

CHAPTER - I

INTRODUCTION

1.1 Background of the Study

Nepal is a sovereign, independent, least developed and landlocked country. It is situated in South Asia. The total area of the Nepal is 1,47,181 sq. km, which is 0.03% of the total world and 0.3% of Asia. Nepal is located between 26° 22' to 30° 27' north. The average length of Nepal is 885 km, east to West and average breadth is about 193 km, North to South. It lies between two powerful countries i.e. China in the North and India in the East West and South. Nepal is 22 times small than India and 65 times than China. Nepal is divided into five regions i.e. Eastern region, Central region, Western region, Mid Western region and Far Western Region. But, geographically, it is divided into a) The Himalayan Region b) The Hilly region and c) The Terai region as three on the basis of topographical Characteristics.

“The total population of the country is 23,151,423. Out of this total population, Females cover 11,587,502 and males cover 11,563,921. The urban population is 14.20% and rural population is 85.80%. The Himalayan region covers 6.3%, Hilly region covers 44.3% and Terai region covers 48.40% of the total population” (CBS, 2001:34).

Nepal is an agriculture country because more than 72 percent of Nepalese household population is primarily engaged in agriculture sector and they are depended on agriculture to fulfill their basic needs. Agriculture sector contributes about 32.23% in Gross Domestic Product (Economic Survey-2007/08). People have been producing Agriculture goods in bulk quantity but the market and selling price is beyond the farmers reach and expectation due to lack of proper agriculture marketing management.

Nepal is a developing country. The economic growth rate of Nepal was estimated to be 0.8% in the fiscal year 2001/2002 which was later revised to -0.65. In the fiscal year (2002/03) the economic growth rate increased to 3.1%. In the fiscal year (2003/04), the economic growth increased to 3.5% (Economic Survey-2007/08). The

economic growth rate is increasing but it is not satisfactory. Therefore, necessary steps should be taken for desired economic growth.

The rapid development of Nepal needs development of the industrial sector. There should be adequate industrial infrastructure as well as appropriate technology for the development of industrial sector. Industries have not been developing to the extent of expectation in Nepal. The reason for it is the lack of dynamic entrepreneurs. The industrial development process in Nepal started mainly after establishment of Biratnagar Jute mill and Udhayog established in 1936. People hesitate to invest due to the lack of appropriate knowledge. Unstable political environment is another reason for it. State should create new investment opportunities with maximum facilities. Some important changes took place in the field of industries after reinstatement of democracy in 2046 B.S. Some industries were established from the private sector thereafter. The role which manufacturing industry has been playing in the national economy is marginal but gradually; it is in increasing trend and market has also expanded due to the increment of consumer needs and desires. Several enterprises were established in the public sector during the 60's and 70's mainly under the financial and technical assistance of bilateral donors.

Public enterprises are a kind of state agencies established in order to distribute state resources to the people. Their basic goal is to create social justice. Under the laissez faire economy, no existence of such PEs were accepted. But this kind of notion could not remain static. It was the post second world war period which had contributed to the inception of PEs. Both the capitalist and socialist countries have established the PEs with similar expectations. According to Friedman, 'Public enterprise is an institution operating a service of an economic or social character, on behalf of the government. But as an independent legal entity, largely autonomous, though responsible to the public through the government'.

The World Bank Report defines state owned Enterprises (PEs) as government owned or Government controlled economic entities that generate the bulk of their revenues from selling goods and services. The term 'Public Service Corporation' referred to indicate PEs in the USA (World Bank, 1995:4) The PEs were established to enhance production, to develop the society and for the welfare of people. But they are not

succeeded to meet the goal. Basically, they suffered from poor management, over staffing, political pressure, pressure of donor agency, corruption, huge losses, inadequate planning, lack of contestability, debts. The features of the problems are mostly similar in the nations where PEs was existed. From the second to the seventh plan, Nepal accorded significant priority to Public Sector Undertakings as a vehicle of development. These were envisaged as instruments for production and for carrying out socioeconomic policies in Nepal. Public Sector Undertaking contributed noticeably in:

- Creating an industrial base in the country;
- Enhancing domestic production;
- Substituting imports;
- Generating employment opportunities: and
- Contributing to the national treasury

“However the performances of PSU’s did not prove to be satisfactory. Many suffered from various types of problems and handicaps resulting in economic and financial losses as the government controlled output pricing and internal management decisions”(Bajaracharaya, 1995 :22). “Public sector has to be responsible on Minister, Parliament, Secretary, Bureau of Public Enterprises, Supreme Court, Auditor, Controller etc. All exercised a degree of control and jurisdiction and public sector should be accountable towards them” (Jain, 1993:126). In the context of Nepal, public enterprises in Nepal deserve a crucial role for the socioeconomic development of our country. It enjoys a strategic and crucial position in our mixed economy. They have been established in many sectors for overall development of the country with different goals and objectives. Accordingly, BNL has been established under public utility and social sector. There are so many standard accounting tools and techniques used to measure the performance of organization. Among them cost-volume-profit analysis is also one. CVP analysis is a part of profit planning and control. The analysis of relationship between cost, volume and profit is known as cost-volume-profit analysis. It helps to determine the minimum sales volume to avoid losses and the sales volume at which the profit goal of the firm will be achieved. It provides the answers of the following questions such as:

- What minimum level of the sales need to be achieved to avoid losses?

- What should be the sales level to earn a target profit?
- What will be the effect of changes in price, cost and volume on profit?
- Which product is the most profitable and which one is the least profitable?
- How will profit be affected when sales mix is changed

CVP analysis measures BEP of the organization, which is level of no profit no loss sales. So every organization has to use CVP analysis. It would be more beneficial to Nepalese public enterprises suffering from loss but not applying CVP analysis.

1.2 Brief Overview of BNL

1.2.1 An Overview of Company

BNL Balaju, Kathmandu is one of the manufacturing and processing companies. It is established in 1979 A.D. under the Company Act 1964 A.D. It is initially started as a private enterprise in 1985 issuing shares to public. It was established with the objective of producing and bottling soft drinks under the brand name of Coca Cola Sabco Asia Ltd. The company also makes and sales soft drinks under the registered trademarks of Coca Cola managed by Dubai based Coca Cola Sabco Asia Ltd. The company is located at Balaju, Kathmandu; in an area covering 10,648 square meters of land and the buildings of the company covers 5,828 squares meters. The company has been launching various types of promotional activities with financial and technical support from the Coca cola Saco Asia Ltd. Dubai (BNL Annual Report 2003/04:21).

1.2.2 Share Capital of BNL

The BNL was started with an Authorized Capital of Rs. 30,250,000. In the initial period its paid up capital was Rs. 10, 500,000 of Rs. 100 per share. Now, the company has authorized capital of Rs. 4,30,000,000, issued capital of Rs. 3,70,000,000 and paid up capital of Rs. 1,94,889,000 (BNL Audit Report: 2007/08:11).

1.2.3 Subsidiary Company of BNL

Bottlers Nepal (Terai) Ltd. is operated as a subsidiary company of BNL, Balaju. BNL (Terai) Ltd. was established in 1986 under the Company Act, 1964 with the object of producing and bottling soft drinks under the brand name of Coke, Fanta and Sprite.

The company is situated in Chitwan district. It is managed by Coca-Cola Sabco Asia Ltd., Dubai. The installed capacity of plant is 350 bottling per minute. 92% (nearly) of equity shares of BNTL belongs to holding company BNL Balaju. The co. has increased investment on the subsidiary co. by acquiring additional shares from open market. The co.'s equity interest has increased to 91.78% after the new acquisition of shares in BNTL (BNL Audit Report 2007/08:12).

1.2.4 Product Line

BNL produces Coke, Fanta and Sprite in returnable glass bottle as well as non-returnable bottles. Upgrading the product lines, the company has already upgraded its 430 bottles per minute line to produce 175ml. package in returnable glass bottle. Considering the market demand, the co. has also invested in pet line to produce 1.5 liter packages in non returnable bottles. The lines have commenced production and they have start sales of locally manufactured pet since the previous year. So, the company has been able to increase the production efficiency of the plant giving better outputs as compared to the previous year. The company is able to fulfill the market demand with out any production constraints after the installation of new plant (BNL Audit Report 2005/06:13).

1.2.5 Profit Position

BNL is one of the tops ten companies listed on the NEPSE in terms of market capitalization. The company produces soft drink named Coca-Cola, Fanta Orange, Fanta Limon and Sprite. Despite several market competition and disturbances in the market due to the external actors, the company has been able to increase sales volume by 3.68% compared to previous year. However, the profit after tax of the company has increased by 20.06% (BNL Audit Report 2007/08:14)

1.2.6 Distribution Policy

The company does not have direct distribution channel to the consumer. The strategic long term plan is used in the company. As mentioned above, the company uses two types of distribution channel i.e. through the dealer and retailer to consumer. Since the company.

Does not sell the products by itself but it uses some kinds of commission system. But, it does not offer any kind of discounts and incentives. The company provides 8% commission on sales price is given to distributor whereas nearly 13.30% commission on sale is provided for retailer.

In order to stay ahead of the competition, the company had launched several programs with financial and technical support from the Coca-Cola Company. The objectives of those programs are to increase the per capital consumption of its beverages in the market. This company will continue to promote all its products as before.

1.3 Statement of the Problem

The prime concern of every nation of the world is economic development. The developing countries are facing several problems in the process of economic Development. Nepal is not exception to that situation. The majority of people are unable to get even basic facilities. The government alone can't develop the country economy.

So the public & private organizations are the pillars of the economic development of the country. Among other public organization BNL is one of them. BNL is one of the top ten companies listed in the NEPSE in terms of market capitalization. The sales of the company was 3.68%, (2.75%), 1.15%, and 20.06% in 04/05, 05/06, 06/07 & 07/08 respectively. which was in increased trend but the profit of the company was 47.24%, (8.12%), (28.14%) & 33.87% in 04/05, 05/06, 06/07 and 07/08 respectively which was not in increasing trend. Due to the regular increase in sale, the company was not able to increase the profit according to the sales. This is the main point which excited me to find out the causes of fluctuation in profit and write my thesis on this topic. The study work was carried on to get the answers of the following questions:

- Is BNL practicing CVP analysis?
- What effect the change in Price, Cost and Volume would make on Profit of BNL?
- In which major areas of business operation, CVP analysis could be effective for better competitiveness in the market and for better results.
- What are the major difficulties BNL faced in using CVP analysis?

1.4 Objectives of the Study

The main objective of this study is to examine Cost- Volume- Profit analysis as a tool to measure effectiveness of profit planning and control of BNL. To achieve this Objective, the following objectives are set up:

- To study the relationship of Cost, Volume and Profit as a managerial tool to plan profit.
- To analyze the Cost, Volume and Profit of the company and its impact in planning profit.
- To evaluate the sensitivity of various factors on profitability.
- To provide suggestions and recommendations for the better operation of BNL.

1.5 Significance of the Study

This study will be useful to various parties in various ways as stated below:

- It examines the application of CVP analysis in the company.
- It provides necessary theoretical as well as contemporary situational concepts to make appropriate financial decision for BNL.
- It also helps, BNL to take corrective measures in the related department of the Company.
- It is useful for potential managers, accountant, policy makers, and planners.
- It also provides literature to the researcher, who wants to perform further research in this field.

1.6 Limitations of the Study

The effort of this research is to analyze CVP relationship for managerial decisions. The study is confined to CVP analysis as a tool of planning, decision making and controlling.

Therefore, this study has the following limitations:

- The study covers the CVP analysis of only five fiscal years i.e. (FY 2004/05 to 2008/09)
- The study is based on primary and secondary data (inclusive of the informal discussion and financial statements collected from the company)
- This report is based on the response and the data provided by the management of BNL.

1.7 Organization of the Study

The dissertations are found to be difficult to understand and create confusion if it has not partition into various heads. For our convenience, the entire thesis has been segregated into five parts. They are mentioned as below:

Chapter I: Introduction

This chapter contains the brief introduction of the subject matter i.e. Background of the study, Brief overview of BNL, Statement of the problem, Objectives of the study, significance of the study and limitation of the study.

Chapter II: Review of literature

This chapter deals with the review of literature of related study. It contain Conceptual Review and reviews of major books, Journals, research works & thesis related with this research.

Chapter III: Research Methodology

This chapter contains the research methodology used in this study. It includes Research Design, Nature and sources of Data, Period covered, Data Processing Procedure, Financial and statistical tools used for the study.

Chapter IV: Presentation and Analysis of Data

The Fourth Chapter deals with Presentation analysis & Interpretation of data. Variouss data are gathered from applying the different methods. The collected data are computed as required by the research objectives. In this chapter the different types of data are interpreted and analyzed with the help of various analytical tools and techniques followed by major findings of the study.

Chapter V: Summary, Conclusions and Recommendations

This Final chapter covers Summary, Conclusion and Recommendations of this study.

CHAPTER - II

REVIEW OF LITERATURE

2.1 Conceptual Framework

An organization is established to achieve some goals. It has its own objectives. To achieve the goals of organization, its objectives should be clearly mentioned. “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 an enterprise requires continuing performances of certain managerial responsibilities collectively are called the function of management. Planning, organizing, staffing, and human resource management, Leading and interpersonal influence and controlling are major functions of management. Planning is process of developing enterprises objectives and selecting future course of action to accomplish them. It reduces uncertainty and provides effective direction to the employee by determining the course of action in advance. Controlling means evaluating the firm’s activities against the plan and deciding what should be done if the plan is not being followed” (Lynch and Williamson, 1999:18). In business organization there may involve various parties like, competitors, employees and trade union, government community representative, investment analyst suppliers, lender/bankers, managers, owners, and customers etc.

These all parties require various types of information for decision making. Actual position of the enterprise’s can be found from financial statements. It shows the clear picture of enterprises profit and loss position, financial position etc. These are not sufficient to measure the firm’s performance and plan. There are various tools and technique that can be effectively applied to measure and analyze the financial performance. Cost Volume Profit Analysis (CVPA) in one the major and popular tools to analyze the relevant data for management decision. It is one of the important portion of profit planning and control and budgeting.

2.1.1 Profit:

Every organization is established to make profit. Success of any organization is primarily measured by profit because it is acid test of individual firm's operation. Those organizations are thought to be a successful, which can generate profit. The existence of all the resources employed in the enterprise is possible only when there is profit. Profit doesn't just happen but it is managed. If a firm cannot make profit, it cannot generate capital for future. Profit is the excess or residual income left after cost of production or the payment of the contractual reward to other for production. But the term profit is controversial and interpreted as thus:

- An economist says that profit is the reward for entrepreneurship for risk taking.
- A labor leader might say that it is a measure of how efficiently labor produced
- And that it provides a base for negotiating a wage increase.
- An investor will view it as a gauge of the return on his money
- Through the accountants measuring stick, profit is a tangible expression of the goals it has set for the firm.
- A yardstick for judging the competence and efficiency of the management.
(Maheshwari, 2000:171).
- A mean of maintaining the health, growth and continuity of the company
(Lynch and Williamson, 1999: 100).

For the dynamic manufacturing industries, the most telling concept of profits, they are the gains in national income that are generated by the managerial drive for distinction through creative innovation.

“Thus, economic theories of profit may be put in three broad groups. The first look open profit is the reward for bearing risk and uncertainty, the second view of profit as the consequences of friction and imperfection in the competitive adjustment of economy to dynamic changes; the third see profit as the reward for successful innovation “(Dean, 1971:3).

