilize capital human and natural resources in order to make the economy more responsive, efficient and competitive in the process of industrialization of Nepal.

Today, effective implementation of the natural economic policies, enhancement of domestic product industrialization promotion of export and minimum of input of goods and services well investment are and urgent attention calls by the political parties and policy makes in Nepal. To speed up the phase of economic development various act and regulation were

[1] Panta Prem Raj, Business Environment in Nepal, 4th Ed. P-143
[2] Ibid, P-58

enacted with the motive of privatization and liberalization. Government has adopted the policy of permitting 100% foreign investment for large and medium scale industries foreign investment technology but also competitive corporate culture, technical skill and access to the international market. Govt. has already adopted one window policy to facilitate the industrial investment. But for a proper growth of an economy sufficient infrastructure during planning era are not in condition to operate frequent change in govt. Policies are one of the basic reasons for the negative performance of industries. Thus clear and simple policies providing definite facilities for a longer period of time are the primary requisite for industrial development.

In Nepalese context, manufacturing organizations are feeling many problems. There are needs for developing countries like Nepal. Most of organization are operating at loss but profit is necessary for survival of there organization. Achieving objectives of the business organization including profit the most dominant is not easy. For this application of profit planning tools are necessary.

CVP analysis is an important tool for profit planning. It has been defined a managerial tool showing the relationship between cost, selling price, profit and volume of activity. CVP analysis examines the behavior of total costs and operating income on changes occur in the output level, the selling price and the Variable cost per unit and or the fixed cost of the product. CVP analysis is accounting tools to shows the relationship between the elements of profit planning. Profit planning is the function of selling prices of the product, demand, variable cost ,fixed cost etc. the whole picture of profit planning is associated with cost volume profit inter- relationship. A popular technique to study cost volume profit relationships is break even analysis. Break even analysis in concerned with the study of revenue and costs in relation to costs at which the firm's revenues and total costs will be exactly equal or the net income will be zero.

1.2 Brief overview of Haldibari Tea Processing Co. Pvt. Ltd.

1.2.1. Introduction of Tea Industry.

Tea was introduced in Nepal round about the same decade when tea was introduced in the Darjeeling Hills of India. The tea plant of Nepal is the year 1920 B.S. The first plantation was carried out in the hills of Illam district by private sector. In Illam the first tea processing industry

established in 1935 B.S .It's occupied 15000 Sq. ft area. In Illam tea plantation and industry established by Gajaraj Thapa who is daughter-in-law of Janga Bd. Rana.

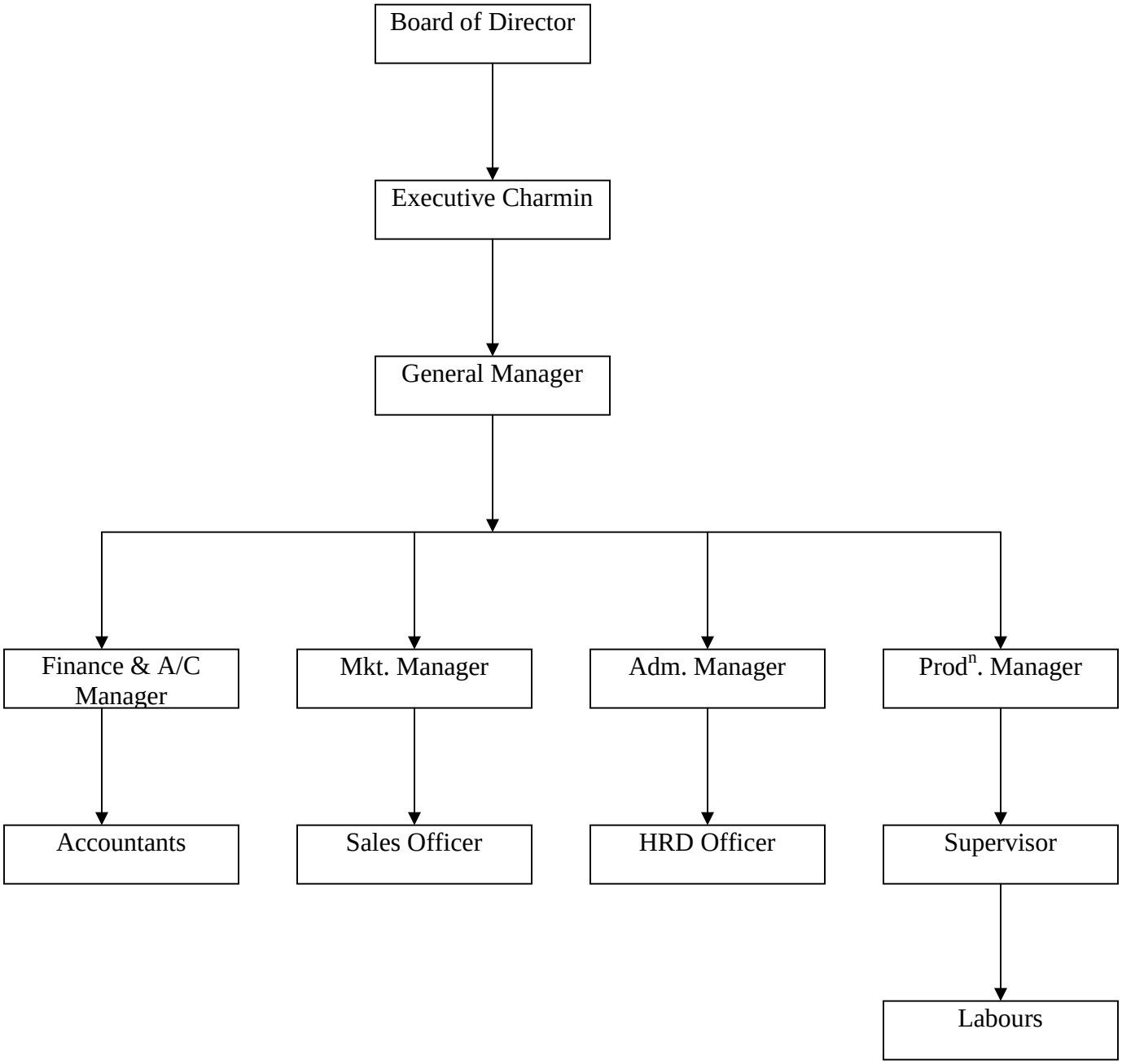
In Nepal, "Nepal Tea and coffee Development Board 2049" established, it helps for tea industry in following area.

1. Develop the tea industry
    - Policy formulation and implementation.
    - Arise different problem solving.
    - Necessary equipment provide, provide knowledge and technical help.
    - Active related institutions coordinate.
2. Help to tea industry
3. Consult about the pricing of tea to govt.
4. Provide information for exporter about the demand of tea in international Market.

1.2.2 Introduction to Haldibari Tea Processing Co. Pvt. Ltd.

Haldibari Tea Processing Co. Pvt. Ltd. is established in 2065 B.S. It is located in ward no.2 of Haldibari VDC's in Jhapa district. The factory office and factory covers 2 Bighas land. It is produces CTC.It generates complement to local people and partnership programmed connection with small tea farmers, and tea cooperative organization. Twenty -two staffs are work in administrative department. Thirty are semi-skilled and ten are skilled workers. Its product is been sale in different parts of Nepal and foreign. Its follow advertisement tools by using local FM and Nepal Television as name Haldibari Tea. Haldibari Tea has two quality (a) primary tea (b) secondary tea and also blend tea produce but uncountable. It has total capital Rs.35490000. It has current capital Rs. 8667000 and Rs. 26823000 fixed capitals.

Graph No:-1
Organizational Charts of Haldibari Tea Processing Co. Pvt. Ltd.



1.2.3. The objectives of Haldibari Tea Processing Co. Pvt. Ltd.

1. To provide high quality CTC and orthodox tea to world.
2. To provide economic contribution for nation.
3. To provide employment to the people using all skill category people.
4. To earn foreign currency by exporting high quality of CTC and orthodox in global market.

1.3. Statement of the problem

Nepalese industries are still being run with immature management. They are surviving with lack of modern management culture. There are a lot of differences between theory and the practice in the business firms. In Nepal, the practices of using CVP analysis tool for different management decision are rare.

Without profit the success is not happen. It is to be planned and managed. CVP analysis provides the techniques of profit planning frame work. Based on the annual report published performance of the Nepalese industries can not be considered as satisfactory. Poor performance is the out come of poor planning, controlling and decision making. This has raised the question, whether Nepalese managers are competent enough? Do they practice cvp tool and techniques to carry out planning-decision making and controlling function? The questions are mainly posed in this research are:

- What is the impact of CVP analysis on planning of the profit of Haldibari Tea Processing Co. Pvt. Ltd.?
- What are the major difficulties in the application of CVP analysis?
- In which area of business operation, CVP analysis can be applied to improve the competition of the company?
- Which parts (i.e, CM, BEP, MOS etc) of CVP analysis are mostly practiced and which are not practiced till now?
- What are the major problems for developing and implementing of profit planning?

1.4. Objectives of the study

The general objective of this study is evaluated of the CVP analysis of manufacturing company. The specific goals of this study are as follows:

a. To calculate of profit resulting from a budgeted sales volume.
b. To calculate breakeven point, CM analysis, margin of safety analysis and profit volume analysis.
c. To calculate sales volume to produce desired profit.
d. To contemplate the increase or decrease in profit due to the changes in volume of production
e. To encourage grater use of cvp approach to ma enterprise on profit planning and control
f. To suggest and recommend with the help of major findings.

1.5. Hypothesis

Null hypothesis (H_O): There is no significant difference due to change of sales in profit margin.

Alternative hypothesis (H_1): There is significant due to change of sales in profit margin.

1.6 Need/scope/significance of the study

The present economic condition of Nepal is not a good. Nepal has also become a member of WTO. The world is becoming a single market due to globalization. Nepal got the membership of the WTO an April 23, 2004.[1] So Nepal will face more challenges i.e. domestic industry will face greater competition, govt will face the fiscal adjustment lost, the cost of negotiation and transaction too are expected to put pressure on least developed countries like Nepal. Therefore, the studies of manufacturing organization like Haldibari Tea Processing Co. Pvt. Ltd. regarding CVP analysis becomes and indispensable subject matter in today's context.

In manufacturing sector profit planning program is most important for utilization of limited resources efficiently and effectively. Profit planning leads any organization to the ultimate success. It contributes to enhance overall profitability and overall financial performance.

The present research work significant in the following ways,

- ❖ Examines the application of CVP analysis in the company.
- ❖ It explores the problems and potentialities of the selected company.

[1] Panta Prem Raj, Business Environment in Nepal, 4th Ed. P-467

- ❖ It provides information reading the application of the tools under profit planning in the different circumstances.
- ❖ Decision regarding to help top level management.
- ❖ This study helps to loss minimize
- ❖ It provides literature to the researches who wants to carry on further researcher the field.

1.7 Limitation of the study

CVP analysis is not always giving actual information. Some times it's arise weakness, obstacles and limitation for securing in future.

a. Difficulties to separate cost
b. Short run concept
c. Unsuitable for multi product firm
d. The study covers only 2060/2061 to 2064/2065
e. The accuracy of the result has been dependent upon the accuracy of the primary and secondary data provides by the company.
f. CVP analysis is computed for the overall firm and selected product lines only
g. Changes in Breakeven point.
h. Other poor assumption
    i. Constant selling price
    ii. Constant unit variable cost
    iii. Constant fixed cost.

1.8 Organization of the study

The research study is separated into five chapters. Chapter wise context are as follows.

1. Chapter - one

It entities "Introduction" chapter. The reading material in this chapter are general background of the study brief introduction of the companies statement of the problem, objective of the study, hypothesis, need /scope /significance of the study, limitation of the study and organization of the study.

2. Chapter -Two.
This chapter is concerned with "Review of Literature". Reading materials in this chapter are conceptual review of previous related studies and text book.

3. Chapter three
This chapter consists of "Research Methodology" adapted for the study and includes research design data collection procedures and data analysis tools.

4. Chapter four
This chapter comprises "Data Presentation and Analysis". This chapter deals with the presentation and analysis of collected data and information.

5. Chapter -five
This chapter is concerned with the output of the study in the form of "Summary, Conclusion and Recommendation".

Bibliography, Appendix and Questionnaires.

CHAPTER-TWO

Review of literature

2.1 Introduction

In order to make a research on the subject some other literature review is to find out the works done in the subject on the areas of research. Some possible study conceptual prospective available in this respect have been reviewed. For the different book-reports, journal and research study published by various institutions and some thesis submitted by master's level students have been reviewed.

2.1.1 Conceptual Framework

An organization is established to achieve some goals. It has its own objectives. To achieve the goals of organization objectives should clearly mention. In this competitive globalize business age an organization whether it is public or private profit is essential. Profit is not chance, it is result of successful management. The management of manufacturing organization requires continuing performance of certain management responsibilities. These responsibilities collectively are often called the function of management, planning, organization, staffing, human resources management, leading interpersonal influence controlling are major function of management. Planning is the basis of controlling and used is framed on forecasting in the sense of taking a careful look what is likely to happen. It's of course, impossible to fore cast the future what complete accuracy. But the business planner identifies range possibilities to the future course of event and prepares to meet them. Planning is not however merely matter of deciding what one will do to meet an inevitable fate planning is also lined at giving shape to the future. It is a basic function of management. It may be defined as the selection from among the alternatives of courses for future action. It is functioned by the manager decide what goes out to be accomplished and how they are to be reached.[1]

Planning is the process of developing enterprises objectives and selecting future causes of action to accomplish them. It reduces uncertainty and provides effective direction to the employee by determining the course

[1] K.C., Fatta Bd., Principle of Management, 1st Ed., P-35

of action in advance. Controlling means evaluating the firm's activities against the plan and deciding what should be done the plan is not being followed. In business organization there may involve various parties like, competitors, employees, trade-union, government, community representative, investment analyses, suppliers, lenders /Bankers, managers, owners, customers etc. These all parties require various information of decision making their own purpose. Actual position of the manufacturing organization can be found from financial statement. It shows the clear picture of manufacturing organization profit /loss position and balance sheet etc. There are not sufficient to measure the firm's performance and plan. There are various tools and technique to measure and analyze the financial performance and determining various plans in management accountings. Cost volume profit analysis is one of the major and popular tools to analyze the financial statement of the firms. It is one of the important past of profit planning and control or budgeting. The analysis of relationship between cost, volume and profit. It is also an important tools used for profit planning in an organization. It shows which volume or level of activities is necessary to stay at break even point or to gain a certain amount of profit. CVP analysis includes both contribution analysis and breakeven analyses. Break even analysis emphasizes the level of output or production activities at which sales revenue exactly totals to cost i.e. there is no profit or loss. BEP analysis results rest upon the foundation the cost variability as separate identification and measurement of fixed and variable components of past. It is usually applied on the total organization basis. CVP analysis is one of the most important and powerful toots that manager have at their command in short term planning. It helps managers understand inter relationship between cost volume of profit in and organization by focusing on interaction between the following four elements:

- Price of product
- Volume or level of activity
- Per unit variables costs
- Total fixed costs

CVP analysis can be extended to cover the effects or profits of changes in selling price/service fees; cost, income tax rate, product mix etc, it estimate total cost, total revenue and profit at various sales volume. It provides only an overview of the profit planning process. CVP analysis provides management with comprehensive overview of the effects on revenue and costs of all kinds of short run financial changes. It is related to profit, sales volume and cost.

Cost volume profit analysis is a systematic method of examining the relationship between changes is activity (i.e. output) and changes in total sales revenue, expenses and net profit. As a model of their relationship CVP analysis simplifies the real world condition that a firm will face like most models which are abstractions assumptions and limitations. Nevertheless it is powerful tool for decision- making in certain situations.

In Traditional CVP analysis realism is scarified in order to render the analysis and presentation of results more understandable. These days use of computers is fast growing and efforts are being directed to make cost volume profit analysis more realistic through use of simulation. Simulation takes advantages of computers capability to randomly select selling price per unit for thousands of iteration. Each iteration profit is determined. This approach brings CVP analysis close to reality. The key motive of business organization is to make and maximize profit. Profit does not happen by chance. It is to be managed cost volume profit is supplementary tool of planning for profit. CVP is immensely helpful for developing alternative strategies in sale planning and lost estimation. CVP analysis is an accounting technique showing the relationship between variable. It is equally applicable for non profit making organization to allocate scare economic resources most effectively among the competing alternative. Allocation of scare resources among the various demanding sectors is the most important part of national planning.

A popular technique to study CVP relationship is break even analysis (BEP). Break even analysis is concerned with the study of revenues and cost in relation to sales at revenues and cost in relation to sale at which the firm's revenues and total cost will be exactly equal or the net income will zero. It is no profit no loss situation. This point is corner stone of profit planning CVP analysis is popular analysis tool for management. It is very useful in profit planning & control, management decision, cost control, budgeting etc.

2.1.2 Importance of CVP Analysis

Planning controlling and decision making are the essential management function CVP analysis helps the manager to plan for profit to control cot and make decision. It helps,

a. To determine the break even point in terms of unit or sales value.
b. To ascertain the margin of safety.
c. To estimate profits or losses at various level of output.
d. To assess the likely effect of management decision such as on increase or decrease in selling price adoption of new method of production to reduce directs labour cost and increase and increase output.
e. To help management to find the most profitable combination of costs and volume.
f. To determine the optimum selling price.
g. To determine the sales volume at which the profit goal of the firm will be achieved.
h. To determine the maximum sales volume to avoid losses.
i. To determine most profitable and least profitable product.
j. To determine new break even point for changes in fixed or various cost.[1]

2.1.3 Assumptions and limitations of cost volume profit analysis

Cost volume profit analysis is a very important tool for management planning. Certain underlying assumption upon which is rest, however, place definite limitations on the conclusion which can be dream from its result. The following are some of the static assumption upon which this analysis is based.

All cost can be classified as fixed or variable

It is exceedingly difficult if indeed it is possible to classify all costs as variable or fixed. Some such as those associated with the work stoppage due to a strike, a fire or some other unusual circumstances, are distinctly erratic, where supervisors are paid a bas salary pulsed production bonus, with both part recorded in one account of supervisor's, the result is a mix of variable (the bonus) and fixed (the base sailing) cost, There are ways of separating mix costs into their variable and fixed constituents.

Fixed cost will not change over the entire capacity rang

The assumption that fixed cost will remain the same from zero volume to peak activity does not confirm to reality. Under shut-down

[1] Gyawali, Fago and Subedi, Management Accounting Reprint, 2006, P-4.2

conditions of any significant duration, management will cut the cost of capacity to the bone. Even short of complete curtailment of production, management has been known to reduce executive's salaries or rent its ideal facilities to other firms.

The behavior of cost will be linear (i.e will show as a straight line on a chart) and variable cost will change in direct proportion to changes in volume.