2.1.2 Profit Planning:

Profit planning is the central theme of management planning. Without proper planning, profit will not just happen. So every activity needs to be systematically planned for profit generation. Profit plan covers all the major aspects of business activities toward the achievement of business objective, which is profit. Various functional budgets are the basic tools for proper planning of profit and control over them. A profit plan is a financial and narrative expression of the expected result from planning decision. It is called profit plan because it explicitly set the goals in terms of time for each major segment of entity. Glenn A. Welsch has used the descriptive term comprehensive profit planning and control. Other terms used in the same context are business budgeting, managerial budgeting and budgeting. The profit planning model includes the following activities:

- The development and application of broad and long range objectives of the enterprise.
- The specification of the tactical short range project plan with assigned responsibility.
- The development of strategic long-range profit plan in broad terms.
- The specification of enterprises goals.
- The development of follow up process.
- Establishment of a system of periodic performance reports detailed by assigned responsibility.

Profit planning is one of the most important management tool used to plan business operation budget or profit plans are financial plans prepared as a guide to and control of future operation (Gupta, 1997: 521).

Profit planning is one of the most important approaches that have been developing to facilitate effective performance of the management process. The most relevant aspect of profit planning concept:

- Profit planning requires major planning decisions by management.
- Profit planning recognizes many of the critical behavioral implications throughout the organization (Glenn A. Welch, 1992:31).

Profit planning is a detail plan of action during a period of one year or less. Profit planning helps a firm's financial manager to regulate flow of funds which is his primary concern (Pandey, 1987:223).

Profit plan is a short-term financial plan. It is an action plan to guide managers in achieving the objective of a firm. A profit plan is a comprehensive and coordinated plan of resource of an enterprise for some specific period in future. So, profit planning is a part of an overall planning process and is an area in which, the financial function plays a major role.

Profit plan is a detail expression of the expected result from the planning decision. Profit planning is an important approach developed to facilitate for effective performance of management process like planning, organizing, staffing and controlling. So, it is carried out to fulfill the responsibility of forward thinking and future operation of the organization.

2.1.3 Concept of Cost-Volume-Profit Analysis:

Cost volume profit analysis is an important tool of profit planning because it provides the information about the behavior of cost relation in to volume, volume of production or sales where the business will breakeven, sensitivity of profit due to variation of output, amount of profit for projected sales for a target profit level etc. CVP analysis may therefore be defined as a managerial tool showing the relationship between various ingredients of profit planning (cost, selling price and volume of activity).

It helps managers understand interrelationship between cost volume of profit in an organization by focusing on interaction between the following five elements:

- Price of product
- Volume or level of activity
- Per unit variable costs
- Total fixed cost
- Mix product sold

“CVP analysis can be extended to cover the effects on 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 effects on revenue and costs of all kinds of short run financial changes. It is related to profit, sales volume and cost” (Munakarmi, 2003:401).

“Cost volume profit analysis examines the behavior of total revenues total cost and operation income as changes occur in the output level, the selling price, the variables cost per unit and or fixed cost of a product” (Homgren Datar and Foster,2003:15). “Cost volume profit analysis is a systematic method of examining the relationship between changes in 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 conditions that a firm will face like most models which are abstractions from reality, CVP analysis is subject to number of underlying assumptions and limitations. Nevertheless it is powerful tool for decision making in certain situations” (Drury, 2000:112).

“Most of the business fails after a few years sometimes months of starting because they tend to do anything for volume without thinking how it’s going to affect the bottom line. CVP Analysis is a management accounting tool to show the relationship between the elements of profit planning. Profit planning is a function of the selling price of product demand, variable costs, fixed cost taxes etc. The whole picture of profit planning is associated with cost volume profit interrelationships” (Bajracharya, Ojha, Goet and Sharma, 2004:225).

The key motive of business enterprises is to make and maximize profit. Profit does not happen by chance. It is to be managed. Cost volume profit analysis is supplementary tool of planning for profit. CVP is immensely helpful for developing alternative strategies in sales planning and cost estimation. Cost volume profit analysis is an accounting technique showing the relationship between variables. It is equally applicable for non profit making organization to allocate scare economic resources most effectively among the competing alternative. Allocation of scare resource 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 which the firm's revenues and total cost will be exactly equal or the net income will be zero. It is no profit no loss sales. This point is cornerstone of profit planning, Cost volume profit analysis (CVPA) is popular analysis tool of management. It is very useful in profit planning and control, management decision cost control, budgeting etc.

2.1.4 Importance of CVP Analysis

"Planning controlling and decision making are the essential management functions CVP Analysis helps the manager to plan for profit to control cost and make decision". It helps

(Munakarmi, 2003:401-402):

- To determine the breakeven point in terms of unit or sales value.
- To ascertain the margin of safety.
- To estimate profits or losses at various level of output.
- To assess the likely effect of management decisions such as an increase or decrease in selling price, adoption of new method of production, to reduce direct labor cost and increase output.
- To help management to find the most profitable combination of costs and volume.
- To determine the optimum selling price.
- To determine the sales volume at which the profit goal of the firm will be achieved.
- To determine the maximum sales volume to avoid losses.
- To determine most profitable and least profitable product.
- To determine new breakeven point for changes on fixed or variable cost.

Generally CVP analysis provides information regarding "(Munakarmi, 2003:402).

- Minimum level of sales to avoid losses.
- Sales level to earn target profit.
- Effects of changes in prices, costs and volume on profits.
- New breakeven point for changes.

- Effects of changes in sales mix in profit.
- Impact of expansion plan on CVP relationship.
- Products those are most profitable and least profitable.
- Whether to continue or discontinue the sales of product or operation of plan.
- Effect on operating profit with the increase in fixed cost.
- Whether to close or not the firm for a short term.

2.1.5 Application of Cost Volume Profit Analysis

“Cost volume profit analysis is applied specially for break even analysis and profit planning. Profit planning is fundamental aspect of overall management function. Profit planning can be done only when the management has the information about the fixed and variable cost of product and selling price of the product. The most important factors that affect the planning for profit are costs fixed and variable costs and volume of sales. CVP analysis can be applied in the following respects”(Dangol,2004:120).

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

2.1.6 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 toward profit for the period. Contribution margin is used to first cover the fixed expenses and then whatever remains, after the fixed expenses are covered, goes toward profit. If the contribution margin is not sufficient to cover the fixed expenses then a loss occurs for the period. Basically contribution margin

indicates why operating income changes as the volume of sales changes. 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

2.1.7 Contribution Margin Ratio (C/M Ratio)

Contribution Margin Ratio (C/M Ratio) is also known as profit volume ratio (P/V Ratio). C/M Ratio is equal to contribution margin divided by revenue. The analysis of relationship between profit & volume is known as profit volume analysis, profit/volume ratio (P/V ratio) or C/M ratio establishes a relationship between the contribution & sales value. Percentage of contribution margin to total sales is referred to as the C/M ratio. C/M ratio can be calculated by using either per unit or total revenue minus total variable cost.

$$\text{Sales C/M Ratio} = \frac{\text{Sales Revenue} - \text{Variable cost}}{\text{Sales Revenue}}$$

$$\text{C/V ratio or C/M ratio} = \frac{SPPU - VCPU}{SPPU}$$

It is also the remaining percent of the variable cost ratio: P/V or C/M ratio = 1 – Variable cost ratio

$$\text{P/V or C/M ratio} = 1 - \frac{\text{Variable Cost}}{\text{Sales Revenue}}$$

Since fixed costs do not change within the relevant range in the short run, so net profit change by the same amount as the contribution margin changes.

$$\text{P/V Ratio} = \frac{\text{Change in Contribution Margin}}{\text{Change in Sales}}$$

$$\text{P/V Ratio} = \frac{\Delta \text{Profit}}{\Delta \text{Sales Revenue}}$$

This ratio is helpful for determination of the desired level of output or profit and for the calculation of variable costs for any value of sales. The variable cost can be expressed by using the following equation:

$$VC = \text{Sales} \times (1 - \text{P/V ratio}).$$

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

The variables usually used in cost volume profit analysis are:

Sales Value

The sale value actually includes the quantity of total sales multiplied by selling price per unit or sales rupees. Total sales revenue refers to income of the company.

Variable Cost

Variable cost is that cost which is directly affected by change in the activity level. Direct material, direct labor cost and variable overhead etc, are variable cost. Per unit variable cost always remains constant. If the output increases variable cost also increases and if it decreases variable cost also decreases, Changes of variable cost effects P/V ratio, BEP and Net income.

Fixed Cost

Fixed cost remains constant in total amount even if the level of output changes Depreciation, rent, interests etc. are fixed costs. It is also called capacity cost. Per unit fixed cost changes but total fixed cost remains constant.

Mixed Cost

Mixed cost contains both variable and fixed cost. Repair and maintenance, electricity charge, telephone, supervision etc are the examples of mixed cost. These costs can't be categorized as purely fixed or variable. Mixed cost is known as semi variable cost. Semi variable costs should be separated to find total variable and fixed cost.

Jumping Cost

Some costs remain fixed over a wide range of activity but jump to a different amount for activity level outside that range. Such costs are called jumping costs or step fixed cost or moving fixed cost or ladder fixed costs.

2.1.8 Break Even Analysis

“Break even analysis, more precisely the break even point tells the quantity sales sold at which total sales revenues equal total costs. Break even point is that quantity of sales sold at which the operation income is zero. Cost volume profit analysis is sometimes referred to simply as a break even analysis. This may be misleading because break even analysis is just one aspect of the entire CVP concept. It is always taken as an important aspect 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 from break even analysis. 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 certain circumstance” (Bajracharya, Ojha, Goet and Sharma, 2004:23).

2.1.9 Approaches to Break-Even Analysis

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

Contribution Margin Approach

The contribution margin approach to CVP analysis allows the preparation of proforma 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 that all fixed costs are period costs that should be deducted from the contribution margin of the same period. Only the variable costs vary proportionately with the level of output or sales.

Formula Approach

“The most popular practiced approach to the break even point and cost volume profit analysis is the formula also known as the equation. The formula approach uses an

algebraic equation to calculate the breakeven point. The answer provided by solving the equation may, sometimes, need to be rounded to whole numbers of units or lot sizes. The rounding of breakeven point units is always do upward because this will provide a small profit rather than the small loss that would be shown from rounding downward.” (Rainbom, Barfield and Kinney, 1993:124) The calculation in the equation approach is similar to that of the contribution margin statement approach. The equation is merely a resettlement of expenses and contribution margin. To development the cost volume profit equation.

Table 2.1
Formula Approach

Contribution Margin Approach	Symbol or Equation
Sales Volume (units)	Q
Selling Price per unit	SPPU
Sales Revenue (Rs.)	$Q \times SPPU$
Less: Variable Cost	$Q \times VCPU$
Contribution Margin	$Q \times SPPU - Q \times VCPU$
Less: Fixed Cost	FC
Net Profit	$Q \times SPPU - Q \times VCPU - FC$

Source: Rainbom, Barfield and Kinney, 1993:126

Equation

Sales- Variable expenses-fixed expenses = Net profit

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

Or, $Q \times SPPU = Q \times VCPU + FC + \text{Profit}$

Therefore,

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

Where, $SPPU - VCPU = CMPU$

$$\text{Break even (BEP Units)} = \frac{FC}{CMPU}$$

$$\text{BEP (Rs)} = \frac{FC}{CM \text{ Ratio}}$$

There is no profit no loss at BEP.

$$\text{Required Sales to earn DP in Units} = \frac{FC + DP}{CMPU}$$

$$\text{Required Sales to earn DP in Rs.} = \frac{FC + DP}{CM \text{ Ratio}}$$

$$\text{Requirement sales for desired profit after tax (In units)} = \frac{FC + DPBT}{CMPU}$$

$$\text{Where, DPBT (Desire Profit before Tax)} = \frac{DPAT}{1 - T}$$

$$\text{Requirement sales for desired profit after tax (In Rs.)} = \frac{FC + DPBT}{CM \text{ Ratio}}$$

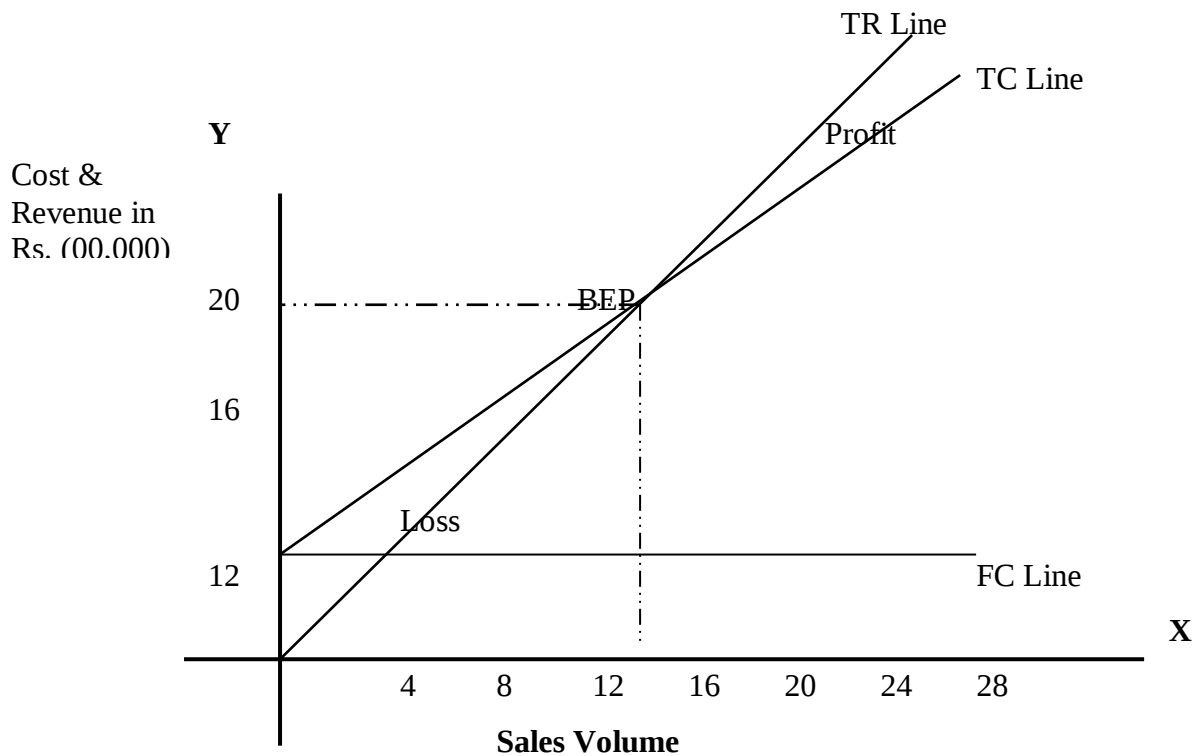
The contribution margin & equation approaches are two equivalent techniques for finding the BEP. Both methods provide the same conclusion, so, personal preference dictates which approach should be used. Yet it is especially useful in situation in which unit price

& unit variable costs are not clearly identifiable.

The Graphic Approach

The BEP can also be computed graphically. A break-even chart portrays a pictorial view of the relationship between costs, volume, and profit. The BEP indicated in the chart will be one at which the total cost line and total sales line intersect.

Figure: 2.1
Break-Even Chart



Source: Rainbom, Barfield and Kinney, 1993 sales in Rs. (00,000)

The following steps are involved in constructing the BE Chart (For cost and revenue approach)” (Matz and Usry, 1976:745-746).

Sales Line

Sales volume is plotted on horizontal axis; Sales volume may be expressed in terms of rupees, units or as a percentage of capacity. Equal distances are made along the horizontal line to show sales volume at different activity levels.

Cost and Revenue Lines

The vertical axis is used to represent revenue and fixed and variable costs. A similar vertical line may be drawn on the right hand side of the chart to complete the squire.

Fixed Cost Line

The total sales and total line can be drawn by making budget level for of total cost Rs.12, 00,000 on the right hand vertical line. To draw total sales, the zero sales point

should be connected with the sales budget point (Rs.1, 200, 000) on the right hand vertical line. Similarly total cost budget point (Rs. 12, 00,000) on the right –hand vertical line.

Sales and Cost Line

The total sales and total cost line can be drawn by making budget level of total sales, Rs.12, 00,000 and total cost Rs.12, 00,000 on the right hand vertical line. To draw total sales, the zero sales point should be connected with the sales budget point (Rs.12,00,000) on the right hand vertical line, similarly total cost line can be drawn by connecting fixed costs point(Rs.400,000) with the total cost budget point (Rs.1200,000) on the right-hand vertical line.

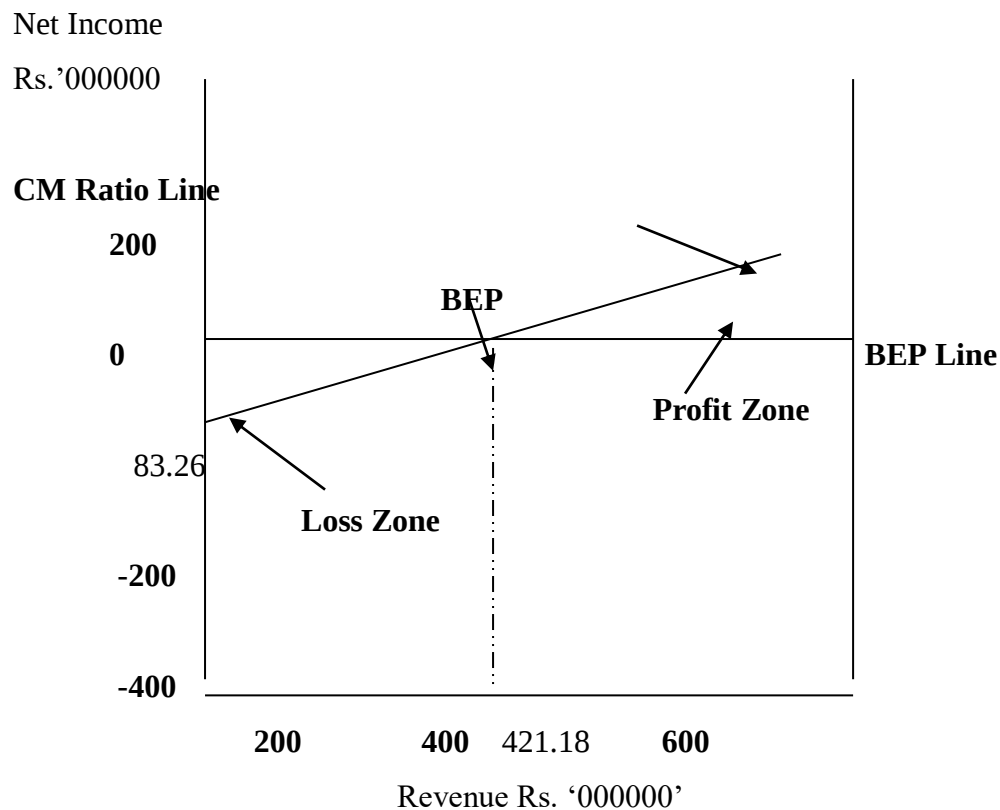
Angle of 45

If the vertical and horizontal lines are spaced equally with the same distances, sales line will be connected with the opposite corners of the graph at angle of 45 degree.

The point of intersection between sales and total cost lines is the BEP. The angle formed by the intersection of sales and total costs lines is known as the angle of incidence. Larger this angle, lower the BEP and vice-versa. The area to the left of the BEP is the loss area and represents the uncovered fixed costs while to the right of it, there is the profit area. The variable cost is the gap between the total cost and the fixed cost. BEP can be computed by contribution approach as:

- Break-even Line: The break even line, parallel to the horizontal axis can be drawn through the zero contribution point.
- Fixed Cost: The fixed are located in the negative vertical line.
- Contribution Line: It is drawn from the fixed cost point and forwarded by intersecting BE line where BEP lies.

Figure 2.2
BE Graph by Contribution Approach



Source: Matz and Usry, 1976

2.1.10 Application of Break Even Analysis

“Break even concept can be used to formulate different policies in a business enterprise; some of this application is:

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

2.1.11 Assumption of Break Even Analysis

“Contribution analysis and break even analysis are based on a specific set of assumptions that should be clearly understood. These underlying assumptions are:

- All cost can be classified into two parts; fixed cost and variable cost, there are no costs other than fixed and variable.
- There is a relevant range of validity (Activity) for using the results of the analysis and sales change.
- There is only one product or in case of multi products, the sales mix among the products remains constant.
- Basic management policy about operation will not change materially in short run.
- The general price level (Inflation, deflation) will remain essentially stable in the short run.
- Sales and production levels are synchronized, that is inventory remains essentially constant or zero.
- Efficiency and productivity per person will remain essentially unchanged in the short run” (Maheshwari, 2000:182-183).

If any of the above assumption were changed, revised budget would be needed for a new analysis.

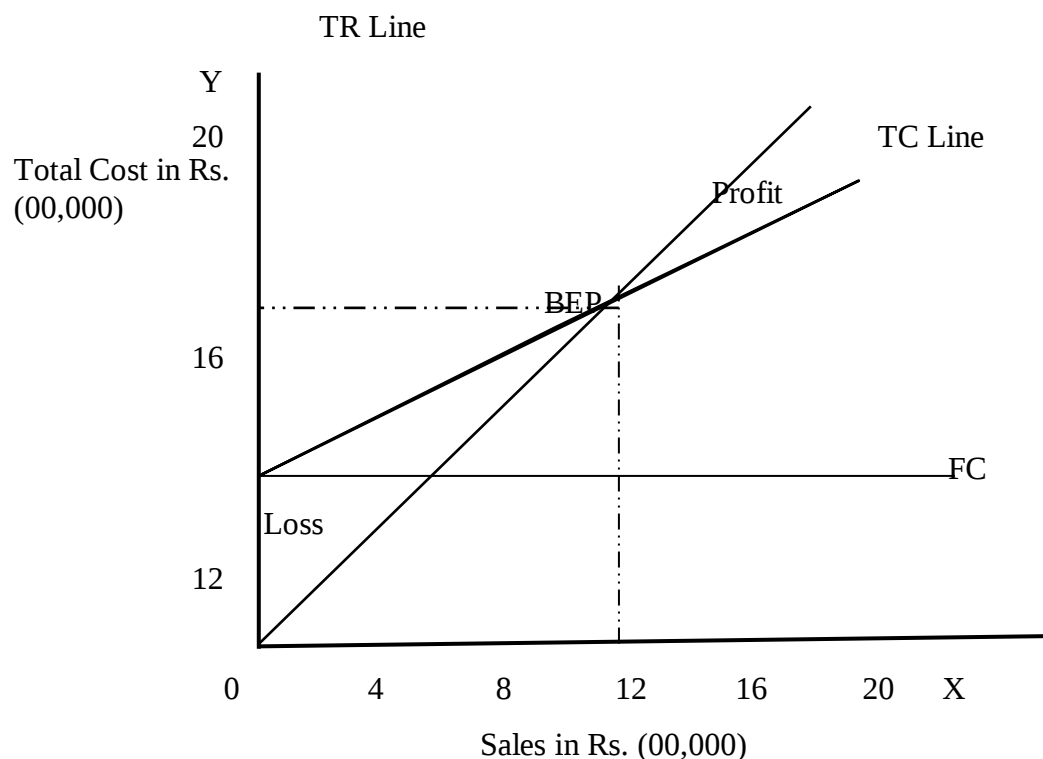
2.1.12 Limitation of Break-Even Analysis

- Break even analysis in many business situations can be used for effective decision making but there are many shortcomings or limitations in its analysis & interpretations.” Some of these can be listed as;
- The assumptions of producer’s market phenomenon not hold good for all types of commodities.
- The fixed cost may remain constant as well as the variable costs may not vary in fixed proportions at different levels of output.
- With variation in the prices of the items or services which also depend on the factors affecting the demand and supply will certainly affect the demand of the commodity. This phenomenon is not covered in break even analysis.
- Identification of fixed and variable costs involved in production process is very complicated. A shift in product mix may change the break even point.
- Customers may be given certain discount on purchase to promote sales. This revenue may not be perfectly variable with level of sales output” (Maheswari, 2000: 183-184).

2.1.13 Economic Characteristics of Cost Volume Profit Analysis

“In volume profit analysis where cost is reasonably accurate, they can help management decision making. Essentially, CVP analysis offer greater insight into the economic characteristics of a company and may be used to determine the approximate effect of various alternatives. CVP analysis is based on estimates, however, the arithmetical manipulations generally involve averages, and hence the result should never be interpreted as precise. Rather, the analysis may be characterized approximately as a ‘slide-rule’ approach that may be used to develop and test, with a minimum of effort, the approximate effect on costs and profits or several types of management decisions”(Welsch 1979:467-468).

Figure: 2.3
Break-even Chart



Source: Welsch. 1979

Above breakeven chart with economic characteristic indicate few of the economic cartelistic of a business, which are:

- Fixed cost, variable costs and total costs at varying volumes.
- The profit and loss potential before & after income taxes at varying volumes.

- The margin of safety is the relationship of budget volume to break even volume.
- The preferred dividend or danger point the point below which preferred dividends are not earned.
- The deal point, the point where management earns only the “going” rate on the investment.
- The common dividend or unhealthy points below earnings are insufficient to pay the preferred dividend and the expected dividend on the common stock” (Welsch, 1979:468).

All these points and as other can be completed if data are developed for cost volume profit purpose.

2.1.14 Margin of Safety

“Margin of safety is the excess of budget or actual sales 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 incur. It gives management a feel for how does projected operations are to be organization breakeven point. Manager often consider the size of the company’s margin of safety decisions about various business opportunities Margin of safety is the amount that sales can drop before reaching the breakeven point and thus provides a certain amount of ‘cushion’ from losses. The margin of safety can be expressed as units, value or a percentage” (Munakarmi, 2003: 405). “Formulae are:

i. Margin of Safety = Actual sales-BE sales (Units & Value)

ii. Margin of safety (in value) = $\frac{\text{Profit}}{P/VRatio}$

iii. Margin of safety (in units) = $\frac{\text{Profit}}{UCM}$

iv. Margin of safety Ratio= $\frac{\text{Actual Sales} - \text{BE Sales}}{\text{Actual Sales}}$

v. Margin of safety Raito= $\frac{\text{margin of safety}}{\text{Actual sales}} \times 100$

The larger is the safety margin the greater the chance for the company to earn profit (i.e. larger the margin of safety safer the company). A high margin of safety is particularly significant in times of depression when the demand for the company's or firm's product is falling. Low margin of safety may result of firm which has low contribution ratio. When both the margin of safety may result of firm which has low contribution ratio are low, management should think the possibilities of increasing the selling price it does not adversely affect the sales volume or reducing variables costs by bringing improvement in manufacturing process''(Munakarmi,2003:407).

The following steps are needed to rectify margin of safety:

- With increasing selling price.
- With increasing sales volume, if the capacity of fixed cost is not fully utilized.
- With reducing fixed cost if possible.
- With reducing variable cost (with reducing the cost of raw materials, wages and other direct cost).
- With substituting product like by more profitable one.

2.1.15 Cost volume Profit Analysis for Multi Product Firms

“Sale mix can be defined as the relative combination of two or more product represented in total. It is not only the sales revenue that makes profit. The proportion of sales contributed by different product greatly changes the amount of profit. Managers try to achieve that combination or mix that will yield the greatest amount of profit. If a company sells more than one product, these may not be equally profitable. So, the company's profit will depend upon the ratio of each products sale to total sales revenues. Profit will be greater if high margin item make up a relatively large proportion of total sales than if sales consist mostly of low margin items. Changes in sales mix can cause great variations in a company's profit. A shift to low margin item 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 item can cause the reverse effect total profit may increase even though total sales decrease”(Bajracharya, Ojha, Goet & Sharma,2004:260).

To calculate BEP for sales mix or multi products:

- Calculate contribution margin or profit volume ratio for each product.
- Calculate production of sale mix in units or values as follows:

$$\text{Sales Mix} = \frac{\text{Individual Products's Sales unit or Value}}{\text{Total of all products's Sales Unit or Value}}$$

Calculate weighted average for all products as follows:

Weighted average = (sales mix (units) × unit contribution margin)

= [sales mix (Value) × P/V ratio]

Calculate Break-even point (BEP):

$$\text{Breakeven Point} = \frac{\text{Total Fixed Cost}}{\text{Weighted Average CM}}$$

2.1.16 Cost Volume Profit Analysis and Limiting Factors

Because of some critical factors like, raw materials or labor or finishing machine the firm can not produce any number of out put of its choices. So, profit planning & decision making of the firm will affect while CVPA is done.

2.1.17 CVP Analysis with a Single Constraint

“Scarce resources should be efficiently allocated in order to maximize the contribution margin. A particular simple and instructive situation arises when there is only one constraining resource. This occur if the firm products are all produced on a single machine and output is limited by hours available on this machine. In the same way, single resource constraint for a scarce resource to have alternative uses. Then the available capacity for such scarce resource should be allocated to the alternative uses on the basis of contribution pre scarce resource” (Munakarmi, 2003:146).

2.1.18 CVP Analysis with Multiple Constraints

“Where more than one scarce resource exist the optimum production programmed can't easily be established by the simple process applied in single resource constraint. Under the circumstances simple allocation of resource on the basis of contribution margin per unit is neither feasible nor desirable. Contribution margin per unit of scared resource may be different for different ranking of product, because production processes are affected by many constraining factors rather than single constraint. In

such situation, linear programming technique may be used to optimize product mix. The linear programming formulation is required to determine a production plan which maximizes contribution from the product mix. Linear programming is a mathematical technique which shows how to arrive at the optimum results, allocation of available resources in a meaningful manner. It is basically concerned with the problem of allocating limited resources among competitive activities in an optimum manner. It is a technique to optimize the allocation of scarce resources in product mix problems which provides a valuable extension to cost volume profit analysis” (Munakarmi, 2003:148).

2.1.19 CVP Analysis under Condition of Uncertainty

CVP analysis can be used for various purposes such as choosing between machine and products, planning of profit and most significant fixing up of selling price. Management uses this as a convenient tool of profit planning with giving consideration of risk and uncertainty involved in it. Although, margin of safety ratio explains the degree of sensitivity of the project and product in general but it fails to explain certainty in the product and also between the alternatives. To overcome such a difficulty risk and uncertainty analysis like in any other management decision making can also be used in CVP analysis. The objective in CVP analysis under condition of uncertainty is to assess the probability distribution of the profit volume under given distribution of one or more factors, sales price or profits.