As explained in the foregoing paragraphs there are a number of reasons, why the variables and fixed costs will not exhibit a linear relationship in a volume analysis. To these reasons the typical economist will add the fact that unit variable to the level of greatest efficiency and to increase again when volume exceeds the point of optimum efficiency.

Units of product and selling price are homogeneous a proportions of different types of products with different prices will not change in the sales.

At can be said with a great deal of truth that in a company with a diversified product line there is a single break even point for the company only the major product divisions or segments the assumptions of a constant sales mix for a company is one of the most tenuous of all assertions. The greatest difficulty here is to identify fixed cost accurately with each segment. This task is more difficult for company with which produces a variety of products in the same plant and markets them through the same charnel.

There is no significant difference between production and sales in the period being analyzed.

Great care must be exercised to measure revenue and expense in terms of the same volume basic. Almost never are the volumes of production and date of sales the same for any given period of a company's activity. Either sale will exceeds production or vice versa. Because expenses are most easily measured as they are incurred, it is frequently found that the easiest and safety way to put revenue and expenses of production volume for use as the revenue factor.

There are no changes in material prices or wage rates, no quality changes in the product , no methods changes in manufacturing or any significant changes in the efficiency or productivity during the period seeing analyzed.

Changes in product quality methods, efficiency, wage rates and other rate factors and costs are occurring constantly in a dynamic business . The best that any analyst can do when study the cost volume profit relationship of a past period is to average the changes over the periods, if they were hot to radical. For important changes which would distort the ordinary raceme-expense relationships, appropriate adjustments must be made. When this analysis changes in the factors as may be foreseeable should be introduced into the analysis to show their-proper effects. It's a general rule however. Giving recognition to factor checks as they occur can unsure the reliability of concluding done from them.

2.1.4. Application of CVP analysis

Cost volume profit analysis is applied specially for break even point and profit planning. Profit planning is fundamental part of over all management - function. Profit planning can be done only when the management has the information about the cost of product fixed of variable and selling price of the product. The most important factors that affect the planning for profit are costs fixed of variable of volume of sales CVP analysis can be applied in the following respects.

a. It's helpful in cost control.
b. It also assists the management in understanding where all the costs can be met.
c. It helps in determining the level of out put where all the costs can be met.
d. It assists the management in profit planning
e. It also assists the management in performance evaluation for the purpose of management control.
f. 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.

2.1.5. Contribution Margin analysis

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 to ward profit for the period. Contribution margin is used to first to cover the fixed expenses of then whatever remains after the fixed expenses are covered goes toward profit. 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 change as the volume of sales changes.

It can be expressed as:

Contribution margin = sales - variable cost

or

Contribution margin= Fixed cost + profit

Contribution margin per unit (CMPU) = Selling price per unit - variable cost per unit.

2.1.6.Break even Analysis

Break even analysis, more precisely the break even point tells what quantity of output sold at which total revenues equal total costs. Break even point is that quantity of output sold at which the operating income in zero. CVP analysis is some times referred to simply as a break even analysis. This may be mis-leading because break even analysis is just one part of profit planning as it gives the planer many insights into the data with which he or she is working. Profit planning of each firm begins from break even analysis.

Break even point is the bridge from between the loss area and the profit area. Profit begins from the break even point. It is survival point where all firms must at least remain to sustain or continue the business. Business firm running under BEP can be justified only under the following circumstance.

- Introduction stage of product life cycle.
- Unusual general business condition
- Economic depression

2.1.6.1 Approaches to CVP and Break even analysis.

The CVP relationships and the break even point can be analyzed through different approaches. Mainly the break even point and other required cost volume profit relationships can be explained through contribution margin statement approaches or graphic approach or equation / formula approach. A contribution margin statement is a variable costing income statement where philosophy is all fixed costs are period cost which should be deducted from the contribution margin of the same period. Most often, we use the equations approach to the solution of cost volume profit analysis and break even analysis instead of the graph or the income statement.

a. Contribution Margin Income Statement approach

The contribution margin income statement approach to CVP analysis allows the proportion of Performa statement from the available information BEP and other required CVP relationships can be explained through a contribution margin statement. A contribution margin statement is the variable costing income statement whose philosophy is fixed cost is period costs that should be deducted from the contribution margin of the same period. Only the variable costs vary proportionately to the level of output or sales.

Table No -1

Contribution Margin Approach	Symbol or Equation
Sales volume (units)	Q
selling price per unit	P
sales revenue (Rs)	Q x P
less: variable costs	Q x VCPU
contribution margin	Q x P - Q x VCPU
less : Fixed cost	FC
Net profit (Net loss)	Q x P - Q x VCPU- FC

b. Formula approach

The most popular practiced approach to the break even point of CVP analysis is the formula also knows as the equation. The formula approach uses an algebraic equation to calculate the break even point. The answer provided by solving the equation may sometimes need to be rounded to whole numbers of units or lost sizes. The rounding of break even point units is always done up ward because this will provide a small profit rather than the small loss that would be shown from rounding down ward. Related formula is as below:

Net Profit = Sales - Variable expenses -Fixed expenses
or, Sales = Variable exp + Fixed exp + Profit(loss)
or, Q+P = Q x VCPU + FC + Profit

Therefore,

$$Q = \frac{FC + Profit}{CMPU}$$

Where, CMPU = SPPU - VCPU

Break Even Point (in units) $= \frac{\text{Fixed Cost}}{\text{CMPU}}$

Break Even Point (in Rs.) $= \frac{\text{Fixed Cost}}{\text{C/M ratio}}$

[There is not profit no loss at BEP]

Required sales init for target profit

$$= \frac{\text{Fixed Cost + Target Profit}}{\text{CMPU}}$$

Required sales in Rs. for target profit

$$= \frac{\text{Fixed Cost + Target Profit}}{\text{C/M Ratio}}$$

Required Sales for Desire Profit After for (in units)

$$= \frac{\text{Fixed Cost} + \frac{DPAT}{1 - taxrate}}{\text{CMPU}}$$

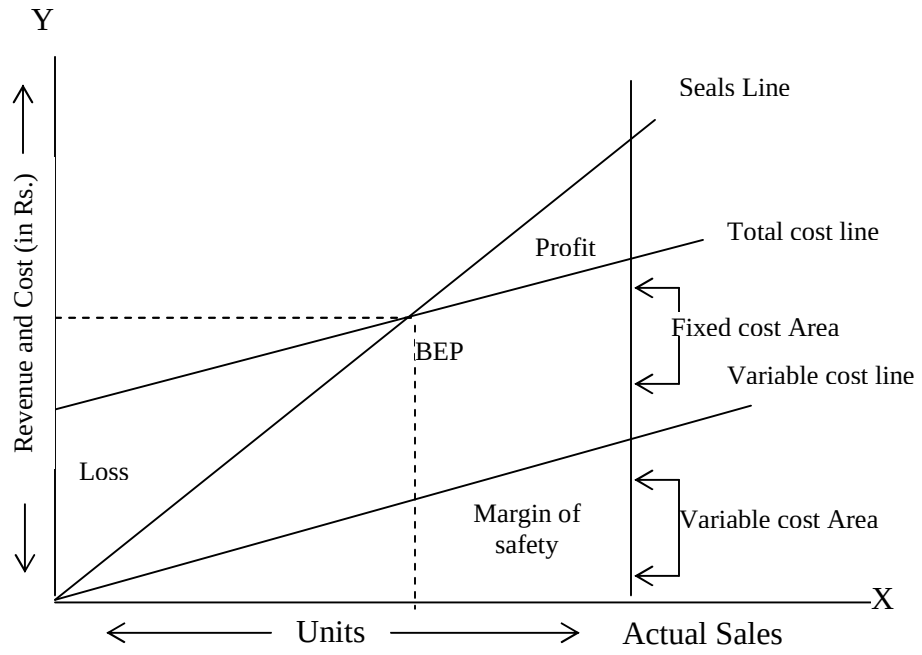
Required Sales for desire profit after tax (in Rs.)

$$= \frac{Fixed + \frac{DPAT}{1 - taxrate}}{\text{C/M Ratio}}$$

C. The graphic approach

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

Line Graph-2



Since fixed cost remain constant with in the relevant range, the fixed cost line keeps similar distance with variable cost line if plotted after the variable cost time. Variable costs stop upward from origin to right on x axis but the stop depends on variable cost line. It is because,

Total costs = Total fixed costs plus total variable costs

At volume 'Q',

Total Costs = TFC + Q x VCPU .....(I)

At Volume Q + N,

Total Cost = TFC + (Q+N) x VCPU .....(II)

Solving above two Equation

Δ Total Cost = Δ Variable Costs

The slope of the variables cost line. The above graph clearly states that if the company can reach at the point of BEP it can generate sufficient revenues to cover all of its operating expenses. At this point the total revenues equal the total cost. There, the revive line breaks up intersects the total cost line therefore two point is called the Break even point.

To sum up the break even point is that point where,

Total sales revenues = Total costs

Break even point is the bridge between the loss area and the profit area. Profits begin after Break even point. It is the survival paint where all firms sustain Business firms running BEF can se justified only under the following circus trances.

- Introduction stage of product life cycle
- Unusal general business condition
- Economic depression.
- Expecting the above conditions, the firm must be in BEP or above to justify it to continue in future.

(Cost and management accountancy, Koirala, Singh, Ojha, Subedi, Gyawali and Achraya 2007, P. 417)

2.1.7 Margin of safety

Margin of safety is the excess of budget or actual over the break even sales volume. It is the difference between the budgeted or actual sales revenue. It is a position above the BEP. It states the amount by which sales can drop before losses begin to incurve. It gives management a feel for close projected operations are to be organizations break even point. Manager often consider the size of the company's margin of safety is the amount that sales can drop before reaching the break even point. Manager often consider the

size of the company's margin of safety decisions about various business opportunities margins of safety is the amount that sales can drop before reaching the breakeven point and this provides a retain amount of losses . The margin of safety can be expressed as units, value or a percentage

1. Margin of safety (in Rs/units) = Actual sales - Break even sales(units/value)
2. Margin of safety (in Rs) = $\frac{\text{Profit}}{\text{P/V ratio}}$
3. Margin of safety (in units) = $\frac{\text{Profit}}{\text{CMPU}}$
4. Margin of safety ratio = $\frac{\text{Actual sales -BE sales}}{\text{Actual sales}}$
5. % margin of safety on sales = $\frac{\text{Margin of safety}}{\text{Actual sales}}$

2.1.8 Development of Profit Plan

Development of profit plan includes the preparation of various functional budgets, analysis of various and presentation of projected income statement and balance sheet. All levels of managers participate in development of profit plan. Developing profit plan begins with the preparation of master budget. The steps included in the preparation master budget are outlined by John R. Schermerhorn are as below:

Step- 1	Forecast demand for products and services!
Step-2	Identify cost patterns for responsibility centers
Step-3	Estimate Product Cost
Step-4	Specify operating objectives
Step-5	Develop sales budget
Step-6	Develop Production budget
Step-7	Develop Purchasing budget
Step-8	Develop budget for responsibility center
Step-9	Formulate a Profit Plan
Step-10	Compare profit plan with operating objectives
Step-11	Formulate a projected cash budget
Step-12	Prepare a projected statements of financial position.

The ultimate integration of separate budgets by the, accountant

provides the master budget which includes estimated profit & loss account for the future period and an estimated balance sheet at the end there of. In profit plan, following major functional budgets are developed:

2.1.8.1 Sales Budget/Plan

A comprehensive sales plan includes interrelated strategic (long-term) and tactical (short-term) sales plan. Sales plan is the starting point in the preparation of the comprehensive profit planning and control. All other plans and budgets are dependent upon the sales budget. The budget is usually presented both in units and dollars of the sales revenues or sales volume. The preparation of sales plan is based upon the sales forecast. A variety of method is used to forecast the sales for the planning period.

The sales plan has three distinct parts:

i. The planned volume of the sales price per unit for each product
ii. The sales promotional plan and
iii. The sales or distribution expenses plan.

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

i. The income that will be earned from sales
ii. The cost and expenses of making the sales?
iii. The sales surplus, the income from sales depends on the quantity and the price of the goods, which will be sold.

2.1.8.1.1 The Purposes of Sales Plan

i. It reduces future uncertainty about future revenue,
ii. It incorporates judgment and decision in planning process.
iii. It provides necessary information for other parts of-PPC.
iv. It facilitates management to control of sales activities.

2.1.8.1.2 Factors to be considered in sales planning

The following factors should be considered while preparing sales plan:

i. General economic conditions.
ii. Sales trends of specific products.
iii. Anticipated results of advertising and promotional campaigns.
iv. Effect of proposed price changes,
v. Entrance of competitor in market,
vi. Shifting of market
vii. Introduction of new, improved, substitute products by company or its competitors,
viii. Company's productive capacity,
ix. Government's rule and regulation etc.

2.1.8.1.3 Sales budgeting Vs sales forecasting

It is important to make distinction between sales planning and forecasting because they are confusing and ambiguous. A forecast is a statement of future condition about a particular subject based assumption. It may be accepted or rejected by management, a sales plan incorporates all management decisions that are based on forecast, other inputs and management judgment about such related items as sales volume, price production, financing. Therefore, a sales plan is not conditional but forecast is conditional. It is also technical staff function.

The difference between sales budget and sales forecast can be explained as follows:

i. Forecasts are merely well educated estimates or inference about future probable events whereas a budget relates to planned events and is the quantitative expression of business plan and policies to be pursued in future.

ii. Budgeting begins where forecasting ends. In fact, forecasting provides the logical basis for preparing the budget.

iii. A budget provides standard for comparison with the result actually" achieved, thus, it is an important control device of management, whereas forecasting represents merely a probable, event, over which no control can be exercised.

2.1.8.1.4 Long-range and short-range sales plan

Long-range sales plan

It is known as strategic sales plan. Usually, it is of five to ten years. It is to be developed in broad and general management policies and assumption by year and annual amount. Usually, it is prepared by considering future market potentials, population changes, state of economy, industry projections, company objectives and long-term strategies because they affect in such area as pricing, development of new product line, innovation of product, expansion of distribution channel and cost patterns.

The long-term sales plan uses broad groupings of products with separate consideration of major and new products and services. Long-term sales plan usually involve in depth analysis of future market potential, which may be built up from a basis foundation such as production changes, state of economy, industry projections and finally company objectives.

Short-range sales plan

It is also called tactical sales plan. It is to be developed for short period of time detailed by products, months and quarters for future 12 months. Tactical sales plan includes detailed plan for each major products and for grouping of minor products. Short-term sales plans are usually developed in terms of physical units or jobs and in sales or dollars. For planning and controlling purposes, short-term sales plans must be developed by sales responsibility because short-term profit plan provides major considerations for planning and controlling purposes, it is also necessary for completing other components of profit plan.

2.1.8.1.5 Developing a comprehensive sales plan

Glenn, Ronald and Paul have mentioned the following steps in developing comprehensive sales plan:

Step-1: Develops management guidelines specific to sales planning process and planning responsibilities.

Step-2: Prepare sales forecasts consistent with specified forecasting guidelines including assumptions.

Step-3: Assemble all the other relevant data.

a) Manufacturing capacity

b) Sources of raw materials and supplies, or goods
c) Availability of key people and a labor force.
   i) Capital availability
   ii) Availability of alternative distribution channels.

Step-4: Develop the strategic and tactical sales plan. There are various participate approaches widely used in the process of developing sales plan.

a) **Judgmental approaches:**

i. Sales force composite (maximum participation)
ii. Sales division supervision composite,
iii. Executive opinion (decision) (Participation limited to top level management)

b) Statistical approaches:

i. Economic rhythm approach
ii. Cyclical sequence approach
iii. Special historical analogy

C) Specific purpose methods (approaches)

i. Industry analysis
ii. Product line analysis
iii. End-use analysis

2.1.8.1.6 Methods of Projecting Sales Plan

There are various methods of projecting sales plan.

i) Judgmental methods

a. Sales force composite (maximum participation
b. Sales division supervision composite (participation limited to management)
c. Executive opinion, decision and participation (limited to management)

ii) Statistical methods: (Technical specialists plus limited participation)

a. Economic rhythm method
b. Cyclical sequence method
c. Special historical analogy
d. Cross-cut method

iii) Specific purpose method

a. Industry analysis
b. Product-line analysis
c. End-use analysis

2.1.9 Production Plan

Production plan is proposed after the sales plan. It is based on the sales forecasts. To prepare the production budget the sales forecast for each product are combined with information about the beginning level and the expected level of ending inventories of the finished products.

The production plan includes the development of policies about efficient production level, use of productive facilities and inventory levels (Finished goods and work in progress inventory). We can classify the market-in three categories to know the area of production planning.

i) Direct Market Sale

When the production is based on only market demand, no need of production budget because the production process starts after the demand of goods. In case of job or unit production system, production budget is not necessary. The quantity produced is always equal to the quantity sold.

ii) For inventory

When the nature of product is scarce, the firm can manufacture with its full capacity. If demand is always high than its supply, in this situation there is not necessary of production budget. The over stock of inventory is favorable in this case.

iii) For sales and inventory

The production budget is important when the objective is both to sell and to store, the budgeted sales and the inventory affect the production volume. So, production budget is necessary for only those firm which has got the combined objective of sales and inventory. The personnel complying the production budget will assume a pattern of demand for the finished product. Normally, this pattern will be based on previous requirements of the selling department though major alternatives are sales policy will also be taken into account. A production budget incorporated the estimates of the total volume of production with the scheduling of operation by days, weeks and months. The production budget is normally prepared in quantitative terms such as units of output, tones of production etc.

2.1.9.1 Factors Consideration in Production Planning

The following factors are to be considered for production planning:

- Plant capacity
- Availability of raw material
- Types of raw materials
- Availability of capital
- Availability of labour
- Timing for production
- Establishment costs

2.1.9.2 Area of Production Planning

The objectives of production budget or plan are:

i. To bring to a common focus to all the factors necessary to establish policies and to determine operations.
ii. To project these established policies into the future by an- analysis of past performance.
iii. To plan and control the operation being carried out to implement policies decided upon.
iv. To make prevision for material at right time and place
v. To plan the sequence of operations required for economical production.
vi. To co-ordinate the various aspects of factory operation as to make them a vital link in the chain of profitable programs.

The production budget is phrased primarily in physical terms-unit of output, labour hours and material requirements. Annual plan for production cost, purchase, manpower and costs of goods sold are all derived from the physical production budget which determines the actual production level by, taking in to account deviation for planned sales and inventory levels.

2.1.9.3 Production Policies

There are three types of production policies which are .analyzed below:

i. **Stable production policy Vs unstable inventory policy**
In this policy, fixed units are to be produced equally in every month or

specific period; while the final inventory of finished, goods are to be unstable. Therefore, budgeted sales of that period are unequal.

ii. **Unstable production policy Vs stable inventory policy**
In this policy units of final inventory are to be stable at the end of each period and production units are to be fluctuated in each budget period. The number of units produced and budgeted sales are directly related.

iii. **Flexible in both inventory and production**
In this policy, production units and inventory level differ from time to time in the specified budget period.