“Profitability distribution approach is a simple statistical tool which may be used to measure the risk and uncertainty involved in CVP analysis. A probability distribution theory normally suggests for postulation of various possibility of happening of the event in consideration. This may be done either taking into consideration of the experience in the past or may be done by considering the personal intuition of the persons doing so. In business reference of past experience are hardly available not a person is likely to behave in the same manner in the similar situation in different time. Therefore, personal judgments play a significant role in the management decision making. The conditions thus postulated are assigned probability (i.e. one's judgments towards likelihood of happening of the condition forecasted). It must be understood that probability assigned here is a subjective probability based in personal judgments of the man making such an analysis’ (Pandey, 1987: 17).

2.1.20 Assumptions Underlying CVP Analysis

“Break even analysis is the most useful techniques of profit planning and control. It is a device to explain the relationship between cost volume and profit. The discussion of the CVP analysis (or Break even analysis) so far is based on the following assumptions;

- Cost Segregation: The total cost can be separated into fixed and variable components .Constant fixed cost is the total fixed cost that remains unchanged with changes in sales volume. Constant unit variable cost is the variable cost per unit and total variable cost changes in direct proportion to the sales volume.
- Constant Selling price: The selling price per unit remains the constant that it does not change with volume or because of other factors.
- Constant sale mix: The firm manufactures only one product or if there are multiple products, the sales mix does not change.
- Synchronized production and sales; production and sales are synchronized, that is inventories remain the same” (Pandey, 1987: 241).

2.1.21 Limitation CVP Analysis

Assumption limits the utility ad general applicability of the CVP analysis. There fore the analysis should recognize these limitations and adjust data, wherever possible, to get meaningful results.

“The CVP analysis suffers from the following limitations:

- It is difficult to separate costs into fixed and variable components.
- It is not correct to assume that total fixed cost would remain unchanged over the entire range of volume.
- The assumptions of constant selling price and unit variable cost are not valid.
- It is difficult to use the break even analysis in a multi product firms.
- The break even analysis is a break run concept and has a limited use in long range planning.
- The break even analysis is a static tool” (Pandey, 1987:214).

2.1.22 Special Problems in Cost Volume Profit Analysis

“Cost volume profit analysis is applied to individual products or parts of a business and all the product or activities combined. In later case, there are three special

problems that may be encountered” (Welsch, Hilton and Gordon, 2001:513-518).They as follows:

2.1.23 The Activity Base

When two or more products or activities are combined for break even analysis the activity base must be in additive units using a common denominator of volume or output in multiple products. Therefore for the company as a whole, net sales amount are usually the only satisfactory common denominator because manufacturing, selling and administrative activities are expressed in combination.

2.1.24 The Change in Inventory

Usually the budgeted changes in inventories (i.e. finished goods and work in progress) are immaterial in amount and thus may be disregarded in cost volume profit analysis. On the other hand, when the change in budgeted inventory is significant, it should be included in the analysis. Including the effect of inventory changes in CVP analysis requires subjective judgment about what management might do (about making inventory changes) at different volume, levels and the conceptual precision that is desired. Management considers two practical approaches or policies in inventory changes if used a) Disregard and inventory changes b) include the inventory changes.

2.1.25 The Non Operating Income and Expenses

Non operating income (gains) and expenses (loss) and extra ordinary gains and losses of material in amount cause another problem in CVP analysis. The basic issue is whether they should be included or excluded. Extra ordinary gains and losses are nonrecurring and unusual, therefore they should be excluded. Non-operating incomes and expenses are recurring but they are not related to on going operations. Management considers the policy may be to:

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

2.1.26 Sensitivity Analysis

Sensitivity analysis is the measurement of elasticity of the change in CVP factors in breakeven point or given profit. The strategist should focus more on the factor, which

is more sensitive or responsive for profit. To measure the sensitivity of CVP factors one can see the impact of certain percentage or amount change in volume price or cost factors on net profit. In other word, sensitivity analysis is the measurement of responsiveness in outcome with the changes in determinant variables. We know that the goal of a business enterprise is To Whom It May Concern: maximize profit. Profit is the excess of revenue over the total costs.

Profit = Total sales revenue-Total costs

Net profit = Sales units x SPPU - Sales units x VCPU – fixed cost-taxes

So that, profit = FC (sales volume, selling price, VC, FC, taxes and so on.

“But none of the factors remain unchanged: sometimes the manager can intentionally change the price and cost factors as a part of strategic decision. But the strategy should focus more on the factor, which is the more sensitive or responsive for profit. SO to measure the sensitivity of CVP factors, we can see the impact of certain percentage or amount change in volume, price or cost factors on net profit” (Bajracharaya, Ojha, Goet & Sharma 2004:245).

2.1.27 Risk Measurement, the Operating Leverage and Break Even Point

Operating leverage tells us how profit change in sales. It is evident that profit change more rapidly than sales. Why do profit change more rapidly than the sales? It is because some costs do not change say if sales decline variable costs also decline in the same ratio so that contribution margin also decline proportionately. But fixed costs do not decline so, the net operating income decline more rapidly. The some thing applies in the case of increase well. Sales revenues changes but some parts of costs, known as fixed costs, remain unchanged. This usually not operating in come changes more rapidly. This change is called the operating leverage.

“Operating leverage can be measured in terms of the “Degree of operating leverage” (DOL).

DOL shows the times of percentage change in net operating income of the given percentage change in sales. DOL may be defined as the percentage change in net operating income (NOI) or EBIT associated with a given percentage change in sales” (Bajracharaya, Ojha, Goet & Sharma 2004:307).

$$DOL = \frac{\text{Percentage Change in Net Operating income}}{\text{Percentage change in sales}}$$

Alternatively,

$$DOL = \frac{\text{Contribution Margin}}{\text{Net operating Income}}$$

$$DOL = \frac{(SP - VCPU)}{Q(SP - VCPU) - \text{fixed cost}}$$

Where,

Q = Total demand in unites

SP= Selling price per unit

VCPU = Variable cost per unit

As we know,

$$BEP \text{ (units)} = \frac{\text{Fixed Cost}}{SP - VCPU}$$

Leverage decision is meant to substitute variable cost by the fixed costs. To create a degree of operating leverage means the employment of higher amount of fixed cost which eventually increases the breakeven point also. No DOL is to be said when the DOL occur '1' and in this situation BEP comes to 'O'. "Higher fixed costs increase the DOL and they also increase the breakeven point, so there is close relationship between the degree of operating leverage and the breakeven point. A high DOL and high BEP both are the indicators of higher risk" (Bajracharya, Ojha, Goet and Sharma. 2004:249).

2.1.28 Impact of Changes on Profits

"Profit is the functions of variety of factors it is affected by changes in volume, costs & price, profits may be affected by the changes in the following factors:

- Effect of volume changes: A change in volume not accompanied with a change in the selling price and or costs, will not affect P/V ratio. As a result the breakeven point remains unchanged. Profit will increase with a increase in volume and will be reduced with a decreases in volume.
- Effect of price and volume changes: A change in price invariable affects volume. A price reduction may increase demand of the product and consequently, may result in increased volume. On the other hand, increase in

price may adversely affect the demand and thus, reduce volume. The impact on profits under these circumstances is not obvious. Profit may increase with a price reduction if volume increases substantially. Similarly, a price rise may reduce profits if there is a material fall in volume.

- Effect of changes in variable costs: The impact of the changes in variable costs on profit is straight forward if it does not cause any change in selling price and or volume. An increase in variable costs will lower P/V ratio will increase BEP will be increased and profit would rise.
- Effect of change in fixed costs: A change in fixed cost does not influence P/V ratio. Other factor remaining unchanged, a fall in the fixed costs caused either due to some external factors or due to some changes in management policy, will raise the BEP. Increase in factory rent or insurance and taxes are examples of external factors, while increased depreciation or salaries of managers may be the result of management decision.
- Effect of Changes in a combination of Factors: The financial manager of the management accountant, evaluating the profit plans or budgets, must realize that a change in one factor leads to a change in another factor. Therefore, all such their net impact on profit must be seen” (Pandey, 1999:203-208).

2.2 Review of the Previous Thesis

Review of literature is an essential part of all studies. It is a way to discover what other research in the area of our problem has uncovered. It is also a way to avoid investigating problems that have already been definitely answered. Review of literature provides the foundation for developing a comprehensive theoretical framework from which hypothesis can be developed for testing. It also minimizes the risk of pursuing the dead ends in research. But there are very few research papers concerning comparative cost volume profit analysis that have been conducted. Few dissertations have been submitted relating to cost volume profit analysis & the study is limited by various constraints. So this study is attempted to review the previous research work on profit planning & control as well as management accounting. As CVP analysis is one of the major tools of PPC are reviewed which will be helpful to further study.

Mr. Gajendra Kumar Thakur (2001), has conducted research work on topic of “*Cost Control Mechanism of Janakpur Cigarette Factory Limited*” for partial fulfillment of MBA, submitted to the central department of management, Tribhuvan University. The study has covered five years of period from FY 2051/52 to 2055/56. The general objective of the study was to evaluate the cost control technique of JCF has for various finding by Thakur.

The Objectives are

- To analyze the budget and cost control mechanism for the company.
- To analyze the problems faced by company in terms of budget formulation.
- To analyze the cost and profit trend of the company in the light of Budget.
- To analyze the cost- volume-profit analysis for the company
- To provide suggestions for improving the budgeting problems.

Major Findings

- The cost volume profit analysis has indicated that contribution margin of JCF is not sufficient to meet all its fixed costs. The factory’s break even sales during the study period always exceeded the actual sales volume. It is absorbed that the company has not sufficient margin of safety, which was loss figure. The high proportion of variable cost contribution margin was not able to met increasing fixed costs. In the JCF observing the data loss was occurring yearly but sale figure was fluctuating trend. It means decreased sales over total cost did not bring profit but invite losses.
- Overtime, idle time and absenteeism are found most responsible for labor cost increasing.
- JFC was funning in loss during study period due to high production cost, high selling distributing cost, excess labor cost and material cost. So JCF has to make proper plan to control unusual cost. It should bent rusted with responsibility of categorizing the costs on product wise basis.

Mr. Sager Sharma (2002), has conducted a research work on “*Management Accounting Practices in Listed Companies of Nepal.*” He has focused his study to examine and study to practice of management accounting tools in the listed

companies of Nepal. Mr. Sharma's research study is based only on primary data. Stratified random sampling with proportionate allocation of percentage is followed up draw the sample.

The Objectives are

- To identify the areas where management accounting tools can be applied to make strengthen the companies.
- To identify the present practice of management accounting tools in Nepalese Manufacturing Enterprises.
- To identify the problem faced by Nepalese Manufacturing Enterprises in applying management accounting tools.
- To make recommendations to avoid difficulties in applying management accounting tools in Nepalese Manufacturing Enterprises.

Major Findings are

- Management accounting is to help managers in overall managerial activities by providing information and helping in planning, controlling and decision making.
- Lack of information and extra cost burden are the main reason behind not practicing such tools.
- Different types of management accounting tools which are taught in the colleges are not found applying by the listed companies of Nepal.
- Nepalese listed companies are in infant stage in practicing of management accounting tool such as capital budgeting, annual budgeting, cash flow, ratio analysis, activity costing, cost volume profit relation etc.
- Regarding the tools practiced by the Nepalese manufacturing companies for measuring and controlling their overall performance. From the study it is cleared that 60% of the manufacturing companies measure their performance on the basis of profit or loss made by them during the year while 26% of the companies practiced for measuring and controlling performance of the company. Where as budgetary costing and break– even- point both were followed by 7%.

- Regarding the technique practiced by the Nepalese manufacturing companies for pricing the product. From study it is cleared that 60% of the companies practice cost plus pricing, while 26% of the companies practice going rate pricing and 7% of the companies practiced target return pricing and break even pricing for their product. Therefore, from the study it is cleared that cost plus pricing technique is widely used by Nepalese manufacturing companies.
- .Regarding the joint cost allocation tools practiced by the Nepalese manufacturing companies. From the study 47% of the companies practiced joint cost allocation a unit or production basis. 40% of the manufacturing firm had their own method for joint cost allocation. Such as ratio method, department wise and 13% of the manufacturing companies practice sales value methods for allocating joint cost.
- Regarding the practice of transfer price in the Nepalese manufacturing companies, it is cleared that 67% of the manufacturing companies practiced cost base transfer pricing 26% of manufacturing companies practiced market based transfer pricing whereas 7% of the manufacturing companies practiced negotiated transfer price for their product
- Regarding the decision-making and control process followed by Nepalese manufacturing firm, it is cleared that 73% of Nepalese manufacturing companies practiced control during the work period. 20% practice control before work has to be start technique, where as 7% practiced controls after finish the work. From the table, control during the work period is most practiced techniques for decision making and control process.
- Regarding the present problem faced by Nepalese manufacturing companies in decision making process, it is cleared that 53% Nepalese manufacturing companies face the problem of skilled manpower in decision making process. 27% of manufacturing companies face the problem of undefined objective and 20% companies face infrastructure problem in decision making process. While no one companies has lack of knowledge in decision making process.

Mr. Rabin Dahal (2005), has submitted a research on “*Profit Planning System and Financial Condition of Nepal Electricity Authority*”. He has covered five years period from 2054/55 to 2058/59.

The Objectives are

- To analyze the profit planning tools for the company.
- To analyze the cost-volume- profit for the company.
- To segregate the costs of company into fixed and variable costs and unit variable cost.

Major Findings are

- NEA has a practice of preparing both systemic (long range) and (tactical short range) profit plan.
- Overheads are not classified systematically and it creates problem to analyze is expenses properly.
- NEA is playing a huge amount of interest every year and it is suffering from high fixed costs.
- CVP analysis of the authority has the satisfactory position and also flexible budget analysis, the authority is able to earn operating profit of its utilized capacity.
- The authority does not maintain its periodic performance report systematically.
- The company had not practice of classification of costs into fixed costs and variable cost.
- The total fixed costs of the company were increasing annually.
- Advertisement, salary and allowance, communication expenses, insurance premium, depreciation and interest on long term loan were higher portion of total fixed cost and the amount of these items were highly incremental condition.
- The variable costs were also at increasing trends, and vital items were material with direct expenses on purchase, royalty, sales promotion expenses, transportation and insurance expenses, salary and wages, leakage and breakage, complementary expenses, traveling expenses and water.

Mr. Chaturbhuj Aryal (2006), has conducted a research entitled “*CVP Analysis as a Tool to Measure Effectiveness of PPC*” (A case study of Herbs Production and

Processing Co.Ltd.). He used primary and secondary data collected and used seven years data from the fiscal year 2054/55 to 2060/61 for analysis.

The Major Findings are as Follows

- Budgets were prepared on traditional method.
- HPPCL has high burden of management and administration expenses and interest only which is directly influencing the profitability.
- There was not practice of separating cost into fixed and variable. The cost were roughly classified and that classification to use financial tools, like as flexible budget, CVP , cost of goods sold and degree of operating leverage and profit margin ratio.
- HPPCL is suffering from huge losses. So in every year has negative net profit margin ratio.
- Profit volume ratio of the company is in fluctuated trend, which affects on BEP to the company.
- BEP of the company is always higher than Actual sales. So He Company should not maintain its expanses.