2.1.9.4 Cost of Production Budget

After determining the volume of output the cost of producing the output must be obtained by preparing a cost of production budget. The budget is an estimate of cost of output planned for a budget period and may be classified into material cost budget, labour cost budget and overhead budget because cost of production include material, labour and overheads.

2.1.9.5 Responsibility for Production Planning

Production managers are responsible for the develop meet of production plan. The completed marketing plan is given to the production manager for translating into a production program consistent with to managerial policies and subject to certain constraints. Production managers are fully responsible for the production plan. They have also to consider top management policies in respect of inventory levels, stability of production and capital additions. An efficient and co-ordinated production plan requires the careful attention of executive management, particularly where, there is multiple production requiring the determination of both time and place of production. The production manager must plan an optimum coordination between sales inventory and production levels.

2.1.9.6 General Consideration in Production Planning and Inventory Levels.

a) Total production requirements (by product) for the budget period.
b) Inventory policies about levels of finished goods; work in process, and the cost of carrying inventories

c) .0 Plant capacity policies, .such as the limits of permissible departures from a stable production level throughout the year.
d) Adequacy of manufacturing facilities (expansion or contraction of plant capacity).
e) Availability of direct materials, purchased components and labor.
f) Length of the processing time.
g) Economic lots of runs.
h) Timing of production throughout the budget period, by product and by responsibility centers.

2.1.9.7 Planned Production

Mathematically, we can present production budget as under:

	Planned sales unit
Add:	Desired ending inventory
	Total Requirements
Less:	Beginning inventory
	Production Units

2.1.9.8 Setting Inventory Policies

The objectives of inventory policies should be:

i. To plan the optimal level of inventory investment, and
ii. Through control, to reasonably maintain these optimum levels.

Inventory policies should include:

i. The establishment of inventory standards, such as maximum and minimum levels or target turnover rates, and
ii. The application of techniques and methods that will ensure conformity with planned inventory standards. Budgeting requires that inventory policies be established and provide for reporting variances of actual inventory levels from month to month.

In most of the business, inventories represent a relatively high investment and may exert significant influence on the major functions of the enterprise such as:

i. **Sales:** Large inventories of finished goods are needed to meet market needs readily.
ii. **Production:** Large inventories of raw material are needed to assure

availability for manufacturing activities, and a flexible inventory policy with respect to finished goods in needed to facilitate the attainment of stable production levels.

iii. **Purchasing:** Large purchases minimize unit cost and overall purchasing expenses; therefore, a flexible inventory policy for raw material is desirable.

iv. **Finance:** Low inventory levels minimize in vestment, requirements (cash) and reduce inventory-carrying cost (storage, obsolescence and others).

2.1.10 Material Plan:

This material plan specifies the planned quantities of each raw material For planned production. There is no question of production in lack of raw material. So production is possible where there exist materials. In absence of materials we should go through purchase.

Material use budget is prepared after the determination or production need. Material consumption, budget depends upon production volume. Material consumption per unit of output helps to prepare material use budget for different types of materials to be consumed by the output. Budgeted production volume multiply material per unit of output gives the budgeted consumption of materials which then multiply the purchase price per unit and gives budgeted volume material use.

Required unit of materials = (Production units x required unit of material for each unit of production) + closing stock of material.

As we know, materials may be direct or indirect. Thus, material budget deals with the requirement and procurement of direct materials. Indirect materials are dealt with under the work overhead budget.

2.1.10.1 Materials and Parts Budget

Planning and controlling of the required quantities of raw material and parts for budgeted production is materials and parts budget. Material used in a factory is traditionally classified as direct or indirect. Parts are usually classified only as direct. The material budget includes only the quantities of .direct materials, factory supplies, and indirect Materials that are included in

the manufacturing or factory overhead budget. The budgeted quantities of each raw material and part needed for each finished product must be specified in the manufacturing or factory overhead budget. The budgeted quantities of each raw material and parts budget by interim period and by responsibility centers. The product, interim period, and responsibility center classification should-follow the pattern used in the sales and production plan. The manufacturing managers should be responsible for developing the data included in the materials and parts budget.

2.1.10.2 Material and Parts Purchase Budget

Planning and controlling of quantities of materials to be purchased, the estimated cost and the required delivery date are included in 'materials and parts purchase budget. The purchase budget differs from the materials and parts budgets in two ways. First, theses budgets usually specify different quantities of each type of material and part. This difference in quantities results forms the planned changes in materials and parts inventory levels. Second, the material and parts budget specifies only quantities, whereas the purchase budget specifies both quantities and dollar costs.

The purchase budget specifies:-

i. The quantities of each type of material and part to be purchased,
ii. The timing of those purchase, and
iii. The estimated cost of material and part purchase.

Material purchased budget is prepared with considering the final inventory of raw material and parts and initial inventory of material and parts, responsibility of purchasing manager for material purchase budget.

a. Formulation of management policies about materials and parts inventory level.
b. Determine the quantities and the timing of each type of material and parts to be purchased.
c. Estimating the unit cost of each type of materials and parts to purchased.

2.1.10.3 Material and Parts Inventory Policy

Material inventory budget refers the budgeted level of materials parts

inventory in terms of units and cost. The quantity differential planned between the materials and parts budget and the purchases budget is accounted for by the change in materials and parts inventory levels. As with the finished goods, inventory budget, with the respect to sales and production, the materials and parts inventory budget provides a cushion between material and parts requirement and purchases.

The timing of purchase will depend on inventory policies. The primary considerations in setting inventory policies for materials and parts are

i. Timing and quantity of manufacturing needs,
ii. Economics in purchasing through quantity discount
iii. Availability of materials
iv. Lead time (order and delivery)
v. Perish ability of materials and parts.
vi. Storage facilities needed.
vii. Capital requirements to finance inventory.
viii. Cost of storage.
ix. Expected changes in the cost of material and part
x. Protection against shortages.
xi. Risks involved in inventories
xii. Opportunities cost.

Management policy with respect to purchase and inventory should be specified. The two basic timing factors are:

a. How much to purchase at a time?
b. When to purchase?

How much to purchase at a time is determined by approach called economic order quantity (EOQ)

In formulae,

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

Where,

EOQ = Economic Order Quantity
A = Annual requirement

O	=	Average annual cost of placing an order
C	=	Annual cost of carrying one unit in inventory

For one year storage, insurance, return on investment, inventory and such.

The second question, when to purchase is determined by re-order points. The re-order point is reached when the inventory level is equal to the time to re-order and receives the replenishments. It is also desirable to include a safety stock to accommodate unusual fluctuations in usage and replenishment time.

2.1.10.4 Cost and material used budget

The budget should be related to the production budget and the period of the budget should be short duration because this budget has an important bearing on the cash budget. The preparation of material budget includes:

a. The preparation of estimates of different types of raw materials.
b. Procuring or purchasing raw materials in required quantities at the required time

In preparing the material budget the following factors are considered:

i. Raw material required for the budgeted output
ii. The purchase of raw material to total cost of product should be calculated on the basis of the percentage a rough total value of raw materials are required for the budgeted output will be ascertained.
iii. Consideration must be given to the lag between the placing of order of the purchase of materials and the receipt of the materials.
iv. The seasonal nature in the availability of raw material considered.

After determining the different type of raw materials required, preparation of purchase budget entails further adjustments arising from raw material stock policies and contracts already placed. Thus, where the stocks of raw material are to be reduced, the quantities to be purchased will be less than the quantities of materials required by the production budget while opposite will be case. If stocks are to be increased, further the possibility of

procuring materials requirements from internal sources as in the case of spares, has also be considered.

Material Purchase unit

Required units of materials	XXXX
Add: Closing stock	XXXX
	XXXX
Less: Opening stock	XXXX
Required purchase unit	XXXX

2.1.11 Planning & Controlling Direct-Labour Costs

For the annual profit plan, direct labour budget should be developed by responsibility center, interim periods and project wise. The direct labour budget includes the planned direct labour requirements necessary to produce the types and quantities of output planned in the production budget. In broad concept, labour cost includes all expenditures for employees: Top executive, middle management, personnel, staff officers, supervisors and skilled and unskilled employees.

After preparing the production budget, the direct labour hours are calculated by multiplying the units to be produced and estimated labour hours for each products. Then the total direct labour costs is calculated by multiplying direct labour hours and estimated (standard) wages rate.

Labour is generally classified as direct or indirect/Direct labour cost budget includes the wages paid to employees who work directly on specific productive output. As with direct material costs, labour costs that can be directly traced to specific production are defined as direct. Indirect labour involves all other labour costs, such as supervisory salaries and wages paid to toolmakers, repair personnel, storekeeper and custodians. Direct material and direct labour costs are frequently referred to collectively as the prime cost of product.
Direct labour as a manufacturing costs, is defined as these labour costs directly identifiable with the production of specific units of finished goods. The direct labour budget is to provide planning date about the amount of direct labour required, number of direct labour employees needed, labour cost of each product unit and cash flow requirements as well as the direct labour budget is to establish a basis for control of direct labour.

The primary reason for using a separate direct labour budget are to provide planning data about the amount of direct labour required, number of direct labour employees needed, labour cost of each product unit, and cash flow requirements. Another purpose of the direct labour budget is to establish a basis for control of labour.

2.1.11.1 Objectives of direct-labour budget

The main objectives of direct labour budget are as follow

- To assess labour requirements
- To prepare manpower planning
- To estimate per unit labour costs
- To estimate cash requirements
- To give information for cash budget
- To control the labour budget.

2.1.11.2 Process of direct labour planning

There are two parts of in the process of labour planning, which are as follows:

i. **Needs assessments**

The required number of manpower is determined in with the help of following factors:

- **Budgeted direct labour hours (BDLH):** It is the estimated total direct labour hours to complete an activity. It can be determined as follows:

  In mathematical term,

  Direct Labour Hour (DLH): Planned production standard direct labour hour per unit.

- **Standard direct labour hour rate (SDLH):** Estimated direct labour hours to produce one unit of output. It can be calculated as follows:

$$\text{SDLH} = \frac{\text{Total Direct Labour Hours}}{\text{Total No. of Output}} = \text{SDLH/Unit}$$

- **Men Days**: It refers to the estimated number of men/worker's working days to complete an activity. It can be calculated as follows:

  $$\text{Men Days} = \frac{\text{Total Direct Labour Hours}}{\text{Working Hours Per Day}}$$

- **Job Description**
- **Planning the number of employees**

ii) Recruitment and Training

The cash requirements for direct labour are determined in this part with the help of following factors:

- **Standard rate of direct labour cost (SDLC):**
  Estimated labour cost for one direct labour hour is standard rate of direct labour cost (SDLC).

  $$\text{SDLC} = \frac{\text{Total Direct Labour Cost}}{\text{Total Direct Labour Hours}}$$

- **Direct Labour Cost (DLC) :**
  Total direct labour cost refers to total direct labour cost to complete an activity or output. Which can be determined as follows:

  $$\text{DLC} = \text{DLH} \times \text{SDLC}$$

- **Job specification**
- **Selecting**
- **Training**
- **Performance evaluation**
- **Posting and allocation job**
- **Fixation-of wages and salary**

2.1.11.3 Source of standard labour hour

i. **Time and motion study** : The industrial engineers analyze a product by cost centers, by actual time with a stop watch to estimate the standard time for each specific operation in time and motion studies can provide basic data for developing a direct labour hour budget.

ii. **Standards Costs** : We can provide the standard direct labour hour with the help of standard cost accounting system.

iii. **Direct estimate by supervisors or executives :** The supervisor of production department can provide standard direct labour hour with the help of his own judgment, recent past performance of the department, assistance from the next level of management and technical staff personnel.

iv. **Statistical study** : The statistical study can provide standard direct labour hour with the help of trend of past performance of cost accounting records.

2.1.11.4 Control of direct labour cost

Areas of effective control of direct labour costs are competent supervision, direct observation, and performance reports. There are two types of primary elements of controlling direct labour cost which are as follows:

i. Day to day attention of costs.
ii. Performance report and evaluation of result.

2.1.12 Overhead Budget

Welsh mentioned that expenses planning should not focus on decreasing expenses, but rather on better utilization of limited resources. To support the objectives and planned programmes, reasonable expenses should be maintained and the relationship between expenditures and the benefits divided from those expenditures should be focused and analyzed. Cutting expenses without considering the efforts on benefits, such decision temporarily reduce expenses, soon they cause even higher cost because of break down, inefficient machines, frustrated employees, shortened assets lives etc.

There are three distinct categories of expenses:-

i) Fixed expenses:

Those expenses that is constant in total from month to month within relevant range of output and given set of conditions. For example salaries, property tax, insurance, depreciation etc.

ii) Variable expenses:

Those expenses that are change in total directly with change in output or volume of work done, for example, direct labour etc.

iii) Semi-Variable expenses:

Those expenses that is neither fixed nor variable. Semi expenses, change in the same direction as output changes but not in proportion to the change in output.

2.1.12.1 Classification of expenses or overhead budge

Expenses budget are classified into three types:

i. Manufacturing overhead budget
ii. Administrative overhead budget
iii. Selling & distribution overhead budget.

(i) Manufacturing Overhead Budget: Manufacturing overhead budget is a part of total production cost. It is not directly traceable to specific products and jobs. Manufacturing overhead consists of

a. **indirect material**
b. **indirect labour (including salaries)**

c) All other miscellaneous factory expenses such as taxes, **insurance, depreciation, repair etc.**

It is a problem in the allocation of manufacturing overhead to control because it includes many dissimilar expenses.

We can calculate the manufacturing overhead using the following formula:

Manufacturing overhead

	Prime cost	xxxx
Add:	Indirect material	xxxx
Add:	Indirect labour	xxxx
Add:	Indirect expenses	xxxx
	Total manufacturing overhead	xxxx

While developing the manufacturing overhead budget the following

steps should be taken in consideration:

i. Translate the requirement specified in the production plan into output or activity in each department. By doing this we can compute the planned departmental output,
ii. Planned departmental overhead.
iii. Allocate the producing department expenses to the products
iv. Allocate the producing departments expenses to the products.

After following these above mentioned steps per unit overhead rate for each product could be computed and by adding the direct material cost and indirect labor cost for each product, we are in position to compute the cost of goods manufactured.

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

ii) Administrative Overhead Budget

All those expenses other than manufacturing overhead and distribution expenses are administrative overhead cost budget. They are incurred on the responsibility centers that provide supervision and service to all function of the enterprise rather than in the performance of any one function. It includes large position of fixed cost than variable cost. This budget covers the expenses incurred in framing policies, direction the organization and controlling the business operations. In other words, the budget provides on estimate of the expense of central office and of management salaries. This budget can be prepared with the help of past experience and anticipated changes. Budget may be prepared for each administration department so that responsibility for increasing such expenses may be fixed and related to the different executives.

Administrative overhead expenses include those expenses then manufacturing and distribution. They are incurred in the responsibility centers that provide supervision of and service to all function of the enterprise, rather than in the performance of any one function because a large portion of administrative expenses is fixed rather than variable, the

nation persists that they can not be controlled. General administrative expenses are close to top level management; therefore there strong tendency to overlook their magnitude and effects on profits. Each administrative expense should be directly identified with a responsibility center and the center manager should be responsible for planning and controlling the expenses. Budgeted administrative expenses should base on specific plans and programs. Past experience, adjusted for anticipated changes in management policy and general economic condition is helpful. Because most administrative expenses are fixed an analysis of the historical record will often provide a sound basis for budgeting them.

iii) Selling & Distribution Expenses Budget

Distribution expenses affect the potential profit of the firm. It is a significant portion of total expenses. Distribution expenses include all costs related to selling, distribution and delivery of products to customers.

The two primary aspects of planning expenses are as

- Planning and co-ordinations
- Control of distribution expenses

Top marketing executives has the direct responsibility for planning the optimum economic balance between (i) sales budgets (ii) the advertisement budget and (iii) the distribution expenses budget. Sales, advertisement and distribution expenses are three separate problems in profit planning & control.

Distribution expenses include home office expenses and! field expenses. For planning and controlling purpose, they must be planned by responsibility center. Distribution expenses are not product cost and is not allocated to special products. Therefore a separate distribution expenses plan should be developed for each responsibility center in distribution function.

2.1.13 Capital Expenditure Budget

Capital budgeting involves the generation of investment proposals the estimate of cash flow for the proposals, the evaluation of cash flow, the selection of projects based upon an acceptance criteria, and finally the

continual revaluation of investment. Project after their acceptance. Capital budgeting may be decided as the decision making process by which firms evaluates the purchase of major fixed assets including building, machine and equipment. It is a part of firm's formal planning process for the acquisition, and investment of capital.

Simply, capital expenditure plan is often called capital 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 future costs. Purchase of property, pant equipment, patents and building are some examples of capital expenditure. Capital expenditure decision involves boil planning and controlling phases.

The capital expenditure budget is an important budget providing for the acquisition of assets, necessitated by the following factors:

- Replacement of existing assets.
- Purchase of additional assets to meet a proposed Increase in production due to increase in demand.
- Purchase of additional assets because of starting of new lines of production.
- Installation of an improved type of machinery so as to reduce cost of production.

In capital expenditure budget, major projects are separately analyzed, planned, approved rejected, completed and controlled. Therefore, capital expenditure budget is primarily composed of a series of identified projects related to specific time dimensions.

The widely used methods for measuring the economic value of a capital expenditure are:-

Shortcut Method:

i. Pay Back Period (PBP)
ii. Discounted Cash Flow Method
iii. Net Present Value (NPV)
iv. Internal Rate of Return (IRR)

The major elements of a capital expenditures budget are cash outflow and cash inflow.

- **Cash Outflow**

Cash outflow includes the cost of the project as cash outlays at different times during the life of a project. The cash outflows are affected by the provision of residual value of old equipment, tax position, addition working capital needed etc.

- **Cash Inflow**

Cash inflows are expected cash revenue during the life of a project. The non-cash expenses like depreciation and tax position can affect the cash inflows.

2.1.13.1 Importance of Capital Budgeting

The capital budgeting is essential for planning and controlling purpose. The major importance of capital budgeting are as follows:

- To avoid idle operating capacity
- To avoid access capacity
- To avoid investment in capacity that will earn less than an adequate return on the investment.
- Helpful to evaluate alternative capital expenditure.

2.1.13.2 Methods of measuring the economic value of capital expenditure

The essence of capital investment analysis is in comparing the benefit the accrued over a period of time with the amount invested. This comparison is made with a view to judging or not the benefits are at least; as high as the amount invested. There are several methods available for making such comparisons. The following, methods are popular for evaluating proposals.

1. <u>Simple and traditional methods</u>

i) **Pay Back Period (PBP)** : Pay Back Period methods is the simplest

and frequently used methods for evaluating capital expenditure. Payback period is the minimum time required to recover the initial cash outlay from the annual cash inflows. The payback period should be computed by dividing initial cash outflow by the annual net return.

Pay Back Period Method
(a) In case of even earning

PBP = I/EC

Where,

PBP = Pay Back Period
I = Investment
EC = Economic Cash flow

(b) In case of Uneven earning

PBP = N+ {I - cumulative EC at N} / {EC of (N +l)year}

Were, N = Minimum no. of year when cumulative EC is very near to investment.

ii) Accounting Rate of Return (ARR)

Accounting rate of return is also known as average rate of return on investment. ARR on investment is the percentage of annual net return before depreciation and but after taxes to the initial investment. It is Simple to compute and based only on cash flow but it completely ignores the time value of money.

a. **Even earning**

ARR = [EC/I] x 100

b. **Uneven earning**

ARR = [Average EC/I] x 100

We have to select the project having higher average rate of return and 1 vice versa.

2. Discounted cash flow method

The time value of money is considered in this method. The process of adjusting the face value of future cash flows to their present value of means of an imputed interest rate is known as discounting rate. Therefore discounted cash flow method takes the time value of money into account

with using discounting rate, is defined as discounted cash flow method.

There are three methods of measuring capital expenditures decision, which are as follows:

(i) Net Present Value (NPV)

In net present value method the discounting rate is used to discount the cash flow. The present value of cash inflow is determined and then initial cash outflows are to be deducted from the discounted cash inflow to compute NPV. If-the NPV of the project is positive (discount present value of the inflows exceeds the initial outflow) the investment is profitable. Therefore, we should accept the project. In case of more than one alternative we have to accept the project which has more NPV. If NPV is negative, investment is non-profitable. Therefore the project having negative net present value is to be rejected.

(a) For even earning

$$NPV = [EC \times P_n] - I$$

Where,

Pn = Present value discounting factor of n year.

(b) For uneven earning

$$NPV = [EC_1 \times PN_1 + EC_2 \times PN_2 + \ldots\ldots\ldots\ldots + EC_n \times PN_n] - I$$

(ii) Profitability index (PI)

The benefit at present value of Re. 1 invested is known index. It is a ratio between total present value and investment. in following way:

$$PI = TPV / I$$

Where,

TPV = Total Present Value
I = Investment

(iii) Internal Rate of Return (IRR)

Internal rate of return is an important method of evaluating capital expenditure decision. IRR is that cost of capital, which is applied to assess a series of future cash flows that origins the sum of their present values to the same level as the original investment. In other words, internal rate of return is that rate which is applied to discount the net returns that should make the

discounted value of net returns equals to the initial cost of the project. The projected should be accepted, if the IRR is more than the cost of capital, and should be rejected if the IRR is less than the cost of capital. We should select the project having higher rate of IRR in case of more than one alternative.

(a) For even earning

IRR = [LR + { PnLR - Pb}/ { PnLR - PnHR}xI

Where,

	LR	= Lower discounting rate
	PnLR	= Discountiung in lower rate
	Pb	= Payback period
	PnHR	= Discounting factor in higher rate
	I	= Investment

(b) **For Uneven earning**

	IRR	= [LR + {NPVLR}/ {NPVLR - NPVHR]
Or,	IRR	= [LR.+ {PVLR-NCO}/ { PVLR-PVHR}] x I

Where,

NPVLA	= Present value of CFAT of all the years at lower rate
NPVHR	= Present value of CFAT of all the years at higher rate
LR	= Lower discounting rate
HR	= Higher discounting rate
NCO	= Net cash outlay
I	= HR - LR
PVLR	= Total present value at lower discounting rate
PVHR	= Total present value at higher discounting rate

Note:

- Higher discounting rate will result lower present value and vice versa
- If average CFAT is higher than actual CFAT of initial years than try lower rate than rate or rates given by fake PBP.

2.1.14. Cash Budget

A cash budget shows the planned cash inflows, outflows and ending cash positioning by interim period for a specific time span. It also deals with the need for financial probable cash storage and the need for investment planning to excess cash to profitable use. It is directly related with the sales

plan, accounts receivable, expenses budgets and capital expenditure budget. The company treasurer is responsible for preparing cash budget.

A cash budget is a summary of the firm's expected cash inflow and outflow over a projected time period. In other words, cash budget involves a projection of future cash receipts and cash disbursements over various times intervals. So it is also called as cash receipt and cash disbursements budget. It helps the management in:

a. Determining the future cash needs of the firm
b. Planning for financing of those needs, and
c. Exercising control over cash and liquidity of the firm.

A primary objective of the cash budget is to plan the liquidity position of the company as basis for determining future borrowing and future investments. For example, excess cash if not invested incurs and opportunity cost that is loss of that interest that could be earned on the excess cash. The timing of cash flows can be controlled in many ways by the management such as increasing the effectiveness of credit and collection activities making payments by time drafts rather than by check, making payments on the last day of discount periods batching payments and giving discounts on cash sales.

The primary purpose of the cash budget is to:

i. Give the probable cash position at the end of each of planned operations.
ii. Identify cash excesses or shortages by time periods,
iii. Establish the need for financing and/or the availability of idle cash for investments.
iv. Co-ordinate cash with
    - Total working capital
    - Sales revenue
    - Investments
    - Expenses and
    - Liabilities.
v. Establish a sound basis for continuous monitoring of the cash position.
vi. Indicate the availability of cash discounts.

2.1.14.l Approached to develop cash budget

There are two approaches used to develop cash budget:

(a) Cash receipts and disbursement approach

It is also called cash account or direct method. It simple develops. It is often used for short term cash planning as a part of the annual profit plan. This approach is used on detailed analysis of the increase or decrease on the cash budget account that would reflect all cash inflows and outflows from such I budget as sales, expenses and capital expenditures.

(b) Financial accounting approach

It is sometime referred to as the indirect income statement approaches. Basically, planned net income is converted from accrual basis to cash basis. Its starting point is planned net income. It requires less supporting details and provides less detail about the cash inflow and outflow. It is useful for making long range cash plan.

There are three methods to be prepared of cash budget:

i. Receipts and Payments method,
ii. Adjusted profit and loss method, and
iii. Balance sheet method

Specimen of Cash receipt and Disbursement

Table-2

Particulars	Month	Month	Month
Opening balance of cash	xxx	xxx	xxx
Add: - Receipts			
Cash Sales	xxx	xxx	xxx
Credit Sales	xxx	xxx	xxx
Account Receivable	xxx	xxx	xxx
Debtor	xxx	xxx	xxx
Other Income	xxx	xxx	xxx
(A) Total Receipts	xxx	xxx	xxx
Less:- Payments			
Cash Purchase	xxx	xxx	xxx
Accounts Payable	xxx	xxx	xxx
Wages, salaries and other expenses	xxx	xxx	xxx
Rents, rates and taxes	xxx	xxx	xxx
Dividends and interests	xxx	xxx	xxx
Purchase of an assets	xxx	xxx	xxx
Payment of loan	xxx	xxx	xxx
(B) Total Payments	xxx	xxx	xxx
Add: Minimum Cash balance	xxx	xxx	xxx
(C) Total Need	xxx	xxx	xxx
Surplus/ deficit (A-C)	xxx	xxx	xxx
Borrowing loan	xxx	xxx	xxx
Loan Payment	xxx	xxx	xxx
(D) Effect	xxx	xxx	xxx
Closing Balance of Cash (A+D-B)	xxx	xxx	xxx

2.1.14.2 Techniques and methods for improving cash position

Planning cash flow of a company should include consideration of how I to improve cash flow. Improving cash flows involves increasing the amount of available of cash a day to day basis. The management should focus on (i) cash collection process to speed up cash collection (ii) cash payment process to slow down cash payment and (iii) the investment policies for investment of idle cash balance to obtain the objective of cash improvement of the company.

1. Some of the ways often used to improve cash collection process are as follows:

    a. Customers are encouraged for immediate payments of credit sales and accounts receivables.
    b. Providing cash discount for early payments.
    c. Reviewing credit granting process to determine whether bad credit risks are being screen out. All account receivable are received before due or not.
    d. Considering, ways to decrease the time between the date that the customers pay by cheque and the date that the is available for use in the bank of account of company.
    Normally, the following techniques are often used to minimize this time gap:

    - Using lock box system,
    - Opening bank account in related areas,
    - Decreasing cheques processing time within the company and make daily night deposits of all cash and cheque received during the day,
    - Promote timely and frequent billing an account receivable.
    - Don't use month end billing bill immediately after sale.

2. Some of the ways and techniques often used to improve the efficient of the cash payments or outflows are as follows:

    - Making all payments by cheque to maximize float in favor of the company,
    - Take cash discounts allowed for early payments,
    - Establish policy of non-cash advances to both employees and outsiders,
    - Establish policies and a payment process to minimize the possibility of fraudulent payments by company employees. The company should develop a specific policy about the investment temporarily idle cash. The policy should be specified about such issues as (i) types and mix at acceptable securities, (ii) monthly reporting monitoring of the portfolio and safeguarding of the temporary investments.

2.1.14.3 Control of cash position

The cash is the most liquid assets. A financial officer irresponsible for controlling cash position of an enterprise. Due to various causes, the actual cash position will be different during the budget periods from the budgeted cash position. It is necessary to control cash for an enterprise. There are two procedures to control cash position:

- Continuous evaluation of present and future cash position,
- Maintaining data on day-to-day cash position.

Many company after use both procedures for control of cash position.

2.1.15 Cost-Volume-Profit Analysis

Cost volume profit analysis is the process of examining the relationships among revenues, costs and profits for a relevant range of activity and for a particular time frame. It is one of the most important and powerful tools that managers have at their command in short term planning. It helps managers to understand the relationships between costs, volume and profit in an organization by focusing on interaction between the following five elements:

a. Price of products
b. Volume or level of activity
c. Per unit variable costs
d. Total fixed costs, and
e. Mix products sold

The most important factors that affect the planning for profit are costs-both fixed and variable and volume of sales. The cost-volume-profit relationship will be established by break-even analysis.

2.1.15.1 Break-Even-Point Analysis

Determination of the break even point and margin of safety is incidental to CVP analysis. A widely used technique for study of CVP relationship is BEP. BEP analysis is most widely known as CVP analysis.

Break - even analysis is a method of relating fixed cost, variable costs

and total revenues to show the level of sales that must be attained if the firm is to operate at a profit. It may be interpreted in two senses narrow sense and broad sense. In narrow sense it refers to a system of determining that level of operation where total revenues equal to expenses i.e. the point of zero profit. Taken in its broad sense, it denotes a system of analysis that can be used to determine the probable profit at any level of operations.

2.1.15.2 Determination of Break-Even-Point

The break even point can be determined by the following two methods:

1. **Algebric method**
    a. Contribution margin approach
    b. Equation technique

2. **Graphic presentation**
    a. Break-even charts and
    b. Profit volume graph

2.1.16 Role of Ratio Analysis in Profit Planning

Ratio is the expression of one figure in terms of another. It is the expression of the relationship between mutually independent figures. Ratio analysis of business enterprise centers on efforts to drive. Quantitative measures or guides concerning the expected capacity of the firm to meet its future financial obligation or expectation. Present and past data are used for the purpose and whatever extrapolations necessary, they are made to provide the an indication of future performance. A ratio analysis is the process of determining and interpreting numerical relationship based on financial statement. Ratio analysis is the powerful tool of company's strength and weakness analysis. It is an index for evaluating the performance of the company.

2.1.16.1 Types of Ratio

Several ratios can be calculated from the accounting data contained in the financial statement.

In general the following ratio is on practice:

a. Analysis of short term financial position or tests of liquidity
b. Analysis of long term financial condition or test of:
c. Test of profitability
d. Test of overall profitability.

2.1.17 Completion of the Profit Plan:

The development of an annual profit plan ends with the preparation of planned income statement the planned balance sheet and the planned statement of cash flows; these three statements summarize and integrate the detailed plans developed by the management for the planning period.

Now, it is desirable to restate the certain budget schedules so that technical accounting mechanics, computations and jargon can be avoided as much as possible. The redesigned schedules should be assembled in a logical order and distributed before the first day of the planned budget period.

To complete profit plan, following sub budgets should be prepared:

i. Planned statement of cost of goods manufacture
ii. Planned statement of cost of goods sold,
iii. Planned income statement
iv. Planned balance sheet.

The budget director must combine these sub- budgets to compute planned net income, assets & liabilities and owner's equity and cash flows. These are final steps in the development of the detailed plans. Completion data of profit plan is important.

2.1.18 Implementing Profit Plan

A series of profit plan conferences should be held after distribution of the profit plan. The top executives discuss comprehensively the plan, expectations and steps in the implementation. At this top-level meeting, the importance of actions, flexibility and continuous control may well be emphasized. In essence, each manager has to realize that the budget is a tool for his use. The manager of each responsibility center obtains an approved

profit plan for his center and it become the basis for current operations and exerts considerable coordinating and controlling effects.

Performance must be measured and reported to management Execution the plan is assured through control. Timely performance evaluation generates greater importance for achieving goals so that corrective action can taken immediately. But for increasing the probabilities of achieving the objectives, flexibility in budget application should be facilitated as circumstances warrant.

It is desirable that the distribution of profit plan includes of a "statement planning premises" from the top executives that emphasizes performance, challenge, and positive motivation. After distribution of the profit plan conferences are intended to build profit consciousness, performance orientation and aggressive, yet flexible application of the plans to attain the objectives. This conference also should cover the broader spectrum of the management process, including positive reinforcement and other behavioral issues. The conference also should emphasize aggressive action and flexibility in implementing the plans and the control process. Special emphasis should be developed to the manner in which unanticipated events and problems will be handled at various management levels.

2.1.19 Performance Report

For internal management, use of performance reporting is an important part of comprehensive profit planning and control system. Performance report shows the extent to which the organization's planned goals and objectives are obtained. Performance reports are usually prepared on monthly basis and follow a standardized format from period to period. Such reports are designed to facilitate internal control by the management. The main objective of performance report is the communication of performance measurements, actual results and related variances. Performance report should be available on timely basis. The gap between the decision point and performance reporting should be minimized. Unfavorable situations and problems are critical to the manager at the time they occur. Manager should analyze these monthly reports carefully to be fully knowledgeable about high and low procedures should begin at managerial level to discuss and analyze both satisfactory and unsatisfactory conditions. Decisions should be made about the ways and means correct unsatisfactory conditions.

The effective performance report should be:

i. Tailored to the organizational structure and locus of controllability.
ii. Designed to implement the management by exception principle.
iii. Repetitive and related to short time periods.
iv. Adapted to the requirements of the primary users.
v. Simple, understandable, and report only essential information.
vi. Accurate and designed to pinpoint significant distinctions.
vii. Prepared and presented promptly.
viii. Constructive in tone.

In addition to control implications, performance reports offer management essential insights into all facts of operational efficiencies. Performance reports posses critical behavioral problems because inefficiencies as well as efficiencies of individuals are pin pointed and reported.

2.1.20 Analysis of Budget Variance

The difference between budgeted results and actual results is called a variance. The variance is known as unfavorable variance when actual -cost is greater than budgeted cost whereas if actual cost is less than budgeted cost, the variance is known as favorable variance. If the variance is significant; a careful management study should be made to determine the underlying causes.

Variances analysis is an important tool that can increase the usefulness of periodic performance reports. It involves a mathematical analysis of two sets of data in order to gain in sight into the underlying causes. In variance analysis, the following steps are taken:

a. Setting standards
b. Measurement of performance
c. Analyzing variance
d. Taking corrective action

Variance are analyzed in the following area:-

a. Raw material variance
b. Labor variance

c. Overhead variance
d. Sales variance
e. Profit variance.

2.1.21 Summary of C-V-P Analysis

Cost- Volume-Profit (CVP) analysis is a supplementary tool of profit planning. It tells many things about the relationships between the business variables. Total variable costs are proportionate to the sales volume; whereas the total fixed costs remain unchanged within the relevant range of the output levels. That is why net incomes are not in proportion to sales. Knowing this relationship, one can assess the profit at forecasted sales volume. Likewise, required sales can be ascertained for the minimum level of profit.

Contribution Margin (CM) 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 is contributed toward the covering of fixed expenses and then toward profit for the period. Contribution margin is used 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.

Contribution margin per unit (CMPU) is the selling price per unit minus variable cost per unit. Contribution margin ratio (C /M ratio), also known as profit volume (P/V ratio), is the contribution margin per rupee of sales.

Break-even analysis is that part of cost-volume-profit analysis which tells us about the level of sales at which revenues equals equal expenses and net income is zero. More precisely, it is called the break-even point. Cost-volume-profit analysis is sometimes referred to simply as break-even analysis. This may be misleading, because break-even analysis is just one part of the entire CVP concept. Yet it is always taken as an important part of profit planning as it gives the planner many insights into the data with which he or she is working. Profit planning of each firm begins with Break-even Analysis.

Up to the Break-even point sales volume, firms earn nothing; profit begins only after the BEP. Each unit sold beyond the BEP contributes

towards profit. Beyond BEP fixed costs do not increase. Therefore, each unit sold beyond BEP gives profit equal to CMPU**.**

BEP and other required CVP relationships can be explained through the contribution margin statement approach, graphic approach or equation / formula approach. A contribution margin statement is a variable costing income statement whose philosophy is all fixed costs are period costs which should be deducted from the contribution margin of the same period. Only the variable costs vary proportionality to the level of outputs or sales. In fact, the utility of variable costing statement, also known as the contribution margin statement, is to build up the CVP relationship.

Non-operating expenses and losses including interests on borrowing (financial charge), legal fees for issuing stock bonds, losses on investment fluctuation (provisions), donation /presents, etc. should be added to the total operating fixed costs.

Non-operating incomes including the interests on lending and deposits, dividends from stocks, rent from sub-letting, income from guarantee fees, etc. should be deducted from the total operating fixed costs.

Analysts exclude depreciation and other non-cash expenses in the short-run. If only the cash costs are included in the fixed costs we get cash BEP.

The margin of safety (M /S) is the excess of budgeted (or actual) sales over the break-even volume of sales. It states the amount by which sales can drop before losses begin to be incurred in an organization. M/S ratio indicates how safe the future of the firm is. The higher the M/S ratio the safer is the firm. For example, 25% M/S ratio of a company states that the sales can drop by 25% of the budgeted sales of the next year before losses begin to be incurred.

By measuring the volatility of CVP factors, we can see the impact of certain percentage of amount change in volume, price, or cost factors on net profit. Sometimes the manager can intentionally change the price and cost factors as a part of strategic decisions. But the strategy should focus more on the factor, which is more sensitive or responsive for profit.

Certain underlying assumptions place definite limitations on the use

of CVP analysis. Some of the key assumptions underlying CVP analysis are; costs can be classified as fixed and variable, costs are linear with the volume within the relevant range; selling price remains constant for any volume, product mix remains constant over the time, and so on.

If a company sells more than one product, called the product mix, each product may not be equally profitable. So the company's profit will depend upon the ratio of each product's sales on the 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 n 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 though total sales increase. On 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 though total sales decrease.