Mr. Bhesh Raj Bhusal (2007), has conducted a research entitled *“Use of Cost-Volume- Profit Analysis to Plan the Profit in Nepalese Manufacturing”*. A case study of Bottlers Nepal Limited. Mr. Bhusal had concerned his study to examine the companies in Nepal.

The study covered a five year period from fiscal year 1999/00 to 2003/04

The Objectives are

- To study the present application of CVP analysis in BNL.
- To study the profitability and financial position of BNL.
- To analyze the CVP and its impacts in profitability of BNL.

The Major Findings are as Follows

- BNL has only sales and production plan.
- Due to no effective sales forecasting techniques, sales target were not achieving.

- The profit trend of the company was not satisfactory. As compared to profit proportion was very low with fluctuated trend.
- BNL has not proper practice of segregating the mixed cost into fixed and variable portion.
- Decision making powers were centralized.

Mr. Oum Pokharel (2008), has submitted a research on “*Cost Volume Profit Analysis* (A comparative Analysis between Gorkha Corporation and Kantipur Publication Pvt. Ltd.)”. He has covered five years period.

The Objectives are

- To Study and analyze existing position of cost volume and profit of publications.
- To evaluate and analyze the break-even point of publications for avoiding losses.
- To examine the cost components as per their behaviors.
- To provide suggestions and recommendations for the better operation of BNL.

The Major Findings are as Follows

- Variable cost of kantipur Publication is higher comparative to its fixed cost. Contribution margin ratio of Kantipur Publication is very less while it is satisfactory in place of Gorkha Corporation.
- Fixed cost is lower than variable cost of Kantipur Publication. In Kantipur Publication’s variable cost is high due to high production cost. In Kantipur Publication’s fixed cost is high due to overstaffing of employees.
- Kantipur Publication has low P/V ratio and low fixed cost. Which reduces the Break even level of the company but in the case of Gorkha Corporation P/V ratio is very high and it has fixed cost which increases the BEP sales.
- Kantipur Publication’s Margin of safety is in average above 35% which indicates the safety of the company. But Gorkha Corporation’s margin of safety is low around 23.6% due to higher BEP sales.
- Overhead expenses are not classified systematically and its creates problem to analyze its expenses properly.

MR. Sanu Babu Barakoti (2009), has submitted the Thesis on the topic “*Cost Volume Profit Analysis of Bottler’s Nepal Limited*” MR. Barakoti has concerned his study to determine cost volume and profit and profitability of the Bottlers (Terai) Nepal Ltd. His research covered the time period of five years from fiscal years 2002/03 to 2006/07.

The Objectives are

- To analyze different components of cost as per cost behavior.
- To study the present application of cost volume profit (CVP) analysis in Bottlers Nepal Limited (BNL).
- To analyze the CVP and its impact in profitability of BNL.

Major Findings are

The company has not maintained the board and long range objectives and periodic report and objectives are limited to the high ranking official only.

- Relevant internal and external market variables are not fully explored.
- Sales and production targets are not achieving because there is not an effective forecasting system.
- Enterprise has no financial plan: they have only sales and production plan in term of required target.
- The company’s production trend is in increasing trend.
- There is no any effective plan for cost control programmed or techniques.

Mr. Narayn Prasad Acarya (2010), has conducted research work topic of “*Cost Volume Profit Analysis as a Tool of Profit Planning*” (With reference to Salt Trading Corporation) for partial fulfillment of MBS, submitted to the central department of management, Tribhuvan University. A study has covered five years of period from F/Y 2060/61 to F/Y 2064/65.

The Objectives are

- To study and analyze the cost-volume profit analysis of Salt Trading Corporation.
- To examine interrelationship between Cost volume profit analysis & profit planning.
- To evaluate cost, volume, profit trend and problem of Salt Trading Corporation Limited.
- To analyze the impact of cost volume profit on the corporation's productivity.
- To provide suitable suggestions to the corporation based on the findings.

Major Findings are

- The Company has not maintained the broad and long range objectives. Periodic report and objectives are limited to the high ranking official only.
- There is no any effective plan for cost reduction and control and lack of effective cost control programe.
- Lack of decision making power at middle and lower level.
- Total sales of the corporation were unsuitable.
- The Company has no details and systematic expenses plans. The fixed, variable and mixed expenses plan is the necessary element for profit planning and control. It is using traditional absorption costing method.

2.30 Research Gap

Many public or private enterprises are not practicing various accounting tools and techniques to measure its performance on Nepal. Researcher should face problem for analyzing financial statement. Though there is significant gab between present researcher work and the previous research works. Most of the researches, profit planning tools are analyzed in one way or the other but impacts are rarely explained. Especially comparative

CVP analyses in public or private enterprises have not been done yet by other researcher. For this purpose practice of CVP in BNL is studied. It will also clear the contribution of public enterprises to build strong economic condition of the nation.

CHAPTER-III

RESEARCH METHODOLOGY

3.1 Introduction

Research Methodology is a useful bridge to solve the research problems in a systematic way. It Describes the Methods and process applied the entire aspect of the study .In this study, this chapter deals about various aspects regarding research methodology. Research Methodology refers to the various sequential steps to adopt by a research in studying a problem with certain objective in view” (Mr. Joshi, 2001). Methodology is the research method used to test the hypothesis. Every study is intended towards the analysis, discover and actual position of any situation. The findings are possible only with help of certain tools and techniques. The research oriented task ask for serious consideration on research design; sample size; sources of data; data collecting instruments and procedure; data tabulation; data analyzing techniques to be adopted and study limitation in term of tools unavailable.

3.2 Research Design

Research design is the plan, structure and strategy of investigation conceived so to obtain answer the research question and to control variance. (Kerlinger, 1983) .Research Design is the conceptual structure within which a research is conducted; it constitutes the blue print for the collection, measurement and analysis of data (kothari, 1990) this study attempts to analysis the primary data as well as secondary data. In order to make any types of research a well research design is necessary, which fulfills the objectives of the study. The research design is the strategy for the conduction of the research. It describes the general framework for collecting, analyzing and evaluating data after identifying (i)what the researcher want to know, and (ii) what has to be dealt with in order to obtain required information” (Wolf and Pant, 1999: 209). This study attempted to show the relationship among cost, volume and profit. Cost volume profit analysis of Bottlers Nepal is presented and analyzed. But the qualitative aspect of the research such as effectiveness of CVP analysis of the firm, views of various manager and personal and the theoretical aspects are explained in the portion wherever necessary. Therefore analytical and descriptive research design has been followed for the study.

3.3 Sources of Data

There are vital role of data in research to clear and achieve research objectives. Without the data, methodology can not be utilized to bring the conclusion. For the purpose of C-V-P Analysis of the Bottlers Nepal Limited, the data were collected from both the sources of data, which are as follow:

3.3.1 Primary Data

Primary data is original in nature. For the purpose of research work, primary data were collected. Basically, the following techniques were adopted:

- a) Observation of particular statement
- b) Direct meeting with concerned person.

3.3.2 Secondary Data

It is the published data which has been used by first person or other. Only primary data can't fulfill the requirement of the research work. So, adoption of secondary data is also suitable to accomplish the objectives of study. The following procedures were adopted for secondary data.

- a) Library
- b) Companies Publications
- c) Books and Journals/ Magazines
- d) Booklets, and
- e) Internet and websites etc

3.4 Tools of Data Analysis

It is fact that collected data should properly be analyzed to overcome the solution of research problem. For this purpose ,descriptive & quantitative technique have been used in this study .The used various descriptive & quantitative technique are briefly explain in below.

3.4.1 Descriptive Techniques

These techniques are used to simplify the research report for better understanding as well as analysis and interpretation of the collected data in theoretical form.

3.4.2 Quantitative Techniques

Descriptive techniques would not be enough to prepare excellent research report. To fulfill the gap, or make the research report attractive and for better understanding the following profit planning tools are used:

C-V-P Analysis Tools

It C-V-P analysis included the following computations

$$(i) \text{ BEP in Rs} = \frac{\text{Total Fixed Cost}}{\frac{1 - \text{Variable cost}}{\text{Sales}}}$$

Or,

$$\text{Break-Even Point (in amount)} = \frac{\text{Fixed Costs}}{\frac{P}{V} \text{ Ratio}}$$

$$(ii) \text{ B.E sales in amount (Under FIFO)} = \text{Opening Stock} + \frac{\text{FC} - \text{CM for opening Stock}}{\frac{P}{V} \text{ Ratio for current year}}$$

$$(iii) \text{ Contribution Margin} = \text{Sales} - \text{Variable Cost or FC} + \text{Profit}$$

$$\text{OR Contribution Margin ratio} = \frac{1 - \text{Variable cost}}{\text{Sales}}$$

$$iv) \text{ Profit Volume Ratio} = \frac{\text{Contribution margin}}{\text{Sales}}$$

$$(v) \text{ BEP (\% of Capacity)} = \frac{\text{BEP}}{\text{Total capacity}}$$

$$(vi) \text{ Cash BEP in RS.} = \frac{\text{Fixed Cost} - \text{non cash outlays}}{1 - \text{Variable Cost} + \text{Sales}}$$

OR

$$\text{CBEP} = \frac{\text{Cash Fixed costs}}{\frac{P}{V} \text{ Ratio}}$$

$$(vii) \text{ Margin of Safety} = \text{Planned or Actual sales} - \text{BEP Sales}$$

$$(viii) \text{ Margin of Safety Ratio} = \frac{\text{Margin of Safety}}{\text{Actual Sales}}$$

3.4.3 Statistical Tools

The statistical tools applied included Following techniques to examine the relationship between the variables; and analysis:

- a) Mean, Standard Deviation and Coefficient of Variation (C.V.).

- b) Correlation Analysis
- c) Coefficient of determination (r²).

a) Mean Standard Deviation and C.V.

Mean of a set of observations is the sum of all the observations divided by the number of observations.

$$\text{Mean}(\bar{X}) = \frac{\sum X}{N}$$

Standard Deviation is quantitative measure of the risk .It is define as the positive square roots of the arithmetic mean of the squares of the deviation of the given observations from their arithmetic mean. The standard deviation of a distribution is the square root of the variance of the returns around the mean.

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{\sum u^2}{N} - \left(\frac{\sum u}{N}\right)^2}$$

Coefficient of variation is the most commonly used measure of relative variation. It is specially used in such a problem where we want to compare the variability of two or more than two series.

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

b) Correlation Analysis

The degree of relationship between the variable under consideration is measured through the correlation. The measure of correlation called correlation coefficient. The correlation analysis refers to the technique used in measuring the closeness of the relationship between variables.

$$\text{Correlation Analysis } (r) = \frac{N \sum u^2 - \sum u \cdot \sum v}{\sqrt{N \sum u^2 - (\sum u)^2} \times \sqrt{N \sum v^2 - (\sum v)^2}}$$

The Value of correlation coefficient always lies between +1 to -1.

If, r = +1, it means there is perfect positive relationship between two variables

If, r = -1, it means there is perfect negative relationship between two variables

If, $r = 0$, it means there is no any relationship between two variables.

Probable error is an old measure of ascertaining the reliability of the value. it may be used to test if calculated value of sample correlation coefficient or insignificant . If $r < P.E (r)$ then the value of r is not at all significant and if $r < 6PE(r)$, then r is deficiently significant .

$$\text{Probable error of } r (P.E.) = 0.6745 \times \frac{1-r^2}{\sqrt{N}}$$

Where,

X = distribution

N = No. of distribution

U = X - assumed Mean

V = Y -assumed Mean

c) Coefficient of determination (r^2). = $r \times r$

3.5 Limitation of the Methodology

The analysis of the study is fully based on both the primary and secondary data i.e., Balance sheet, Profit and Loss Account of the Company. Therefore, the secondary data play a vital role on the study and the reliability of collected data affect the result of the study. The study is based on the information provided by the organization and observation so the analysis is done on the basis of available information that may not present the real activities of the organization. Only the Five Year (2004/5 to 2008/9) data have been collected to analysis the CVP Analysis of the company.

CHAPTER–IV

PRESENTATION AND ANALYSIS OF DATA

This Chapter deals with the main body of the study the presentation and analysis of the collected data .Planning sets the proper objectives and goals for an organization. Profit planning Develops the specific action plans to achieve the determined goals and objectives. CVP Analysis can be use to plan the profit and it also measure the effectiveness of profit Planning and control. CVP analysis analyses the relation among the cost, revenue and Profits. It helps the management in cost control and profit planning. Use of CVP in profit planning is the basic objective of this study. It will examine the Present practice of CVP analysis and identify the area where CVP analysis can be applied in BNL. For this purpose historical data take from the internal and final audit reports of BNL has use in this study.

4.1 Sales Plan of BNL

It is fundamental plan of overall profit planning. It provides basic management decision about marketing. It is an organize approach for developing comprehensive sales plan. Different important decisions such as production, purchase, expenses etc. are made on the basis of sales budget.

The following table shows the sales target and achievement of BNL (in Rs.) for the five

Fiscal years from 2004/05 to 2008/09

Table: 4.1
Budgeted Sales and Actual Sales

(in Rs 'ooo')

Fiscal Year	Budgeted Sales	Increase (Decrease) %	Actual Sales (Y)	Increase (Decrease) %	Achievement %
2004/05	567000	-	535494	-	94.44%
2005/06	670000	18.17%	609654	13.85%	90.99%
2006/07	740000	10.45%	632144	3.68%	85.42%
2007/08	810000	9.46%	746581	18.10%	92.17%
2008/09	1120000	38.27%	1002720	34.31%	89.53%

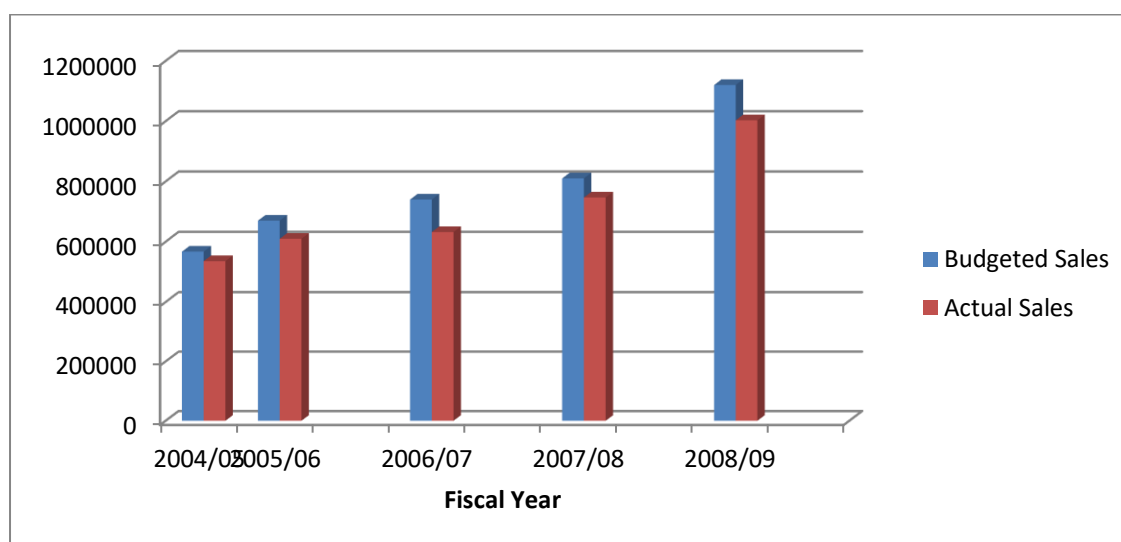
Source: Audit Report of Bottlers Nepal

The above table shows that the budgeted and actual sales are in increasing trend with decreasing rate up to the fiscal year 2008/09 and budgeted and actual sales both are fluctuate in nature. The highest increasing rates in budgeted and actual sales are 38.27% and 34.31% in the FY 2008/09 respectively. The table 1 shows the sales target and sales achievement during the FY 2004/05 to 2008/09. The table shows that the sales achievement is always less than the sales target but it is more than 90% achievement in almost every year. In the fiscal year 2004/05 the actual sales is 94.44% of the budgeted sales that showed the best result among the five years period and in the FY 2006/07 only 85.42% of budgeted sales achieved which is poorest result during the five years period.