The fundamental variables used in the CVP analysis are: the selling price per unit, the variable cost per unit, and the total fixed costs, and the expected sales volume of each product. In any given decision problem, all four of these factors can be uncertain. But relative to the expected sales quantity, the costs and selling price are quite certain; that is, for analytical purpose, the decision maker may be justified in treating several factors as certainly equivalents.

In CVP analysis, sales volume is treated as a random variable. A variable is said to be random only if it has been selected without any preference. The probabilities may be assigned by using historical demand data on similar products, or the weights may be purely subjective in the sense that there is no historical data available to allow the estimator to express his uncertainty about the sales estimate.

To simplify the problem, the expected value (the mean value) of the random variables, say the sales for each product, is calculated by weighing the possible conditional values by their respective probabilities and the judgment is made by taking the expected mean values. But the point to be remembered is that even if the expected value of profit for each project would be the same, the firm would not be indifferent between the two projects. The form's attitude toward risk becomes important. A quantitative measure of the spread is available in the form of the "standard deviation" of the distribution. The standard deviation enables us to determine, with a great

deal of accuracy, where the values of a frequency distribution are located in relation to the mean.

A particular normal probability distribution can be completely determined if its mean and its standard deviation, are known. Though the probability of an event under the normal distribution cannot be read directly from the graph, it is possible to read probabilities of the type described above directly from a normal probability table, known as "Z" table. Z value refers to the distance between a selected value, designed X, and the mean u., divided by the standard deviation. By determining the Z value by using its formula, we can find the area or the probability under any normal curve by referring to standard normal probability distribution table (known as Z table).

The optimal product mix and production planning in real environments turn out to be considerably more complicated than the unconstrained CVP analysis single product model. When multiple products share common and constraining production resources. We need to generalize our notions of product profitability. Products with the highest contribution margins may no linger be the most profitable ones. Selling products with the highest contribution margin per unit of constraining resource will maximize profit. If more than one constraining resource exists, a linear programming model can be used to determine the optimal product mix.

The LP model helps to work out the trade offs among a complex interaction of products and processes to provide a good starting point for the managers planning activities. A centralized LP planning model also eliminates much local discretionary decision making, since the major product mix and resource utilization decisions are made within the central model.

LP model to planning is not, however, free from the limitations as much higher and unrecognized (in the LP model) costs will be incurred because of the delays, queues, and congestion created by the fluctuations in order arrival, production processing times, and uncertain quality of products and machines. -Limitations further include the sensitivity to the solution to the extensive data required for the model, the failure of the model to incorporate the effects of statistical fluctuations on the amount of the product that can be processed through the bottleneck resources, and the potential for dysfunctional behavioral effects as decision making is moved

away from decentralized managers to a centralized planning model. None of these limitations is fatal to the use of LP in practical situations, but the analyst must be aware of the potential for problems and attempt to control them when working with an extensive, complex model.

2.2 Review of Previous Related Studies

The main objective of this part is to analyze the previous research study. Numerous studies have been made in the areas of profit planning and control in manufacturing enterprises. All these researches are for the partial fulfillment as required for the complexioned of master's levels. An attempt is made here to review some of the research works.

A. Mr. Giri, Dipak (2006) has conducted the research on the topic of "Profit planning and control of Nakalbandha Tea Estate Private Ltd." Submitted to faculty of Management Centre department of the partial fulfillment of MBS. In this study Mr. Giri has pointed out of the following finding and recommendations;

Mr. Giri has listed the following findings:

1. Specific financial goals and targets are not defined clearly to achieve the based objectives of NTEPL
2. Unsatisfied productivity of man-power
3. An adequate knowledge of technical knowledge
4. An adequate planning of profit due to lack of skilled planner
5. Limited domestic market
6. Lack of government support for foreign market
7. It has faced competition from Indian tea and other national tea

Mr. Giri has listed the following recommendation:

1. Budgeting should be considered while formulating business plan
2. Profit planning and control tools are informed to all departments
3. System of periodical reports should be strictly followed to be conscious about poor performance and take corrective action immediately and timely

4. New market areas should be identified for the coverage of increased activities of companies.

B. Mr. Dahal, Uday Kumar (2006) has studied on the topics of "Cost volume profit analysis as a tool to measure the effectiveness profits planning with special reference to Dabur Nepal Pvt. Ltd. "This was submitted to Nepal commerce Campus, TU in partial fulfillment of Master's of Business Studies.

Mr. Dahal has listed the following findings:

1. Dabur Nepal Pvt. Ltd. constitutes lack of adequate inventory policy
2. No control over external factor i.e. It has poor swot analysis.
3. Dabur Nepal Pvt. Ltd. does not prepare strategic and policies for long term
4. Dabur Nepal Pvt. Ltd. is not able to coordinate among various departments.

Mr. Dahal has listed the following recommendations

1. CVP analysis should be considered while formulating profit plan
2. Profit planning manuals should be communicated from top level to lower level.
3. The company management should look carefully into the basis of setting target for sales and achieving those targets meaningfully.
4. Dabur Nepal Pvt. Ltd. should focus on the relationship between expenditure and benefit expenses planning and controlling is necessary to obtains company's goal.

C. Mr. Rijal, Madhav, Mr. Madhav Rijal (2005) had studied on the topics "Cost-Volume-Pro fit Analysis to measure the effectiveness of profit planning and control (A case study of Nebico Pvt. Ltd.)". The study was based on both primary data as well as secondary data and analysis was based on only five years data. It was submitted to Shankar Dev Campus, TU, Kathmandu.

The main objectives of that research analysis are as follows:-

1. To study relationship of cost, volume and profit as an applicable tools of budgeting.
2. To evaluate the profitability, financial position and sensitivity of Nebico's activities.
3. To analyze the cost, volume and profit of the company and it's impact in profit planning and
4. To provide suggestions and recommendations for improving Nebico's condition etc.

Mr. Rijal had pointed out some major findings in his research although most of his findings were out of objectives of the study Some major findings are as follows:-

1. The company's sales trend has fluctuation but not satisfactory trend of increasing.
2. The company's variable cost is in high proportion than fixed cost in comparison with total cost, which contributes for lower contribution margin.
3. NEBICO had no any plan to reduce cost.
4. The profit trend of the company was not satisfactory.
5. The company had no effective inventory policy.
6. There were not effective sales forecasting techniques.
7. NEBICO Pvt. Ltd. had not practice of segregating the cost in to fixed, variable and controllable or non-controllable.
8. Net profit margin, profitability ratio and other things were not satisfactory.
9. The company has not utilized its full capacity.
10. CVP relation is not considered while developing sales plan, production plan and pricing strategy.

The following suggestions have been recommended on the basis of this research:

1. NEBICO should consider BEP analysis while preparing sales plan, production plan, and setting the price of its products.
2. Classification of expenses as variable and fixed or controllable or uncontrollable must be made within a specific framework of responsibility and time.

3. Cost control department separately established which is divided the cost by production and control the cost.
4. A systematic approach should be made towards comprehensive profit planning. This can considerably contribute to the increase in profitability of NEBICO Pvt. Ltd.
5. CVP analysis and PPC manuals should be communicated from top to lower levels.
6. As company as unable to generate more profit as per investment made in fixed cost, company should put address on effective utilization of fixed cost.
7. All personnel should be participated on decision making and planning process.

D. Mr. Chalise, Ishwor Raj

The thesis entitled "Profit Planning in Manufacturing Company (A case study of Nepal Lever Limited)" is prepared by Mr. Ishwor Raj Chalise. This thesis was submitted to Nepal Commerce Campus, TU, Kathmandu.

The primary objective of this research was to highlight the system of profit planning applied and its effectiveness in Nepal Lever Ltd. in coordination to this main objectives the was focused to meet the following objectives:-

1. To evaluate the variances between target and actual of Nepal Lever Ltd.
2. To analyze the various functional plans formulated and implemented in Nepal Lever Ltd.
3. To examine the practice and effectiveness of profit planning in Nepal Lever Ltd.
4. To evaluate the profit planning process applied in Nepal lever Ltd. with conceptual prescriptions.
5. To point out feasible suggestion and recommendation to make betterment of Nepalese Manufacturing enterprises with special reference to Nepal Lever Ltd.
6. To analyze the various functional budgets adopted in this enterprise.

On the basis of different analysis, observation and informal discussion, the following major findings have been drawn:

1. The company has no planning division. It has no skilled and expert planners as well.

2. The company has no proper practice of cost segregation.
3. Yearly budget for income and expenditure prepared by general manager with mutual cooperation of other top level managers and which the board of directors finally approves. The middle and lower level manager and other workers are not participated in preparing the budget.
4. The company has been suffering from many internal and external factors in formulating and implementing plans. However, it has no proper practice of environment scanning.
5. In Nepal Lever Ltd. target is more variable than actual because there is no any-proper plan and policy during the operating period of the company.
6. In Nepal Lever Ltd. there is detail plan of manpower and systematic approach o labor planning. The company plans for direct labor hour and direct labor cost needed to produce the planned quantities of goods.
7. The company has not a practice of preparing long range production plan. The company prepares annual production plan of each product.
8. The company has no depth analysis of the company's strength and weakness or opportunity and threats.
9. The company has no practice of sales forecasting. Sales and production are made on ad-hoc basis.
10. The company has not a problem in production, labor force and material but suffers from in availability of market.

Some suggestions have been recommended on the basis of major findings of the study of profit planning in Nepal Lever Ltd.

1. Trained and qualified manpower of profit planning should be hired and present manpower should be trained to develop and implement the profit plans effectively.
2. The company should improve productivity of its product by providing sufficient technical staff and technical equipment.
3. There is a lack of periodical performance reports about the activities of the industry. Therefore system of periodical performance reports should be strictly followed to be considered towards poor performance and to take correct action timely.
4. The company should make every effort to rum the existing plans and utilize the idle equipment and facilities.
5. For better performance, company should prepare strategic and tactical profit plans.

6. Nepal Lever Ltd. should appoint reliable agents and dealers to improve its sales performance.
7. Different costs in the company should be diagnosed as controllable and non controllable within a specific framework of responsibility and time and effective programs should be launched to reduce the controllable expenses.
8. Modern strategic management system should be introduced instantly.
9. Finally, the company should adopt a systemic approach to profit planning.

CHAPTER - THREE
Research Methodology

3. Introduction

Research methodology is systematic and scientific procedure of well as difficult task. It is a way to solve systematically above the research problem, It help to analyze, examine and interpret various aspects of research works such as sales, cost and other aspects of CVP analysis, related to effective tools of profit planning . The emanation of justification for the establishment of manufacturing industry has become essential in the fight of their performance as the achievement of objectives. "Research methodology is the way to solve systematically about the research problem".[3] The major content of research methodology is followed in course of the study are:-

3.1 Research Design

Research design means deigning procedures and techniques which guide to study and propound ways for research work. It is an analytical as well as descriptive approach to a chive the objectives. It is the arrangement of condition for collection and analysis of data relevance to the study purpose with economy in procedure. In order to make type of research, this fulfills the objectives of the study. Generally research deigns means definite procedures and technique, which guide to study and propound ways for research viability.

Research design is the plan structure of investigation convinced so as to obtain answer to research question and to control variance. The plan is the over all scheme of program of the research. It includes in outline of what the investigator will from writing the hypothesis and their operational implication to the financial analysis of data. Research this study attempts to analyze the CVP analysis for Haldibari Tea Pressing Co. Pvt. Ltd. Hence, descriptive as well as analytical research designs have been employed. Descriptive research is essentially a fact finding approach rechative, to cargely to present and abstracting generalization by the cost sectional study of the current situation, but the quantities aspects of the search such or effectiveness of CVP in manufacturing views of various managers, personnel and the theoretical prescription are explained where necessary.

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[3] Kothari, C.R., 1990, P-39

3.2 Period cover

The study covered a time period five years from F/Y 2060/2061 to F/Y 2064/2065 for HTPCL. Data are taken from annual report and other sources of HTPCL. The analysis is basically made on the basis of there five years data.

3.3 Population and sampling

Haldibari Tea Processing Pvt. Ltd. is a sample and population in itself. This study is based on revenue planning and CVP planning of wholly. So, there is not any difference in sample and population. But relevancy of tea and coffee development Board data and report are used.

3.4 Nature and sources of Data.

To achieve the basic objective of this research study, primary data and secondary data have been used. The data and information that have been used in this study are collected from the following sources:

- Report of auditor General office of Haldibari Tea Processing Co. Pvt. Ltd.
- Financial statement
- Some published as well as unpublished official records.
- Some previous studies made regarding in this field.
- Relative magazines and newspaper.
- Book let published and unpublished on relevant matters
- Reports submitted to meeting and seminars.
- Different related websites.
- Previous thesis

3.5 Data collection technique (p)

In this research primary and secondary data were used for CVP analysis of HTPCL for the propose of this study, the primary data are collected from published accounting statement of HTPCL. The review of theory relating this study is based on text books, official publication and previous resource studies.

3.6 Statistical tools used

To find out the major problems and recommend of every research these must be needed data analysis tools; term and techniques crude data are managed and analysis in proper tables and formats. To analyze the selected data, some financial and statistical tools such as graphs, BEP chart, bar diagram, percentage and ratio etc.

3.7 Method of analysis

In order to make an analysis of available data following methods have been employed.

- Related data from secondary sources are selected, grouped and tabulated for the purpose of this study.
- Tabulated primary data are analyzed by using different according tools.
- With the help of analysis conclusions were drawn and recommendations were suggested.

3.8 Analytical tools used

3.8.1 Accounting tools used

For the purpose of analysis of available data following accounting tools are used:

- Contribution margin analysis
- Cost volume profit analysis
- Contribution margin ratio.
- Margin of safety.
- Others

3.8.2 Statistical tools used

To analysis the selected data statistical tools also used to determine the future trend of HTPCL Ltd. Specially bar diagram is used to analysis sales trend of HTPCL.

3.8.3 Graphs

Graph helps to show the general trend of the ratio respect to time period. A very common way of presenting data for two variables which have a relationship is in a figure or chart of graph that works best when the data is continuous. A figure is used to show the changes of dependent variable in relation to the relation to change of independent variables. It is common practice to place the independent variable along x-axis and dependent variables along y-axis.

3.9 Research Variables

The research variables of the present study are sales, cost, profit, BEP, P/V Ratio, profit margin of these enterprises. A variable is a symbol to which numerical or values are assigned. In other word, variable can take on any values. The researcher had two types or variables-independent and dependent variables. Variables are studied follows:-

a. Independent variables:

It is the variables which can change other variables. In other words, a cause of it changes others.

b. Dependent Variables.

It is the positives of independent variables. It depends upon other variables.

The researcher has been defined the term CVP analysis in the first chapter. There are three factors (i.e cost, volume and profit) of CVP analysis . Which are interred connected and depends on one another. So there three factors are dependent variables. But testing relationship between there variable following criteria is assigned

Classification of variables.

Table-3

Independent variables		**Dependent variables**	
a	Cost	a	profit
b	Volume (sales)	b	profit
c	Cost volume	c	profit

CHAPTER- FOUR

Data Presentation & Analysis

4. Introduction

The overall background, basic objectives and significance of the study have been already mentioned in first chapter. In second chapter various related books, journal and other publication as well as an unpublished master level dissertation comprehensive analysis of relevant variables is undertaken. As such several techniques employed for analysis and presentation of data have been just defined.

Data presentation and analysis is the important part of the research work. It is known as the heart of research. Major findings of the research depend on data presentation and analysis. Here, the researcher has tried to present and interprets the collected data is systematic manner and meaningful ways. Mainly to fulfill the objectives of the study require factors about CVP analysis are presented and analyzed. CVP analysis is important and very popular tools to measure the financial statement of the organization. It is also an important tools used for profit planning in any organization. It shows which volume or level of activities is necessary to stay at break even point or to gain a certain amount of profit. It helps to determine the volume of operation desired to maintain the corporation's profit. It shows the relationship among the variables. Cost volume profit analysis of this manufacturing enterprise Haldibari Tea Processing Co. Pvt. Ltd is presented for that purpose sales revenue, profit, income statement, contribution margin and sensitivity test are done. Because these are the major variables of cost volume profit analysis.

4.1 Sales plan of Haldibari Tea Processing Co. Pvt. Ltd.

Sales planning are the primary and important step as well s the primary sources of information which can be used in functional planning. The amount of expenses to be planned the manpower requirement and cash requirement are based on the sales plan. It can be said that sales opens the door for other planning activities of the business. The sales plan is the basic steps which opens the door of financial plan. The efficiency of planner or planning expert can be evaluated from the comparison between actual and planned sale.

Sales plan will be prepared on the basis of sales forecast. Sales forecast have to be translated into sales plan after adjustment of various factors associated with sales. Sales plan preparation most critical and it depends all others.

4.2 Analysis of Budgeted and actual sales

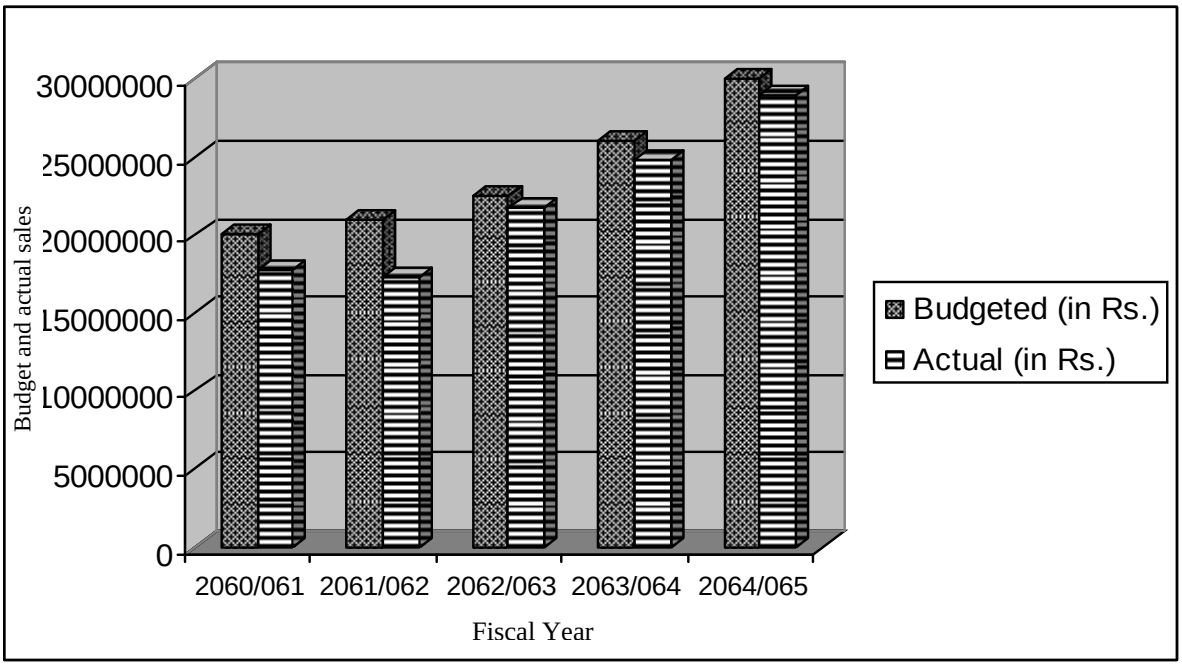
Haldibari Tea processing Co. Pvt. Ltd. is producing and selling pack of tea. The attempt begins to present and analysis the previous budgeted sales and actual sales performance. The following table presents the budgeted and actual sales achievement from fiscal year 2059/60 to 2064/2065 B.S.of HTPCL.

Total budgeted and actual sales of HTPCL
Table-4

Hear	Budgeted (in Rs.)	Actual (in Rs.)	Achievement (in %)
2060/061	20000000	17790000	88.98
2061/062	21000000	17244000	82.11
2062/063	22500000	21745000	96.64
2063/064	26000000	24800000	95.38
2064/065	30000000	29000000	96.66

Source: HTPCL

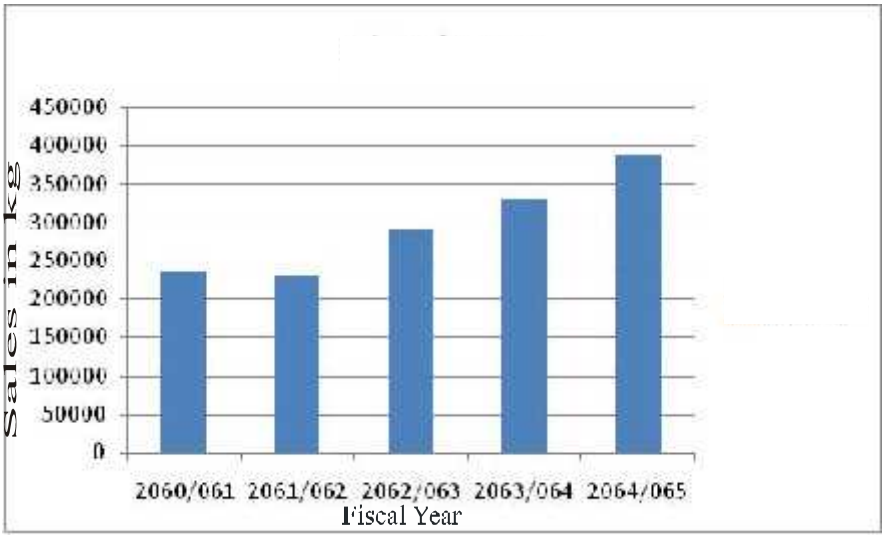
Figure-1



Sales in Kg.:

2060/061	2061/062	2062/063	2063/064	2064/065
237200	229920	289930	330665	386672

Figure-2



There were slightly increase in sales. The average selling price per kg. is Rs.75. The budgeted sales plan indicates that the plan is scientific i.e. it considers market research, environmental scanning, expert opinion etc. The

achievement of sales plan is not a simple task its due to management efficiency, well communication of all planning levels, employees commitment continuous improvement in the quality of products, exploration of new market areas, innovative sales schemes, effective advertisement and sales promotion. So on, sales achievement is satisfied due to insecurity economic recessions, group insurgency and unhealthy competition.

4.3 Cost analysis of HTPCL

Cost planning and control is not reduction in cost but it means better utilization of limited resources. Planning and controlling should focus on the relationship between expenditure and benefits derived from those expenditure cost analysis is necessary to obtain company's goal. There are different types of cost incurred in the company/ generally costs are classified into four sectors.

- Cost of sales
- Administrative expenses
- Selling and distribution expenses
- Financial expenses

Cost of sales is a part of production cost which relates with raw material packing work in progress, electricity, power and fuel, wages and workmen's welfare, repair and maintenance(Building plant and machinery etc) consumable store, custom duty, laboratory, expenses, cartage etc.

Administrative expenses are a part of management cost. Its is not directly traceable to specific product and jobs. It is related with administrative salary and wages, employee bonus, operating allowances, gratuity, directors remuneration employees share to provident fund, postage and telephone, traveling expenses, legal and professional charge, board meeting fee, insurance, audit fees, rent, indirect repair and maintenance, indirect fuel and power printing and stationary, guests house exp. Books and periodicals, entertainment expenses, donation, general charges, watchman expenses, business development expenses, other administration expenses depreciation etc.

A Selling and distribution cost affects the potential profit of a company. It is a significant portion of total cost. Selling and distribution expenses includes all costs related to selling and distribution alike advertisement, sales promotion, royalty, freight-outwards, excise-duty etc.

Where financial exp. Includes interest on short tern loan, interest on term loan, bank charges net exchange loss etc.

4.4 Fixed cost analysis

Fixed cost remains constant in total amount despite the changes in the level of activity within a fiscal year. This is fixed cost remain unchanged in total as the output level varies within a year, but fixed cost per unit basis decreases as the level of activity increases and vice-versa. Fixed cost in total are varies for different fiscal year effected by internal and external environment factors of the company.

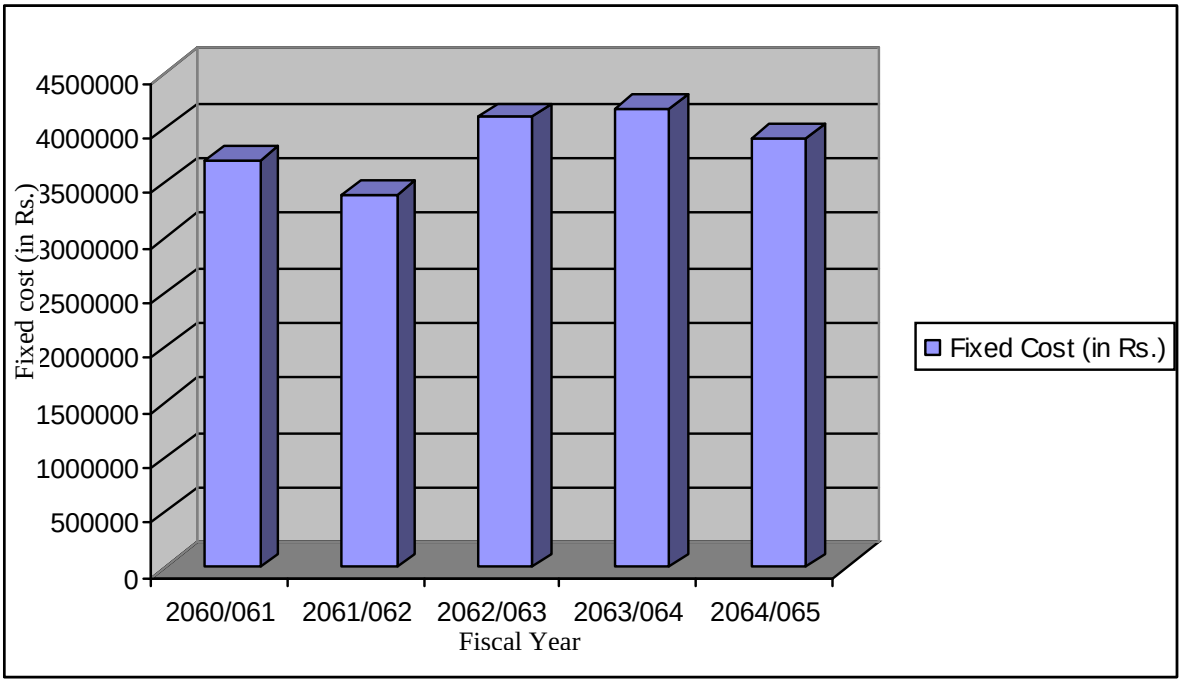
Fixed cost of HTPCL

Table-5

Fiscal Year	Fixed Cost (in Rs.)
2060/061	3700000
2061/062	3400000
2062/063	4100000
2063/064	4180000
2064/065	3900000

Source: HTPCL

Figure-3



Above table shows that abort fixed cost its flexible because fixed assets are purchase and sales.

4.5 Variables cost analysis

A variable cost changes in total amount as production volume changes. For example, the cost of materials (green leaf of tea) that enters into product is a variable cost. In other words, the variable cost per unit of production remains constant whole the total amount of variable cost changes into direct proportion to changes in the level of production. Variables costs appear on a graph as a straight line with a positive slope, the lines rises as the production volume increase.

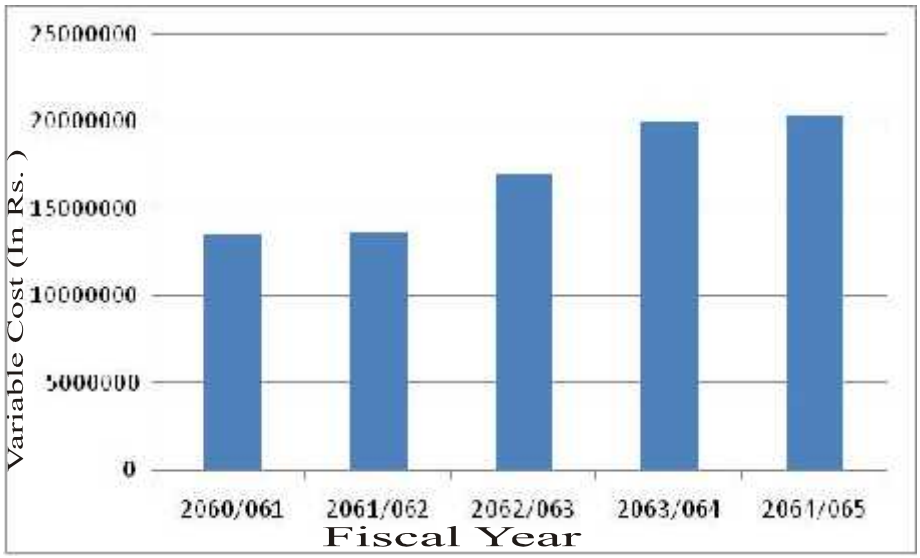
Variable cost of HTPCL

Table-6

Fiscal Year	Variable (in Rs.)
2060/061	13500000
2061/062	13600000
2062/063	17000000
2063/064	20000000
2064/065	20400000

Source: HTPCL

Figure-4



Variable costs in total of HTPCL are increased because sales/production is also increased at slightly.

4.6 Analysis of sales and cost relationship of HTPCL

Cost structure refers to the relative proportion of fixed and variable cost in an organization. There is no catagorised answer possible of which structure is best. A firm might have many fixed costs but few variable cost or mixed cost and vice versa. A firm's cost structure can have a significant impact on decision fixed cost will incurred losses much more quickly than company with lower fixed cost if the recession condition at strikes of industry. In sum, company with high fixed cost income as changes take place in sales, with greater profit in good year and greater loss in bad year. Company with low fixed cost will enjoy some what greater stability in net income but it will do so at the risk of losing sustainable profit of sales trends upwards in the long run.

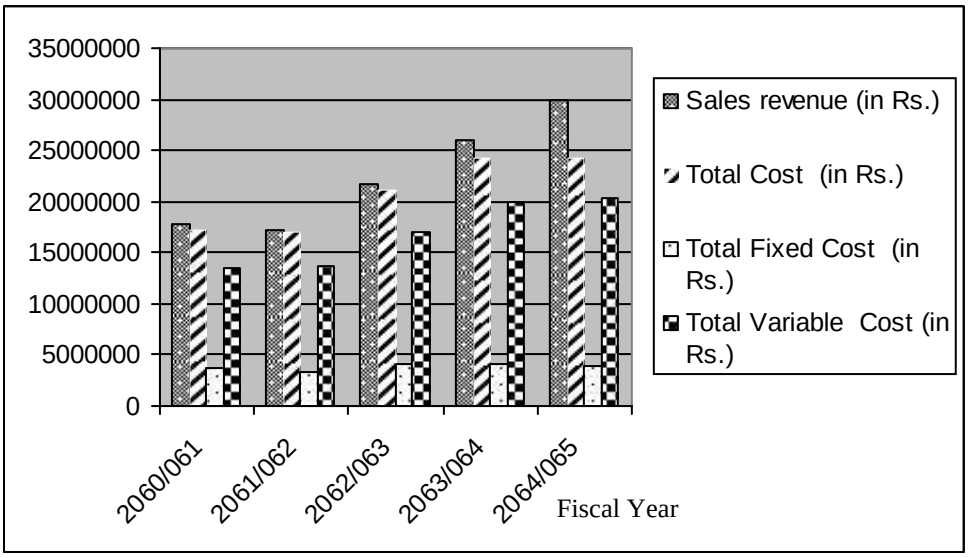
Cost structure analysis of HTPCL

Table-7

Fiscal Year	Sales revenue (in Rs.)	Total Cost (in Rs.)	Total Fixed Cost (in Rs.)	Total Variable Cost (in Rs.)
2060/061	17790000	17200000	3700000	13500000
2061/062	17244800	17000000	3400000	13600000
2062/063	21745000	21100000	4100000	17000000
2063/064	26000000	24180000	4180000	20000000
2064/065	30000000	24300000	3900000	20400000

Source: HTPCL

Figure-5



4.7 Profit pattern of HTPCL

Profit is the major elements of each and every business enterprises for survival further development and fulfilling their expectations. In modern business, effectiveness and efficient of any business organization or management are measured for profit. However, the concept of profit is charging. It present, reasonable profit approach has been becoming as a strong position.

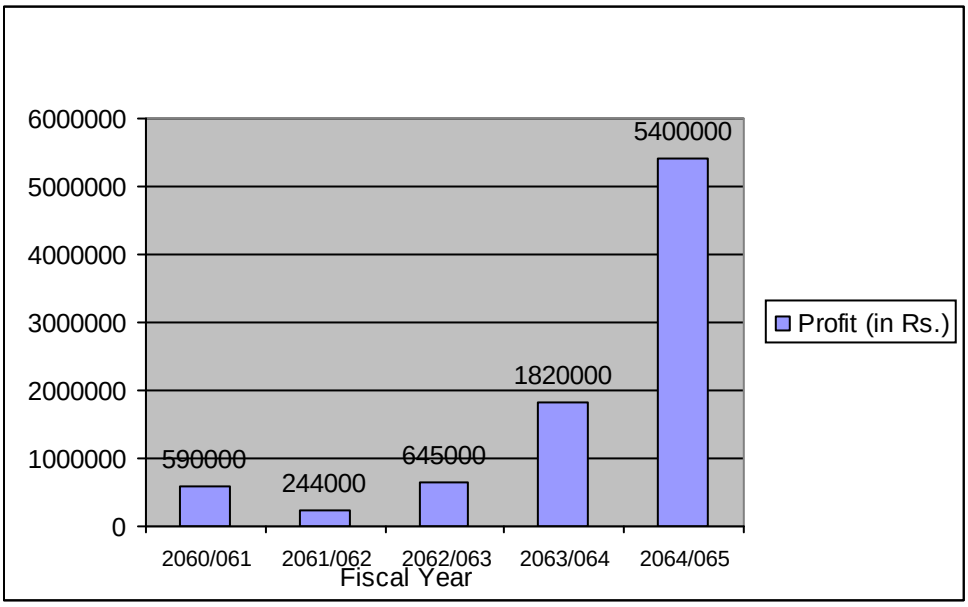
Statement of profit of HTPCL

Table-8

Fiscal year	Profit (in Rs.)
2060/061	590000
2061/062	244000
2062/063	645000
2063/064	1820000
2064/065	5400000

Source: HTPCL

Figure-6



Since, the profit is slightly increasing of HTPCL. It is good scenario for company.

4.8 Cost Volume profit analysis of HTPCL.

The study of relationship between cost volume and profit is known as cost volume profit analysis. CVP analysis is the study of the effects of changes in costs and volume on a company's profits. Nowadays CVP analysis has become a powerful instrument in management decision making especially cost control and profit planning. CVP analysis helps to determine the minimum sales volume required to avoid losses and the sales volume at which the profit goal of the company will be achieved. So, it is very important for sales and production plan because without the knowledge of BEP, it is very difficult to determine the sales level for certain level of profit.

Profit planning can be done only when the management has information about the cost of products, both fixed and variable cost and the selling prices, determining product mix, and maximizing use of production facilities. CVP analysis is especially applied for profit planning and control. On the calculation of BEP in Haldibari Tea processing Co. Pvt. Ltd. following assumptions should be considered.

- The concept of cost variability is valid. So cost can be classified as fixed and variable.
- Other type of income (non operating income) is not included in the revenue.
- There is no opening and closing stock
- There is no multi product.

a) Income statement for the year 2060/061 to 2064/065

Table-9

Particular	2060/061	2061/062	2062/063	2063/064	2064/065
A. Sales:	17790000	17244000	21745000	26000000	30000000
Less:					
B.Variable Cost	13500000	13600000	17000000	20000000	20400000
C. Contribution Margin (A+B)	4290000	3644000	4745000	6000000	9600000
D. Less: Fixed Cost	3700000	3400000	4100000	4180000	3900000
E. Profit (C-D)	590000	244000	645000	1820000	5700000

Sources: HTPCL

b) Cost volume profit analysis 2060/061 to 2064/065 (in Rs.)

Table-10

Particular	2060/061	2061/062	2062/063	2063/064	2064/065
P/V Ratio (Cm/Sales)	0.24	0.21	0.22	0.23	0.32
BEP (FC/P/V Ratio)	15416667	16190475	18636363	18173910	1217500
MOS -AS-BEP	2373633	1054325	3108637	7826090	17812500
% of BEP on Sales	86.66%	94%	86%	70%	40%
% of MOS on Sales	13.34%	6%	14%	30%	60%

Above table shows the detail cost volume profit system of HTPCL. Relationship among various variables show the actual position of HTPCL about contribution margin, BEP level and safety margin and its percentage as well as BEP volume of the HTPCL is computed including other income this shows different break even volume then when excluding it in previous part.

Contribution margin ratio of HTPCL is 0.24, 0.21, 0.22, 0.23 & 0.32 in fiscal year 2060/061 to 2064/065 respectively.

Company is in profit position because its margin of safety is above the break even volume percentage of BEP on sales are 86.66%, 94%, 86%, 70% & 40% from fiscal year 2060/061 to 2064/065 respectively HTPCL has margin of safety Rs.2373633,Rs1054325, Rs.3108637, Rs.7826090 & Rs.1781250 from fiscal year 2060/061 to 2064/065 respectively.

4.9 Break even point (BEP) analysis

The point which breaks the total cost and total sales revenue evenly to show the level of output or sales at which there shall be neither profit nor loss, is regarded as break even point. Through contribution margin approach, break even point can be expressed as.