The Multiple Figure for the Budgeted and Actual Sales Presented Below:

Figure 4.1

Multiple Figure of Budgeted and Actual Sales in the Five Fiscal Year



In order to examine the nature of variability of actual sales and budgeted sales of Different years, the arithmetic means, standard deviation, and coefficient of variation Calculated in appendix one, are used the results of which are presented in table 2. From the result, sales achievements are less fluctuated than the budgeted sales being the lower CV of actual sales than the budgeted sales. Similarly, mean sales and standard Deviation of actual sales is less than that of the budgeted sales.

Table 4.2

Summary of Statistical Calculation of Sales Data

Particulars	Budgeted Sales(X)	Actual Sales(Y)
Mean	781400	705313
Standard Deviation (S.D.)	209499	182689
Coefficient of Variation (C.V.)	23.89%	25.90%
Correlation Coefficient (r)	0.9927	
Probable Error (P.E.)		
Regression Equation of Debt Fit	0.0044	
Coefficient of Multiple Determination (r ²)	Y= 28902+0.865X 0.9855	

Source; Appendix-I

The above data shows that there is no systematic and realistic sales plan in BN Limited. Budget is based on historical data only and the planning section of BNL ignored all other factors that can affect the budget.

The correlation coefficient and regression equation results presented in table 2 show the Relationship between the budgeted sales and actual sales. The value of correlation Coefficient is 0.9927 that explains that there is almost highly positive correlation between the budgeted and actual sales. The value of probable error is 0.0044 that explains that the value of correlation coefficient is significant, since correlation coefficient is Greater than six times of probable error. The regression equation ' $Y = 28902 + 0.8657X$ ' helps to estimate the actual sales assuming that the budgeted sales as an independent variable whereas the actual sales as a dependent Variable. The estimated actual sales (Y) calculated in appendix one is presented in table 3 below:

Table: 4.3
Estimated Sales

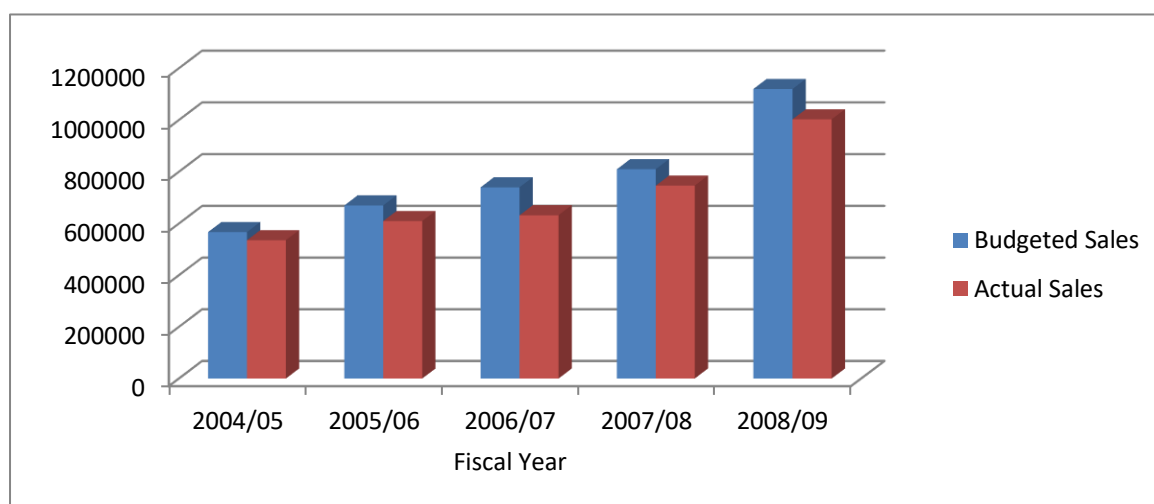
(in Rs. '000')

Fiscal Year	Budgeted Sales (X)	Actual Sales (Y)	Estimated Actual Sales(Y) $Y=28902+ 0.8657X$
2004/05	567000	535494	519754
2005/06	670000	609654	608921
2006/07	740000	632114	669520
2007/08	810000	746581	730119
2008/09	1120000	1002720	998486

Source:

Multiple Bar Diagram for the Actual Sales and Estimated Sales Presented Below:

Figure 4.2
Multiple Figure for the Actual Sales and Estimated Sales



The value of the coefficient of determination (r^2) 0.9855 shows the goodness of fit. It explains the actual sales achievement up to 98.55% due to the budgeted sales and Remaining 1.45% is due to other reasons. Therefore factors except the budgeted sales that can affect the actual sales are present but not explored yet, should be considered to evaluate of impact on the actual sales.

4.2 Production Plan of BNL

Production planning is the second step of profit planning and control in a manufacturing company. The past sales data and production data are the basic foundations of production budget. It is affected by the planned ending inventory of finished goods. To find the budgeted production the following equation should be considered by the management. Budgeted production = Budgeted Sales + Budgeted Ending Inventory – Beginning Inventory

The production plan of BNL is based upon various controllable factors. It adopts seasonal production. The manager of the company prepares production plan with the help of factory supervisors, marketing managers and other members. The industry has sufficient capacity to produce the goods to fulfill the demand of budgeted sales. So BNL is unable to utilize its full capacity. The following table shows the production target and achievement of BNL (in Rs.) for five fiscal years from 2004/05 to 2008/09.

Table: 4.4
Budgeted & Actual Production Achievement

(in Rs "000")

Fiscal Year	Budgeted Production	Increase/ (Decrease) %	Actual Production	Increase/ (Decrease) %	Achievement %
2004/05	320000	42.22%	308341	46.20%	96.36%
2005/06	405000	26.56%	376174	22.00%	92.88%
2006/07	425000	4.94%	371348	(1.28%)	87.38%
2007/08	465000	9.41%	393421	5.94%	84.61%
2008/09	530000	13.98%	472132	20.07%	89.08%

Source:

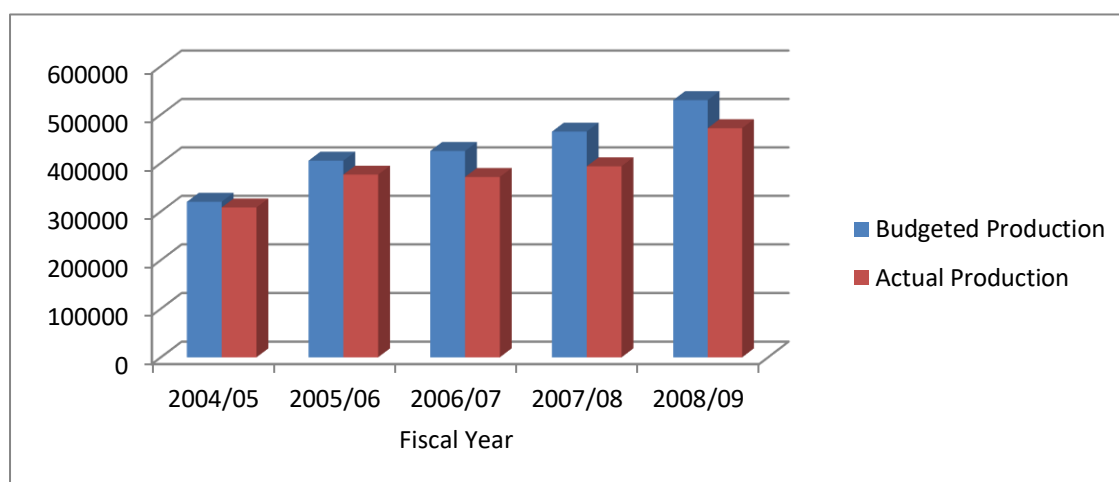
The above table shows that the budgeted and actual production both are in increasing trend with increasing rate up to the fiscal year 2004/05 and budgeted production increased in decreasing rate thereafter but actual production increased with decreased rate till the fiscal year 2005/06 and decreased by 1.28% in the FY 2006/07. The highest increasing rates in the budgeted and actual production are 42.22% and 46.20% in the FY 2004/05 respectively.

The table 4 shows the target production and achievement in the FY 2004/05 to 2008/09. The table shows that the production achievement is always less than the production target but it has more than 90% achievement in two years and more than 90% achievement in three years and more than 80% in remaining three years. In the fiscal year 2004/05 the actual production is 96.36% of the budgeted production that is the best result among the five periods during the FY 2007/08 only 84.61% of the budgeted production achieves which has poorest result among the five years period.

Multiple Figure for the Budgeted Production and Actual Production Presented Below:

Figure 4.3

Multiple Figure of the Budgeted Production and Actual Production



In order to examine the nature of variability of actual production and budgeted production of different years, the arithmetic means, standard deviation, and coefficient of variation calculated in appendix two, are presents in table 5. From the result, production achievements are less fluctuate than the budgeted production being the lower C.V of actual production than the budgeted production are less than that of budgeted production.

Table 4.5

Summary of Statistical Calculation of Production Data

Particular	Budgeted Production(X)	Actual Production(Y)
Mean	429000	384283
Standard Deviation(S.D.)	77411	58739
Coefficient of Variation(C.V.)	18.04%	15.29%
Correlation Coefficient	0.9746	
Probable Error(P.E.)	0.0151	
Regression Equation of Best Fit	$Y = 67029 + 0.7395X$	
Coefficient of Multiple Determination(r ²)	0.9498	

Source:

The above data shows that there is not a systematic and realistic production plan. Budget is base on historical data and seems that planning section of BNL ignores all other factors that can affect the budget. Therefore, the planning section of BNL should search and try to consider those factors that can affect the budgetary process.

Other statistical measurements correlation coefficient and regression equation presented in table - 5 show the relationship between the budgeted production and actual production. The value of correlation coefficient 0.9746 explained that there is almost perfectly positive correlation between the budgeted and actual production. The values of probable error 0.0151 explain that the value of correlation coefficient is significant, since correlation coefficient is greater than six times of probable error. The regression equation ' $Y = 67029 + 0.7395X$ ' helped to estimate the actual production assuming that the budgeted production as an independent variable whereas the actual production as a dependent variable. The estimated actual production (Y) calculated in Appendix two are presented in table 6 below:

Table: 4.6

Estimated Production

(in Rs. '000')

Fiscal Year	Budgeted Production(X)	Actual Production(Y)	Estimated Actual Production(Y)
2004/05	320000	308341	303669
2005/06	405000	376174	366526
2006/07	425000	371348	381316
2007/08	465000	393421	410897
2008/09	530000	472132	458964

Source:

The value of the coefficient of determination (r^2) 0.9498 show the goodness of fit. It explains the actual sales achievement up to 94.98% due to budgeted sales and remaining 5.02% was due to other reasons. Therefore factors except budgeted production that can affect the actual production not being explored yet should be considered into account as far as possible.

4.3 Sales-Profit Relation of BNL

The basic objective of running any business organization is to earn profit. Profit is taken to measure the company and efficiency of the management. In other words, profit is the primary measurement of business success in any economy. Profit is a residual income left after the payment to other factors of production. The difference between the outflow of expenses and inflow of incomes is called profit. It is a reward for business activities. Profit determines the strength of financial position of the company. The uniformity of variability of Net profit of BNL was analyzed and

relation between actual sales and net profit was also studied under this topic. The actual sales and Net profit of the company during the five years period has presented in the table below:

Table: 4.7
Actual Sales and Actual Profit

(in Rs. '000')

Fiscal Year	Sales(x)	Increased/Decreased (%)	Profit(Y)	Increased/Decreased (%)
2004/05	535494		48610	
2005/06	609654	13.85%	19372	(60.15%)
2006/07	632114	3.68%	21595	11.48%
2007/08	746581	18.10%	30272	40.18%
2008/09	1002720	34.31%	30459	0.62%

Source:

The above table shows that the actual sales in increasing trend with increasing rate up to the fiscal year 2008/09 and it is increase in decreasing rate thereafter. But the profit of the company was in fluctuating trend. The highest increasing rate in the actual sales is 34.13% in the FY 2008/09 and it is 0.62% in profit in the same year. In order to examine the nature of variability of actual sales and profit of different years, the arithmetic means, standard deviation, and coefficient of variation calculated in appendix three, have presented in table 8. From the result, sales achievements were less fluctuated than profit being the lower C.V of actual sales than profit. Similarly, mean and standard deviation of actual sales were less than that of profit.

Table : 4.8
Summary of Statistical Calculation of Sales and Profit

Particular	Sales(X)	Profit(Y)
Mean	705313	30062
Standard Deviation(S.D.)	182689	11513
Coefficient of Variation(C.V.)	25.90%	38.30%
Correlation Coefficient (r)	-0.0519 0.3008 $Y=27755-0.003X$ 0.05192	
Probable Error(P.E.)		
Regression Equation of Best Fit		
Coefficient of Multiple Determination(r^2)		

Other statistical measurements correlation coefficient and regression equation presented in table - 8 show the relationship between sales and profit. The value of correlation coefficient - 0.0519 explains that there are negative correlation between the sales and profit. Since, the correlation coefficient is lower than six times of probable error and it is insignificant. Under this condition nothing can be concluded with the help of such relation and correlation coefficient and coefficient and coefficient to determination becomes meaningless.

The regression equation ' $Y = 27755 - 0.003X$ ' helps to estimate the profit assuming that the sale as an independent variable whereas the profit as a dependent variable. The Estimated profit (Y) is presented in table 9 below.

Table: 4.9
Estimated Profit

(in Rs. '000')

Fiscal Year	Actual Sales(X)	Actual Profit(Y)	Estimated Actual Profit
2004/05	535494	48610	25988
2005/06	609654	19372	25743
2006/07	632114	21595	25669
2007/08	746581	30272	25291
2008/09	1002720	30459	24446

Source:

4.4 Raw Material Plan of BNL

Material budget deals with the requirement and procurement of direct materials. The determination of material usage budget demonstrates the build up of the quantities of each material to be used. BNL also prepares the raw materials for company. Mainly, it imports the raw material from outsider of the country. The table 10 shows the purchases and consumption of raw material in the company over the period.