Breakeven point (in Rs)

$$= \frac{\text{Total Fixed cost}}{\text{P/V Ratio}}$$

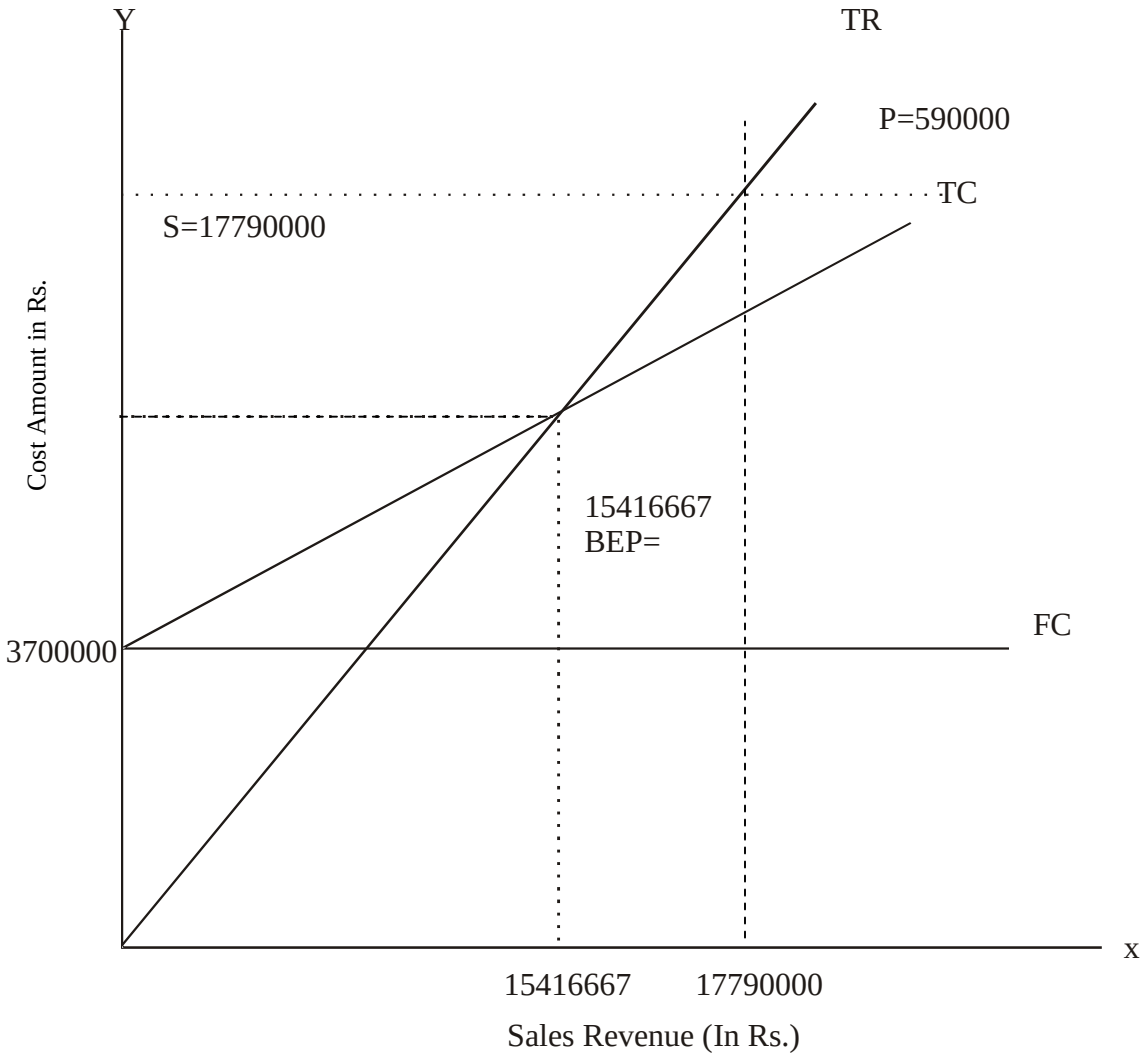
BEP (in Rs.) of 2060/2061

$$= \frac{\text{Total Fixed Cost}}{\text{P/V Ratio}}$$

$$= \frac{3700000}{0.21} = 15416667$$

Graphical Presentation of BEP of HTPCL
F/Y 2060/061

Line Graph-9



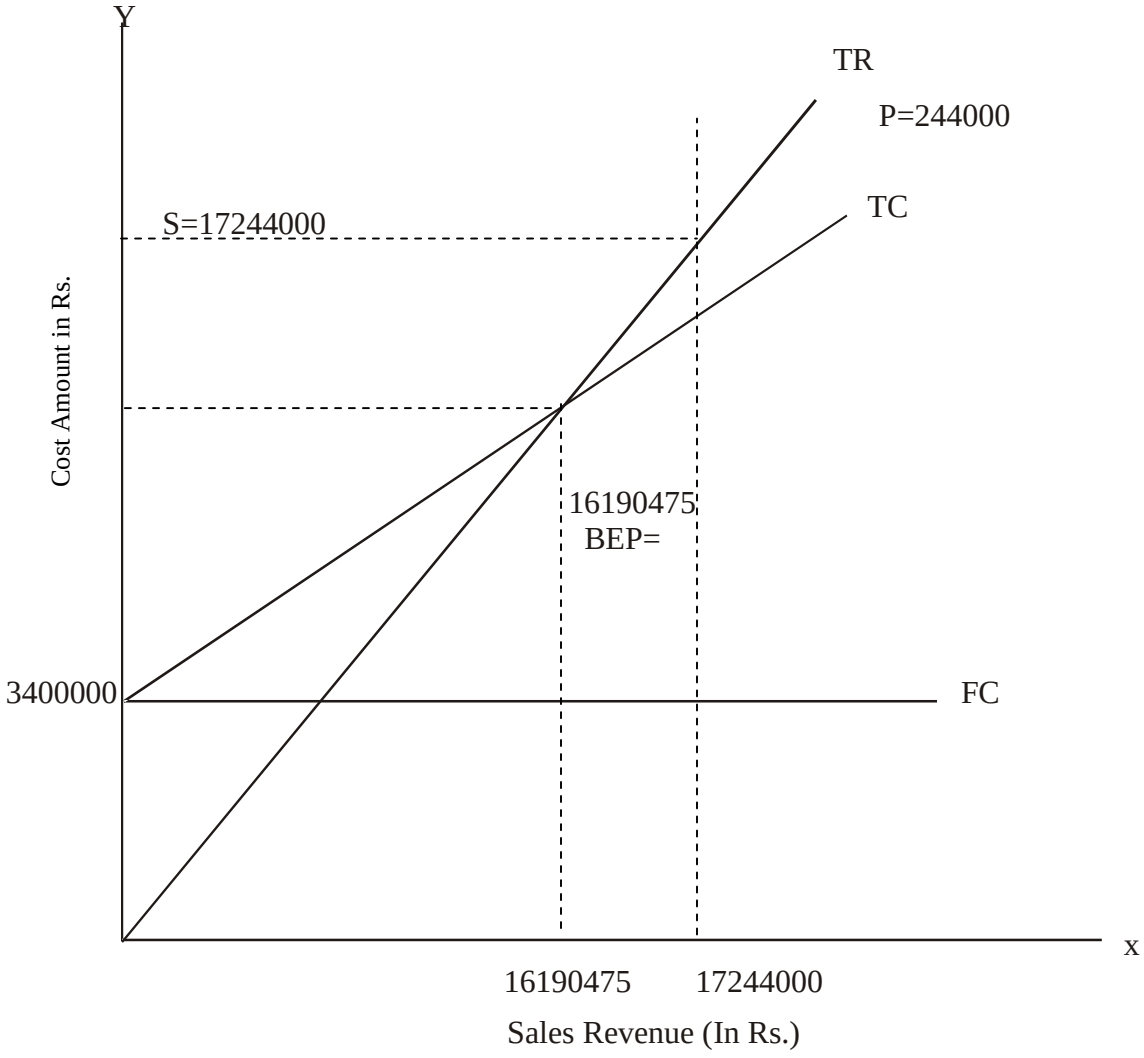
BEP (in Rs.) of 2061/2062

$$= \frac{\text{Total Fixed Cost}}{\text{P/V Ratio}}$$

$$= \frac{3400000}{0.21} = 16190475$$

Graphical Presentation of BEP of HTPCL
F/Y 2061/062

Line Graph-10



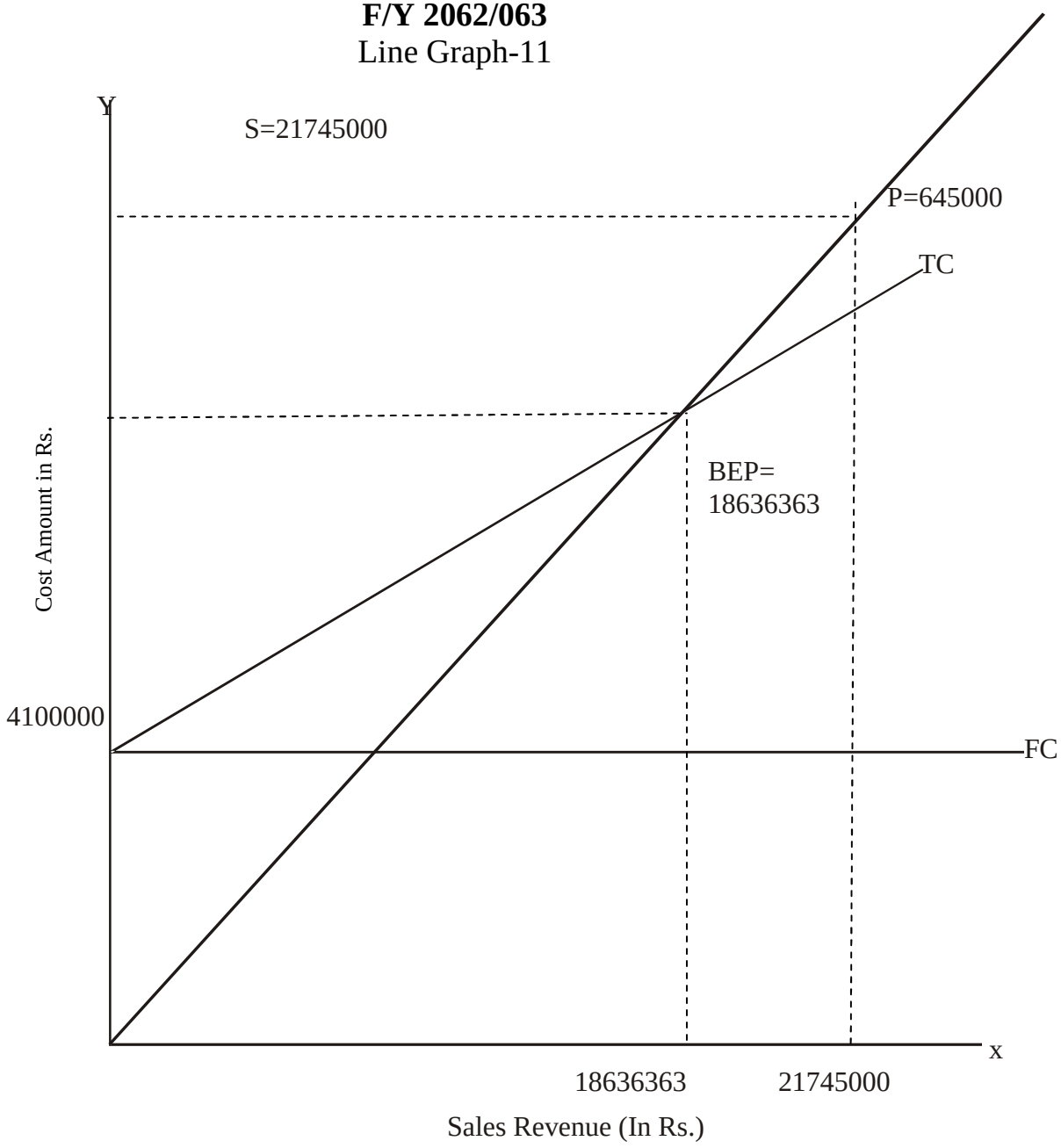
BEP (in Rs.) of 2062/2063

$$= \frac{\text{Total Fixed Cost}}{\text{P/V Ratio}}$$

$$= \frac{4100000}{0.22} = 18636363$$

TR

Graphical Presentation of BEP of HTPCL
F/Y 2062/063
Line Graph-11

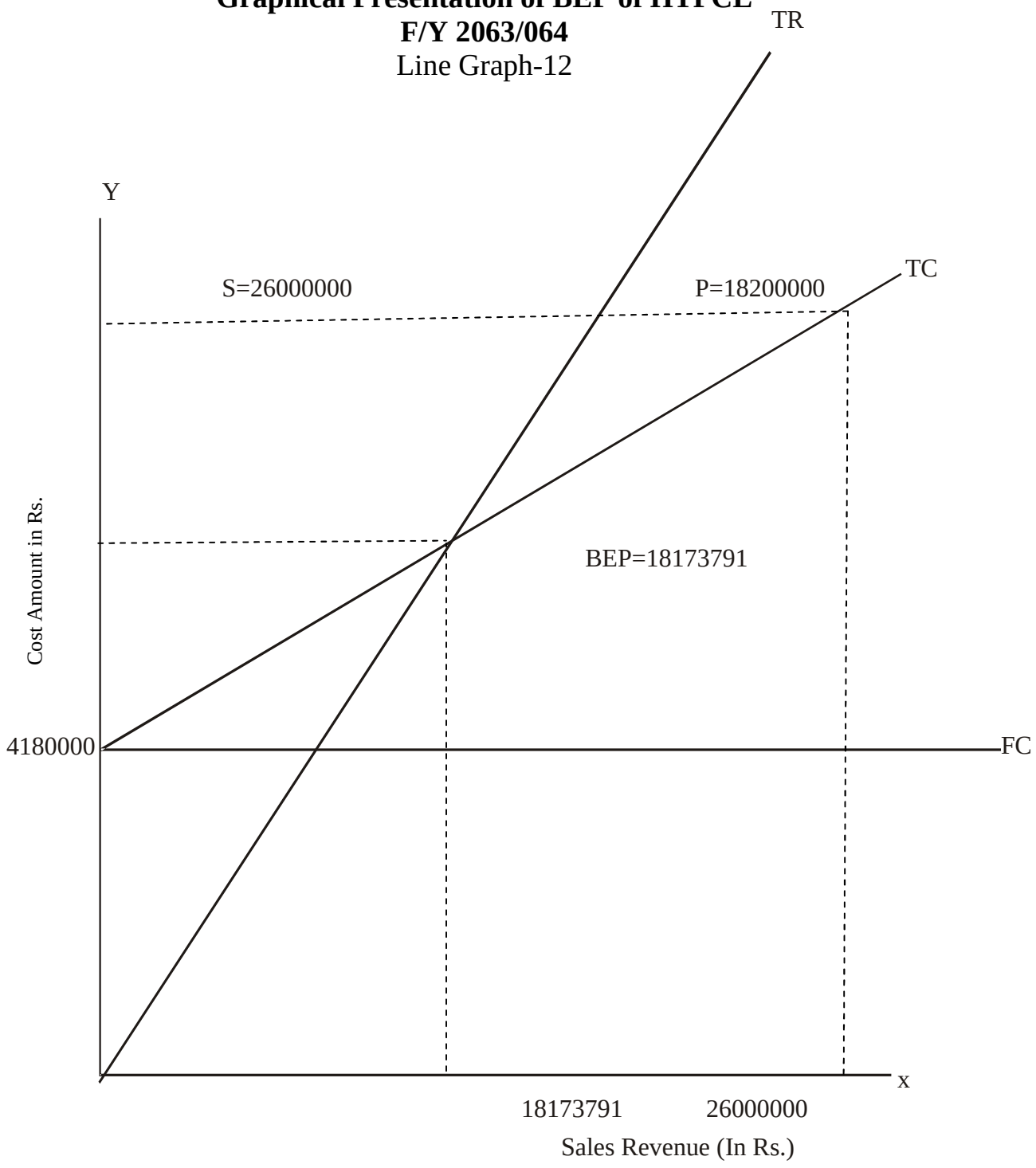


BEP (in Rs.) of 2063/2064

$$= \frac{\text{Total Fixed Cost}}{\text{P/V Ratio}}$$

$$= \frac{4180000}{0.23} = 18173791$$

Graphical Presentation of BEP of HTPCL
F/Y 2063/064
Line Graph-12

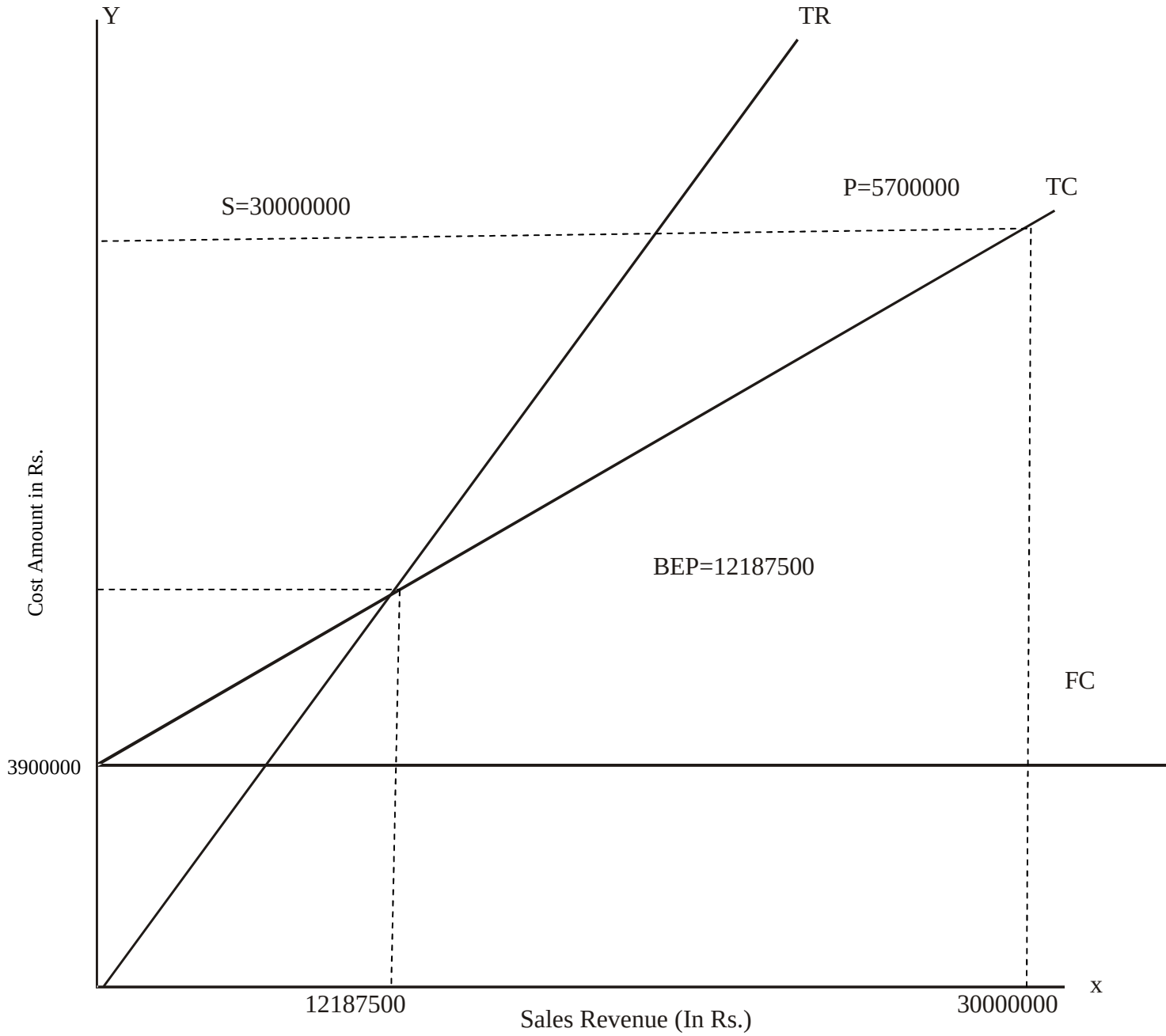


BEP (in Rs.) of 2064/2065

$$= \frac{\text{Total Fixed Cost}}{\text{P/V Ratio}}$$

$$= \frac{3900000}{0.32} = 12187500$$

Graphical Presentation of BEP of HTPCL
F/Y 2064/065
Line Graph-13



Above chart shows the fixed cost is always equal within a certain level of actively. So fixed cost curve is parallel to X-axis, total cost increase with increase in sales revenue. As a result total cost curve is slopping upwards to right side. The total cost curve starts from fixed cost line. The amount of fixed cost is also total cost when sales revenue is zero and variable cost will be zero. The sales revenue curve originates from the origin because sales revenue is zero when the quantity is zero. The chart also shows that sales curve is also slopping upwards to right. An equilibrium point between total cost and total revenue curve is known as break even point when both the cost and revenue is equal at BEP. If the actual sales amount is more than the break even sales amount the company will earn profit and if the actual sales is less than the break even sales amount the firm will suffer from loss.