Table: 4.10
Raw Material Plan of BNL

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Opening Stock of Raw Material	50992	85288	122780	79958	47762
Work in Progress	572	640	1023	1576	1219
Production of CO2 Gas	5840	6166	6606	-	-
Total Opening Stock	51751	85928	130409	81534	48981
Add: purchase of raw material during the year	284041	350780	232947	541140	351268
Add/(Less): Transfer/(to) BNTL	(323)	(8753)	13430	(47789)	(26942)
Total Stock Available	335469	427955	376786	574885	373307
Closing Stock of raw material	85288	122780	79958	47762	58718
Work in Progress	640	1023	1576	1219	2466
Damage stock written off	0	0	1308	0	0
Total Closing Stock	85928	123803	82842	48981	61184
Material Cost of Production	249541	304152	293944	525904	312123

Source:

4.5 Inventory Consideration

Inventory plays an important role in profit planning for every organization. The main objective of the inventory is to meet its future requirement of production and sales. Raw materials and supplies, work in progress and finished stock are the main types of inventories. A certain level of inventory is needed for smooth sales activities of any organization.

BNL has a policy to maintain some stock for primary sales. The following table 11 shows the actual inventory of raw material, work in progress and finished goods over the period.

Table: 4.11
Stock of BNL

Fiscal Year	Stock of Raw Material		Stock of Work in progress		Stock of Finished good	
	Opening	Closing	Opening	Closing	Opening	Closing
2004/05	50992	85288	572	640	5979	7840
2005/06	85288	122780	640	1023	7840	7751
2006/07	122780	79958	1023	1567	7751	10722
2007/08	79958	47762	1567	1219	10722	18874
2008/09	47762	58718	1219	2466	18874	17371

Source: Audit Repost of BNL

The above table shows that the inventory of finished goods in fluctuated trend. It doesn't represent the any type of inventory policy. The table shows that the closing inventory is lowest in the year 2005/06 and it was highest in 2007/08.

4.6 Selling and Distribution Expenses of BNL

Selling and distribution expenses are not product costs and are not allocated to specific products. All those cost related to selling, distribution and delivery of products to customers are distributing expenses. BNL hasn't prepared the selling and distribution overhead separately in coming year. It is also included in annual general overhead estimated by the company. So it is difficult to know about the particulars expenses of distribution channel. Here is the detail selling and distribution overhead for the five year period in table 12 show.

Table: 4.12
Selling and Distribution Expenses

(in Rs. '000')

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Distribution Expenses	25015	24156	24199	25972	34822
Trade Discount	18959	44572	52573	30979	32256
Advertisement and Publicity	7563	7534	5360	488	852
Sales Promotion	17205	18607	13195	22285	28487
Subscription and Donation	33	47	94	312	199
Rejection and Breakages	7879	6791	6710	1219	1061
Product Transfer Fees	1367	6502	5945	-	7725
Total	78039	108209	108076	81255	105402

Source :

The above table shows that there are particulars expenses related to selling & distribution expenses. The expenses in trade discount are highly increased over the period. The variation in selling and distribution expenses of each year is very high. So the company has not any systematic plan related to selling and distribution expenses.

4.7 Administration Expenses of BNL

This budget included the expenses of office administration and overhead expenses or company. BNL doesn't prepare the overhead budget separately. Expenses budget for the year was base on actual cost of previous year. Annual budgets on different particulars were budgeted and compared with actual heading in each FY. Here are the office and general expenses of BNL for five years period in table 13 given below.

Table: 4.13
Office and General Expenses

(in Rs. '000')

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Salaries, wages and allowance	23156	26691	26560	66029	72107
Gratuity and contribution Provident Fund	3814	2906	2876	-	-
Security expenses	1570	32	12	-	4323
Rent	626	1007	628	5397	3632
Repair and maintenance	2892	4063	4793	3757	5296
Power and fuel	172	155	103	163	178
Traveling and conveyance	1717	1363	1847	8608	9492
Audit fees	220	220	220	220	220
Legal expenses	533	521	7775	1640	3232
Rates, registration and taxes	492	133	182	280	223
Bank charges	4853	153	672	346	225
Annual general meeting expenses	25	21	35	242	387
Insurance	215	274	941	102	66
Communication expenses	5075	3305	3690	5776	5863
Printing and stationary	713	680	813	1381	996
Training and development	11	157	717		
Uniform expenses	505	307	517	645	997
Provision for doubtful debts and obsolete stock and fixed assets	0	0	0	0	0
Royalties management fees	1425	2817	4421	-	7725
Obsolete stock and fixed assets written off	397	556	2655	1628	1626
Other expenses	1837	1031	1238	1677	2012
Total	50248	46392	60695	97891	118600

Source: Audit Reports: BNL

The above table shows that there are remarkable variations in expenses for different years. So we can say that the performance of administration is not good.

4.8 Cost Variability

Identification of the variability of cost is necessary in planning and control of the cost. Thus the knowledge of cost behavior is very important. Generally, cost behavior in two ways with relation to the volume of output. One is fixed cost that remains

constant in total for a certain level of output and the period. Second is variable cost that changes directly in total with the change of output level but remains constant in cost per unit of output.

In the case BNL there is not any applicable basis of cost classification in to variable and fixed cost. To segregate the mixed cost in to fixed and variable cost the company has provided the information about the degree of variability of the cost. All semi variables costs have segregated on the basis of the given information and details of segregation had presented in appendix four tables 11, the following table 14 showed information about the degree of variability of cost provided by the company.

Table: 4.14
Variability of Cost

Cost Heads	Cost Variability	Cost Heads	Cost Variability
Material Cost	Variable	Depreciation and Amortization	Fixed
Production Cost	30% Fixed	Accommodation Expenses	Fixed
Distribution Expenses	30% Fixed	Staff Bonus	Fixed
Trade Discount	Variable	Audit Fees	Fixed
Advertisement and Publicity	50% Fixed	Legal Expenses	50% Fixed
Sales Promotion	70% Fixed	Rates, Registration and Taxes	Fixed
Subscription and Donation	Variable	Bank Charges	Fixed
Rejection and Breakages	Variable	Annual General Meeting Expn.	Fixed
Product Transfer Fees	Variable	Insurance	Fixed
Salaries, Wages and Allowance	Fixed	Communication Expenses	Fixed
Gratuity and contribution to Provident Fund	Fixed	Printing and stationary	70% Fixed
Security expenses	Fixed	Training and development	70% Fixed
Rent	Fixed	Uniform expenses	Variable
Repair and maintenance	50% Fixed	Provision for doubtful debts and obsolete stock and fixed assets	Fixed
Power and fuel	20% Fixed	Royalties management fees	Variable
Traveling and conveyance	Variable	Obsolete stock and fixed assets written off	Fixed
Interest Expenses	Fixed	Other expenses	50% Fixed

Source: Audit Report of BNL

4.9 Profitability and Financial Ratios

An arithmetic relationship expressed in the form of percentage or in fraction is known as ratio. Ratio analysis is a technique of analysis and interpretation of financial statement. To evaluate the performance of an organization by creating the ratio from the figures of different accounts consisting in balance sheet and income statement is known as ratio analysis.

Ratio can be classified into four broad groups. One of them, profitability ratio shows the overall efficiency of the business concerns another one, financial ratio shows the long term as well as short term solvency of the concern.

4.9.1 Profitability Ratio Analysis

Profitability ratios can be determined on the basis of either sales or investments. Different profitability ratios calculated in appendix six, table 23 to table 27 are presented in table 15 below.

Table 4.15
Profitability Ratios

Ratios	2004/05	2005/06	2006/07	2007/08	2008/09
Gross profit ratio	42.77%	38.28%	43.31%	39.04%	38.08%
Operating profit ratio	19.70%	13.13%	16.62%	6.59%	13.15%
Net profit ratio	9.08%	3.18%	3.42%	3.76%	3.07%
Return on shareholders investment	6.98%	2.75%	2.97%	5.31%	6.87%
Return on Total assets	4.69%	1.87%	2.40%	2.93%	2.43%

From the table 15, it can be said that the rate of return either in terms of sales or in terms of investment has not stable or it has in fluctuating trend. All the ratios are highest in the FY 2004/05 and lowest in the FY 2005/06. In the FY 2006/07 the rate of return on both sales and investment is slightly improved with comparison to the FY 2005/06. Return on Shareholders' Investment and Return on Total Assets can be considered as satisfactory.

4.9.2 Financial Ratio Analysis

Financial ratios are calculated to see the short term as well as long term solvency of the firm. Different financial ratios calculated in appendix six, table 28 to table 32 are presented in table 16 below.

Table 4.16
Financial Ratios

Ratio	Ideal Ratio	2004/05	2005/06	2006/07	2007/08	2008/09
Current ratio	2:1	1.49:1	1.60:1	2.57:1	1.14:1	1.07:1
Quick ratio	1:1	0.43:1	0.28:1	0.79:1	0.72:1	0.59:1
Fixed assets ratio	<1	0.38	0.35	0.30	1.07	1.14
Ratio of current assets to fixed assets	–	0.96	1.09	1.02	0.78	0.85
Proprietary ratio	1.3	0.67	0.68	0.81	0.55	0.35

Source:

In the table 16, the current ratio is in fluctuating trend and it is considerable in the FY 2004/05 and it is higher than the ideal ratio in the FY 2006/07 but it is lower than the ideal ratio in other years. Quick ratio has always lower than the ideal ratio but in the FY

2006/07 it is improved therefore, it can be said that the solvency of the company is being improve. Fixed assets ratio is considerable in each years and ratio of current assets to fixed assets is in increasing trend in last three years which shows that the business has being expended. Proprietary ratio is much higher than the ideal ratio because there are no any long term debt of the company shown in the balance sheet. The financial condition and solvency of the company is satisfactory.

4.10 Cost-Volume-Profit Analysis of BNL

The relationship among cost, revenue and profit is known as cost-volume-profit analysis. CVP analysis is a powerful instrument in management decision making especially in cost control and profit planning. It helps at which the targeted profit amount of the company will be achieves.

Profit planning can be done only when the management has information about the cost of products, both fixed and variable costs and selling price of the product. CVP

analysis is especially applied for profit planning and control. The cost-volume-profit relationship will be established by break even analysis.

4.10.1 Break-Even Analysis Excluding Other Incomes and Ending Inventory

Table: 4.17
Income Statement for the Year

(In Rs. '000')

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Sales Revenue	535494	609654	632114	746581	1002720
Less: Variable cost of good sold	350479	445550	436714	455134	621893
Contribution margin	185015	164104	195400	291447	380826
Less: Fixed cost	145598	146576	160829	243536	279633
Earning before tax	39417	17528	34571	47911	101193
Profit volume ratio	0.35	0.27	0.31	0.39	0.38
Break even sales	421408	544537	520278	623651	735876
Percent of BES	79%	89%	82%	83.53%	73.38%
Margin of safety	114086	65117	111836	122930	266844
Margin of safety ratio	21%	11%	18%	16.47%	26.61%

Source: ?

A. Contribution Margin

The difference between sales amount and variable cost knew as the contribution margin. In other, fixed cost plus the amount of profit was equivalent to contribution margin. Contribution margin can be expressed by:

Contribution margin = sales volume- variable cost

The above table 17 showed the calculation of contribution margin of BNL for the five years period. Contribution margin for the period has in fluctuated trend. It has Rs. 18,50,15,000, 16,41,04,000, 19,54,00,000, 29,14,47,000, 38,08,26,000 for the fiscal year 2004/05, 2005/06, 2006/07, 2007/08, 2008/09 respectively.

B. Profit- Volume Ratio

It establishes a relationship between the contribution and sales volume. The factors profit and volume were interconnected and dependent with each other. Profit depends upon sales. It can be expressed by:

$$\text{Profit Volume Ratio} = \frac{\text{Contribution margin}}{\text{Sales}}$$

From the above table, 17 the profit volume ratio of BNL for different years is in decreasing trend. The profit volume ratio was 0.35, 0.27, 0.31, 0.39 and 0.38 for the fiscal year 2004/05, 2005/06, 2006/07, 2007/008 and 2008/09 respectively. An increase in contribution margin would mean increases in profit only because fixed costs are assumed to constant at all levels of production. This ratio would remain constant at different levels or production since variable costs as of proportion to sales remains constant at various levels. Management should try to increase the value of the ratio by reducing the variable costs or by increasing the selling price.

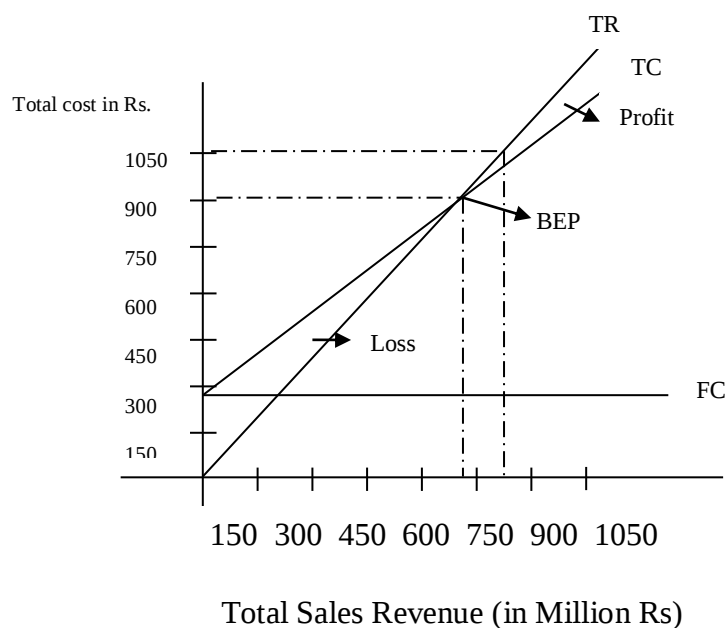
C. Break-Even Point

The point which breaks the total costs and selling price evenly to show the level of output or sales at which there shall be neither profit not loss, is regarded as break-even point. Through contribution margin approach, break-even point can be expressed by:

$$\text{Break-Even Point (in amount)} = \frac{\text{Fixed Cost}}{\frac{P}{V}\text{Ratio}}$$

In above table 17, break-even sales of BNL were Rs. 4,21,40,80,00, 5,44,53,70,00, 5,20,27,80,00 623,651,000 and 735,876,000 for the fiscal year 2004/05, 2005/06, 2006/07, 2007/008 and 2008/09 respectively. The trend of break-even sales shows that it is in an increasing trend up to the fiscal year 2005/06 and it has decreased in year 2006/07 and thereafter it increased up to 2008/09.

Figure 4.1
Graphical Presentation of BEP (Rs) Excluding the other Income& inventory FY
2008/09



Where,

Fixed Cost = Rs. 279 Million

Variable Cost = Rs. 621 Million

Total Cost = Rs. 900 Million

Sales Revenue = Rs.1002 Million

BEP Sales = Rs. 735 Million

Profit = Rs 101 Million

A simple break even chart of BNL for the fiscal year 2006/07 is shown above. Sales revenue is shown in X- axis and cost amount is shown in Y-axis. From the above chart the total fixed cost of the company is Rs. 161 million. It is parallel to X-axis. Variable cost directly varies. If there is no operation of the company variable cost becomes zero but the company should bear the fixed cost. Total sales revenue zero when sales volume was zero. And service or sales volume increase, sales revenue also increases. The equilibrium point is called breakeven level or volume. Below this point the company can not cover its cost as a result is suffers loss. And above this point sales revenue exceeds the total cost which provides the profit to the company. BNL has higher sales revenue than cost. Total sales revenue is Rs.1002 million where as

total cost Rs. 900 million in the year 2008/09. At a result the BNL was able to earn Rs. 101 million profit.