4.10 Analysis of Hypothesis Test

Hypothesis

Null Hypothesis

H_0: « $_1$= « $_2$ There is no significant different due to change of sales in profit margin.

H_1: « $_1 \neq$ « $_2$ There is significant different due to change of sales in profit margin.

Two way ANOVA Table of HTPCL

Table-11

Sources Variation	Sum of square (SS)	d.f.	Mean sum of square (MSS)	F- Ratio
Due to column factor	SSC=1031849640	c-1=2-1=1	MSC=1031849640	F_C=756.05
Due to year	SSR=98950714	r-1=5-1=4	MSR=24737678.5	F_r=18.13
Due to error	SSE=54591562	(c-1) (r-1)=1x4=4	MSE=1364789	

The detail calculation of the above table is present in Appendix-III.

The tabulated value F_c and F_r at 5% level of significance for d.f.(1,4) and (4,4) are given by,

F_c-0.05 (1,4)-Tab=7.71

F_r-0.05 (4,4)-Tab=6.39

Decision:

Since, the calculated value of F_c is greater then tabulated value of F_c (i.e. F_c-cal > F_c-Tab) of HTPCL. It is significant and Null Hypothesis (H_0) is rejected. It means there is significant relation due to change of sales in profit margin.

And, the calculated value of F_r is grater then tabulated value of F_r (i.e. F_r-cal>F_r-Tab) of HTPCL, it is significant and Null Hypothesis (H_0) is rejected. It means there is significant relationship between year wise distribution of sales and profit.

CHAPTER –FIVE

Summary, Conclusion and Recommendations

5.1 Summary

Management effectively achieves organizational objectives through the efficient use of scare resources in a changing environment. Future is uncertain which creates risk and to reduce risk the only reliable weapon is good management. CVP analysis is an analytical technique for studying the relationship between volume, costs and profit which helps to manage future cost and profit. Profit planning is a management technique and it is a written plan is all aspect of business operation for specific future period. CVP analysis is a device used to determine the usefulness of profit planning process of the firm. In fact the entire field of profit planning has become associated with the CVP inter relationship.

Business organization establishes profit objectives and builds budget plans so that the objective may be realized. In profit planning management must know the selling price of the unit of product, the variable cost of make and sell it, and the difference between the selling and the unit variable cost. In short management must know what the contribution margin is for each unit of each product line that is handled several factors affected profits. They are selling price the number of unit sold (quantity), the unit variable costs. The total fixed costs and the combination in which the various product lines are sold. All these factors must be considered in profit planning.

The main objectives of the present research is to examine CVP analysis as a tool to measure effectiveness of profit planning of Haldibari Tea Processing Co. Pvt. Ltd. So, this study was undertaken to evaluate CVP analysis of the companies. As per nature of the study, the secondary data with descriptive and analytical approach for sales analysis, cost analysis, profitability analysis, contribution margin analysis, P/V ratio analysis and BEP analysis. And to support the study, primary data are collected informally from the employees of the companies.

From the analysis of CVP of Haldibari Tea Processing Co. Pvt. Ltd. Shows that low contribution margin low P/V ratio, high BEP and low

margin of satisfy. The Haldibari Tea processing Co. Pvt. Ltd's profit conditions are not satisfactory as profit margin ratios are fluctuates. Lack of detail information on scientific cost analysis, extra cost burden and less emphasis on the analysis as the company is in profit. Yet are the main reasons behind not practicing profit planning tools like CVP analysis.

5.2 Conclusion

Different types of profit planning tools which are used in the academic field are not found applied by Haldibari Tea Processing Co. Pvt. Ltd. It shows the gap between the theory and practice. CVP analysis is not applied by HTPCL as no segregation properly of cost into fixed and variable, which are hardcore of CVP analysis. HTPCL has no clear cost into fixed and variable. The classification of cost is not scientific and systematic. So HTPCL has not able to use CVP analysis and make the realistic and smart budget.

After the analyzing in details the present practice of CVP analysis of Haldibari Tea Processing Co. Pvt. Ltd, this study concludes the following

a) As sale exceed the BEP, a higher unit of CM or CM ratio will result in greater profit than small unit CM or CM ratio.
b) A change in either the selling price or the variable cost per unit alters CM ratio and BEP.
c) The lower BE sales, the less risky the business and safer the investment other thing being equal.
d) CVP analysis concept are limited to top level only. There is no practice to communicate of this concept from the lower level.
e) There is no systematic classification of cost as fixed and variable components.
f) HTPCL has low capacity utilization due to unavailable of raw materials at right quantity as right place and time.
g) HTPCL has not adopted complete and comprehensive planning system.
h) HTPCL is no research and development work for improving factory productivity, capacity utilization and cost control.
i) Raw material (green leaf of tea) are not available easily from domestic market.

j) Business promotion and advertising activities are not provided more priority for selling the products.
k) Cost of production/ HTCPL is very high for the cause lack of new technologies, excessive burden of fixed cost, high operating cost are the major for high production cost.
l) HTPCL has not job description or analysis for work division, it has not skilled and expert planners as well as budgeting experts and level of management decision making.
m) The Following strengths and weakness of the HTPCL has been identified by this research

I. Strengths
   a. Availability of sufficient production capacity
   b. Availability of cheap and local labours.
   c. Availability of raw materials from its tea plantation areas
   d. High quality of product that increase the demand of the products.
   e. Tea plants give return (green Leaves) even more than 100 years.

II. Weakness
   a. High production cost
   b. Excessive burden of fixed cost
   c. No sufficient advertisement about the product
   d. Shortage of technically qualified man power
   e. Absence of effective managerial plans and decision.
   f. Better CVP analysis provides vision for planning decision making and controlling process in profit planning.

5.3 Recommendations

After the detail analysis of CVP analysis in HTPCL, some suggestions of major findings to improve the performance of the HTPCL. Nepalese companies should fit with the global environment with best fit managerial strategies development. As the competitions are very high in the context of liberalization company should provide attention toward cost minimization rather than profit maximization. For this CVP analysis tools can be of great help. Thus, the following recommendations based on the finding of research study are made.

a. HTPCL should clearly define its basic objectives to achieve the basic objectives annual goals and targets are to be fixed. It should follow the practice of setting financial specific goals for future activities and should develop major programming to accomplish the formulated objective and goals.
b. Participative management profit planning manuals and effective budget education should be introduced communicated in the time of formulation of plans and policies for improve the HTPCL to the lower level of MGMT.
c. It should analysis SWOT (strengthen, weakness, opportunity and threats) analysis to improve the HTPCL capability.
d. The company should consider all the determinants including external variables while making sales production planning and forecasting
e. The company should develop the different functional, financial budgets detail separating the costs variable/fixed, and controllable/uncontrollable.
f. Incentive plan should be practiced to improved employee morale and productivity, on the basis of work performance and trained and qualified manpower should be developed of HTPCL as well as appointing marketing specialist.
g. HTPCL should adopt effective advertising system to communicate the significance of products. Because the advertisement as the figure of company.
h. Periodic performance reporting system should be followed to take corrective action and to improve the performance.
i. Personal should be granted the salary on the basis of their performance on the job.
j. Cost volume profit analysis system should be considered while fixing price and quantities of sales.
k. To reduce the operating cost it should utilize its idle capacity. This well eventually reduces per unit fixed cost. So replacement of old and inefficient machinery will be appropriate after detail evaluation capital addition.
l. New market areas should be identified for the coverage of increased activities of company.
m. Finally, systematic approach should be made toward comprehensive profit planning. This can considerably contribute to increase in profitability to HTPCL. Since separate costs into their fixed and variable elements is at the heart of

CVP analysis all decision makers sought to be fully aware and understand the cost structure of their operation, otherwise CVP analysis will provide meaningless information

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APPENDIX-I

Let, Budgeted sale and actual sales be denoted by X & Y respectively.
Computation of Mean,S.D.,C,V. and correlation of HTPCL in (000).

Fiscal year	X	Y	U=K-A	V=Y-B	U2	V2	UV
2060/061	20000	17790	-2500	-3955	6250000	15642025	9887500
2061/062	21000	17244	-15000	-4501	2250000	20255901	6751500
2062/063	22500	21745	0	0	0	0	0
2063/064	26000	24800	3500	3055	12250000	9333025	1692500
2064/065	30000	29000	7500	7255	56250000	52635025	54412500
N=5	EX = 119500	EY=110579	EU=7000	EV=1854	EU^2=133250000	EV^2=97869076	EUV=81744000

Computation of mean for HTPCL,

For budget sales

Mean $\left(\bar{x}\right) = \frac{EX}{N} = \frac{119500}{5} = 23900$

For actual sales, Mean $\left(\bar{Y}\right) = \frac{EY}{N} = \frac{110579}{5} = 22115.8$

Let 'A' = Assumed means pf X = 22500
Let 'B' = Assumed means of Y = 21754

Computation of standard derivation (¢) for HTPCL for budgeted sales,

$$¢x = \sqrt{\frac{EU^2}{N} - \left\{\frac{EU}{N}\right\}^2} = \sqrt{\frac{133250000}{5} - \left\{\frac{7000}{5}\right\}^2}$$

$$= \sqrt{26650000 - 1960000}$$

= 4968.9033

For Actual Sales,

$$¢Y = \sqrt{\frac{EV^2}{N} - \left(\frac{EV}{N}\right)^2}$$

$$= \sqrt{\frac{97869076}{5} - \left(\frac{1854}{5}\right)^2}$$

$$= \sqrt{195738152 - 137492.64}$$

= 13985.73

Computation of co-efficient of variation (CV) for HTPCL

For budgeted sales,

$$\text{CV} = \frac{¢y}{X} \times 100 = \frac{4968.9033}{23900} \times 100 = 20.79\%$$

For actual Sales,

$$\text{C.V.Y.} = \frac{¢y}{\bar{Y}} \times 100 = \frac{13985.73}{22115.8} \times 100 = 63.24\%$$

Computation of correlation of coefficient (r) for HTPCL

$$r = \frac{NEUU - EUEV}{\sqrt{NEU^2 - (EV)^2}\sqrt{NEV^2 - (EV)^2}}$$

$$= \frac{5 \times 81744000 - 7000 \times 1854}{\sqrt{5 \times 133250000 - (7000)^2}\sqrt{5 \times 97869076 - (1854)^2}}$$

$$= \frac{395742000}{24844.51 \times 22043.32} = 0.723$$

Appendix-II

Cash flow statement of Haldibari Tea Processing Co. Pvt. Ltd.

Particulars	2060/061	2061/062	2062/063	2063/064	2064/065
Cash from operating activities:					
Operating profit	590000	244000	645000	182000	5700000
Add: Non operating exe:					
Depn for the year	50000	40000	55000	52000	45000
Less: Non operating income	-	-	-	-	-
FFO	640000	288000	700000	1872000	5745000
Add ;decrease in arrent assets (except cash):					
A/C receivable	130000	114000	250000	400000	750000
increase in current liability	80000	120000	140000	265000	1400000
A/C payable					
Less increase in current asset (except cash): inventory	(100000)	(250000)	(400000)	(800000)	(1000000)
Decrease in liability	-	-	-	-	-
Less: payment of tax	(108000)	(40000)	(120000)	(160000)	(10,00,000)
Cash from operating activates (A)	642000	232000	570000	1517000	5995000
(B) Cash from investing activities					
Sales of fixed assets:	-	250000	-	-	-
purchase of fixed assets:	(400000)	-	(740000)	(135000)	(228000)
Cash from investing activities (B)	(400000)	250000	(740000)	(135000)	(228000)
(C) Cash from financing activities					
Loan taken	-	-	270000	-	-
Dividend paid:	(42000)	(120000)	-	(50000)	(300000)
Cash from financing activates (C)	(42000)	(120000)	270000	(50000)	(300000)
Change in cash and bank balance (A+B+C)	200000	362000	100000	1332000	5467000
Add : Opening cash & bank balance	20000	220000	582000	682000	2014000
Closing cash & bank balance	220000	582000	682000	2014000	7481000

Appendix –III

Computation variances of HTPCL

(in '000)

Fiscal Year	Sales	Profit	Row Total (T_r)
2060/061	17790	590	18380
2061/062	17244	244	17488
2062/063	21745	645	22390
2063/064	24800	1820	26620
2064/065	29000	5700	34700
Column Total (T_c)	110579	8999	119578

Test of Statistic
Under null hypothesis (H_0)

$$F_c = \frac{MSC}{MSE}$$

and

$$F_r = \frac{MSR}{MSC}$$

Where,

MSC = Mean sum of square of variation of different sales and profit
MSR = Mean sum of square of variation between different year
MSE = Mean sum of square of variation due to error

Now,

T = Grand total = T_c = T_r
N = 5x2 = 10

Correction factor (C.F.) = T^2/N
= $(119578)^2/10$ = 1429889808
Total sum of square (SST) = RSS - CF
= 2506098600 - 1429889808
= 1076208792

Total Row sum of square (RSS) $= \sum sales^2 + \sum profit^2$

$= 2542724661 + 36626061$

$= 2579350722$

Some of square due to column factor (SSC)

$$= \frac{\sum T_c^{\,2}}{N_r} - C.F$$

$$\text{SSC} = \frac{(110579)^2}{5} + \frac{(8999)^2}{5} - 1429889808$$

$= 2445543048 + 16196400.2 - 1429889808$

$= 1031849640$

Some of square due to row factor (SSR)

$$= \frac{\sum T_r^{\,2}}{N_c} - C.F$$

$$\text{SSR} = \frac{18380^2}{2} + \frac{17488^2}{2} + \frac{22390^2}{2} + \frac{26620^2}{2} + \frac{34700^2}{2} - 1429889808$$

$= 98950714$

Hence,

some of square due to error (SSE)

$=$ SST-SSC-SSR

$= 1076208792 - 1031849640 - 98950714$

$= 54591562$

Two way ANOVA Table of HTPCL

Sources Variation	Sum of square (SS)	d.f.	Mean sum of square (MSS)	F- Ratio
Due to column factor	SSC=1031849640	c-1=2-1=1	MSC=1031849640	F_C=756.05
Due to year	SSR=98950714	r-1=5-1=4	MSR=24737678.5	F_r=18.13
Due to error	SSE=54591562	(c-1) (r-1)=1x4=4	MSE=1364789	

Where,

$$\text{MSC} = \frac{SSC}{c-1}$$

$$= \frac{1031849640}{2-1}$$

$$= 1031849640$$

$$\text{MSR} = \frac{SSR}{r-1}$$

$$= \frac{98950714}{5-1}$$

$$= 24737678.5$$

$$\text{MSC} = \frac{SSE}{(c-1)(r-1)} = \frac{5459156}{(1)\times(4)}$$

$$= 1364789$$

$$F_c = \frac{1031849640}{1364789}$$

$$= 756.05$$

$$F_r = \frac{24737678.5}{1364789}$$

$$= 18.13$$

Appendix –IV

Ratio Analysis

Net profit margin $= \frac{Netprofit}{Netsales} \times 100$

Fiscal year 2060/061 $= \frac{590000}{17790000} \times 100$

$= 3.32\%$

Fiscal year 2061/062 $= \frac{244000}{17244000} \times 100$

$= 1.14\%$

Fiscal year 2062/063 $= \frac{645000}{21745000} \times 100$

$= 2.97\%$

Fiscal year 2063/064 $= \frac{1820000}{26000000} \times 100$

$= 7\%$

Fiscal year 2064/065 $= \frac{5700000}{30000000} \times 100$

$= 19\%$

Appendix –V

Supplementary questions

Name of respondent:

Position:

Department:

Others:

Would you please answer the following questions?

1. When and where has your organistion establishes??
   a. …… B.S. b. ……..Zone
   c……District d. ……..VDC/ Municipality
2. Where does the registered and contract office located ?
   a. ……. Zone b. ……. District
   c. …… VDC/ Municipality
3. What are the main objectives to establish your company ?
   a. ……. b……. c……. d……..
4. How many types of products your company? What are they?
   a……. b…… c……. d…….
5. Who are the suppliers of raw materials?
   a. Indigenous b. Foreign c. Others
6. How the finished products are produces ? (i.e. production process)
   …….
7. How many employees are engaged in your company?
   ……
8. Which are the major markets of the company products?

a……. b…… c…… d…….

9. What are the channels of distribution adopted?

……

10. What are the organizational structures of the companies?

……

11. What are the processes of managerial decision making?

a. Top to bottom b. Bottom to top c. Management by objectives d. Participating all staff

12. Is the company practicing CVP analysis tool to forecast or evaluate cost volume and profit?

a. yes b. No c. Occasionally

13. What are the major difficulties faced to conduct CVP analysis?

a. …….. b. ……. c. ……. d.…….

14. What are the problems faced by your company?

……

15. Who is responsible for preparing the CVP analysis>

…….

16. How company follow the marketing in formation system?

……..

17. What is the wages payment system?

…….

18. What is the industry's performance evaluation system?

a. Ratio analysis b. CVP analysis

c. Flexible budgets d. Standard costing e. others