D. Margin of Safety

It is the difference between the actual sales revenue and the break-even sales revenue.

It can be expressed by:

Margin of Safety = Actual Sales- Break-Even Sales

The table 17 shows the margin of safety is in fluctuating trend. It is Rs. 40,86,000, 6,51,17,000, 11,18,36,000, 122930000 and 266844000 for the fiscal year 2004/05, 2005/06, 2006/07,2007/08 and 2008/09 respectively. The higher margin of safety indicates the better profitability of the company. It is highest in year 2005/06 and it is lowest in year 2008/09.

4.10.2 Cost-Volume-Profit Analysis Including Other Incomes and Inventory

Table: 4.18

Income Statement Including Other Incomes and Inventory

(in Rs. '000')

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Sales Revenue	535494	609654	632114	746581	1002720
Other Income	18058	12247	10437	1317	30701
Total Incomes	553552	621901	642551	747898	1033421
Less: Variable cost of goods sold	350479	445550	436714	455134	621893
Contribution Margin	203073	176351	205837	292764	411528
Less: Fixed Cost	145598	146576	160829	243536	279633
Earning Before Tax	57475	29775	45008	49228	131895
Opening Stock	5979	7840	7751	10722	18874
Closing Stock	7840	7751	10722	18874	17371
Contribution Margin of opening stock	4468	4863	5549		
Profit Volume Ratio	0.38	0.29	0.33	0.39	0.41
Break Even sales	378132	497749	484607	624451	682032
Percent Of BEP Sales	71%	82%	77%	84%	68%
Margin Of Safety	157362	111905	147507	122130	320688
Margin Of Safety Ratio	29	18	23	16	32

Source:

A. Contribution Margin

The difference between sales amount and variable cost is known as the contribution margin. In other words, fixed cost plus the amount of profit is equivalent to contribution margin. Contribution margin can be expressed by:

Contribution margin = sales volume- variable cost

The above table 18 shows the calculation margin of BNL for the five years period. Contribution margin for the period is in an increasing trend up to fiscal year 2004/05 and it has decreased in year 2005/06 and has again increased in year 2006/07. It was Rs. 20,30,73,000, 17,63,51,000, 20,58,37,000, 29,27,64,000, 41,15,28,000 for the fiscal year 2004/05, 2005/06, 2006/07, 2007/08, 2008/09 respectively.

B. Profit-Volume Ratio

It establishes a relationship between the contribution and sales volume. The factors profit and volume were interconnected and dependent with each other. Profit depends upon sales. It can be expressed by:

$$\text{Profit Volume Ratio} = \frac{\text{Contribution Margin}}{\text{Sales}}$$

From the above table 18 the profit volume ratio of BNL for different years is in decreasing trend up to 2005/06 and has increased in year 2006/07 upwards. The profit volume ratio is 0.38, 0.29, 0.33, 0.39 and 0.41 for the fiscal year 2004/05, 2005/06, 2006/07, 2007/8 & 2008/9 respectively. An increase in contribution margin would mean increases in profit only because fixed costs are assumed to be constant at all levels of production. This ratio would remain constant at different levels of production since variable costs as a proportion to sales remain constant at various levels. Management should try to increase the value of the ratio by reducing the variable costs or by increasing the selling price.

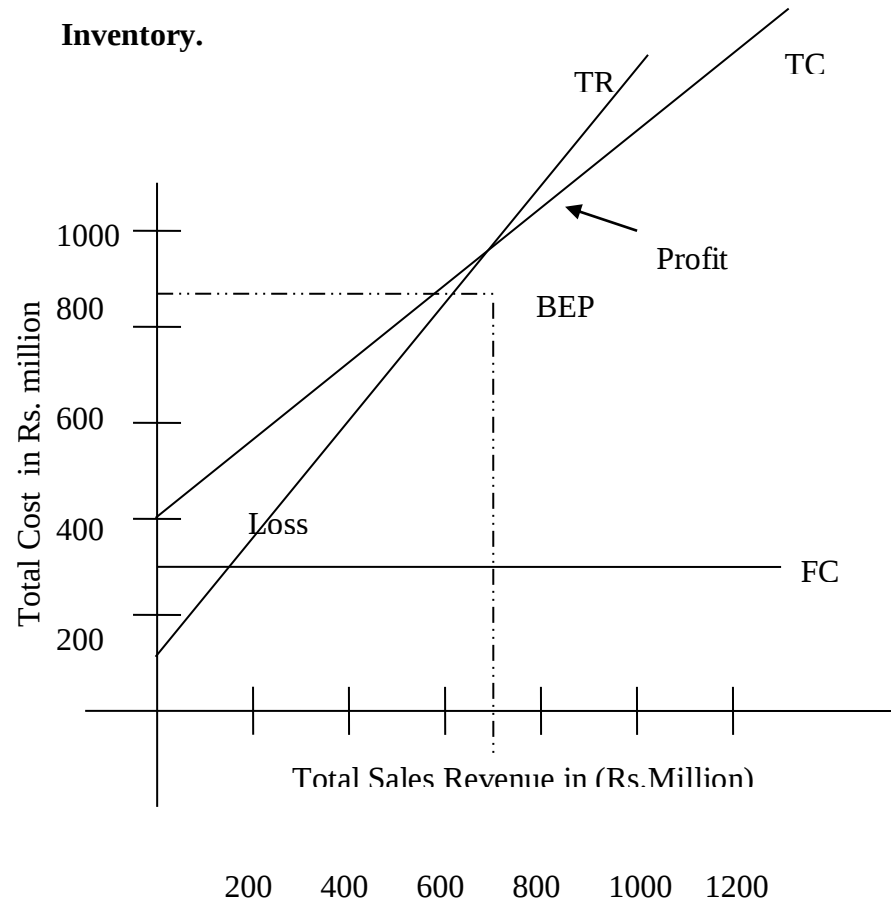
C. Break-Even Point

In the above table 18 break-even sales of BNL was, Rs. 37,81,32,000, Rs. 49,77,49,000, Rs. 48,46,07,000, Rs. 62,44,51,000 and Rs. 68,20,32,000 for fiscal year 2004/05, 2005/06, 2006/07, 2007/08 & 2008/09 respectively. The trend of break-

even sales shows that it is in an increasing trend up to fiscal year 2005/06 and it has decreased in year 2006/07.

Figure No: 4.2

Graphic Presentation of BEP Including the other Income and Inventory.



Where,

Fixed Cost = Rs. 279 Million

Variable Cost = Rs. 621 Million

Total Cost = Rs. 900 Million

Sales Revenue = Rs.1002 Million

BEP Sales = Rs. 682 Million

Profit = Rs. 101 Million

4.10.3 Cash Break-Even Point

The CVP relationship can also be used to show the liquidity position of the form. This is done through the computation of cash break-even point or cash break-even sales revenue (CBEP in amount). It can be expressed by:

$$CBEP = \frac{\text{Cash Fixed Cost}}{\frac{P}{V} \text{ Ratio}}$$

Table 4.19

Calculation of Cash Break Even Point for the Year 2004/05 to 2008/09

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Sales Revenue	535494	609654	632114	746581	1002720
Contribution Margin	185015	164104	195400	291447	380826
Cash Fixed Cost	93645	89743	94802	99184	118436
Profit Volume Ratio	0.35	0.27	0.31	0.39	0.38
Cash BE Sales	267657	332381	305813	254318	311674
Percent Of BE Sales	50%	55%	48%	34%	31%
Margin Of Safety	267937	277273	326301	492263	691046
Margin Of Safety Ratio	50%	45%	52%	66%	69%

A. Break-Even Point

The point which breaks the total cash costs and selling price evenly to show either the level of output or sales at which there shall be neither profit nor loss of cash is regarded as cash break-even point. Through contribution margin approach, cash break-even point

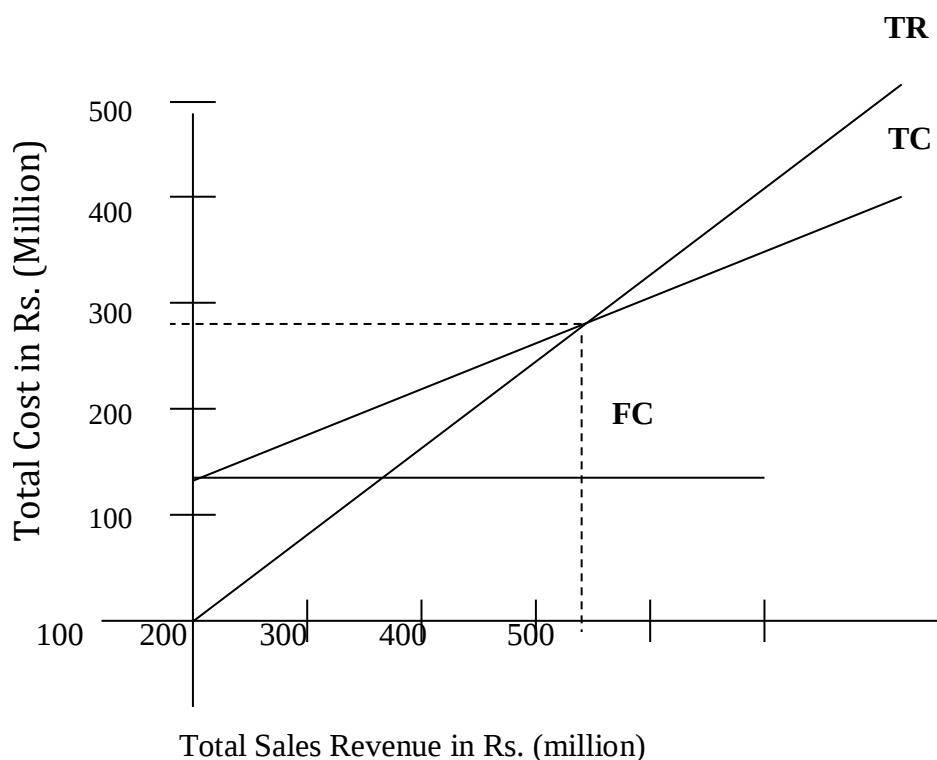
Can be expressed as:

Cash Break-even point (in amount) = Cash Fixed Costs

P/V Ratio

In above table 19, cash break-even sales of BNL are Rs. 26,76,57,000, 33,23,81,000, 30,58,13,000, 25,43,18,000, 31,16,74,000 for the fiscal year 2004/05, 2005/06, 2006/07, 2007/08, 2008/09 respectively. The trend of break-even sales shows that it is in an increasing trend up to fiscal year 2005/06 and it has decreased in year 2006/07 and 2007/08.

Figure No: 4:3
Graphical Presentation of Cash BEP (Rs) Excluding Other Income for the Fiscal
Year 2008/09



Where,

Cash Fixed cost = Rs. 118 Million

Cash Variable cost = Rs. 621 Million

Total Cost = Rs.739 Million

Sales revenue = Rs.1002 Million

Cash BEP Sales = Rs. 311 Million

Profit = Rs. 262 Million

A simple break-even chart of BNL for the fiscal year 2008/09 is shown above. Sales revenue is shown in Y-axis. From the above chart, the total cash fixed cost of the company was Rs. 118 million. It is parallel to X-axis. Variable cost directly varies with cost of production; therefore it is loping upward to right side. If no operation of the company variable cost revenue curve originates from the origin because sales revenue is zero when sales volume is zero. An service or sales volume increase sales revenue also increases. The equilibrium point where sales revenue and total cost line crossed is called break-even level or volume. Below this point the company cannot cover cost as a result it suffers loss and above this point sales revenue exceeds the

total cost which provides the profit to the company. In the figures, BNL has higher sales revenue than cost. Total sales revenue is Rs. 1002 million whereas a total cost is Rs. 739 million. As a result the BNL is able to earn Rs. 262 million profit.

B. Margin of Safety

It is the difference between the actual sales revenue and the break-even sales revenue.

It can be expressed as:

Margin of safety = Actual sales-Break-even sales.

The table 19 shows the margin of safety is in fluctuating trend. It is Rs. 26,79,37,000, 27,72,73,000, 32,63,01,000, 49,22,63,000, 69,10,46,000 for the fiscal year 2004/05, 2005/06, 2006/07, 2007/08, 2008/09 respectively. The higher margin of safety indicates the better profitability of the company. It is the highest in year 2008/09 and it is the lowest in the fiscal year 2004/05.

4.11 Assessing the Sensitivity Analysis. Impacts of Changes in Cost Volume Profit Variables

4.11.1 Assessing the Impact When Sales Revenue is Changed

It is another popular technique of testing the cost volume variables. When, there is any change in variables, the impact on the other factors is sure. Sensitivity analysis measures the elasticity of the change in CVP factors on break even point or given profit. To measure the sensitivity of CVP factors we can see the impact of certain percentage or amount change in volume, price or cost factors. For measurement of sensitivity, we have various variables but these all are not possible to test. So the main factors like sales, fixed cost and variable cost change impact are shown below for the organization.

Table: 4.20
Income Statement with Change in Revenue Value for the Year 20004/05 to
2008/09

Fiscal Year		Sales	V.C.	C.M.	F.C.	Profit	P/V Ratio	BEP	%Change in BEP
2004/05	Original	535494	350479	185015	145598	39417	0.35	421408	-
	10% Increase	589043	350479	238564	145598	92966	0.41	359498	(15%)
	10% decrease	481945	350479	131466	145598	(14132)	0.27	533753	27%
2005/06	Original	609654	445550	164104	146576	17528	0.27	544537	-
	10% Increase	670619	445550	225069	146576	78493	0.34	436740	(20%)
	10% decrease	548689	445550	103139	146576	(43437)	0.19	779772	43%
2006/07	Original	632114	436714	195400	160829	34571	0.31	520278	-
	10% Increase	695325	436714	258611	160829	97782	0.37	432419	(17%)
	10% decrease	568906	436714	132189	160829	(28640)	0.23	692163	33%
2007/08	Original	746581	455414	291167	166226	124941	0.39	426220	-
	10% Increase	821239	455414	365825	166226	199599	0.44	377786	(11%)
	10% decrease	671923	455414	216509	166226	50283	0.32	519456	21%
2008/09	Original	1002720	621687	381033	187933	193100	0.38	494560	-
	10% Increase	1102992	621687	481305	187933	293372	0.44	427120	(14%)
	10% decrease	902448	621687	280761	187933	92828	0.31	606235	23%

The above table 20 showed that break-even amount decreases with the increase in sales value by 10%, &that indicates that the sales and break-even point has inverse relation. Similarly, the decrease in sales value by 10% increases in the break-even sales. There is the increment of BEP by 27%, 43% , 33%, 21% and 23% with the 10% decrease in sales volume in the year 2004/05, 2005/06, 2006/07, 2007/08 and 2008/09 respectively. Similarly, there is the reduction of BEP by 15%, 20%, 17%, 11% and 23% with the 10% increase in sales volume in the year 2004/05, 2005/06, 2006/07, 2007/08 and 2008/09 respectively. From the observation the rate of increment is higher than the rate of reduction in BEP with the constant change of sales volume in the respective years. Therefore, it can be said that the decreases in sales affects the company more than the increase in sales by same percent. However, the sales trend is in increasing order the company should be careful in the fluctuation of sales, especially in those controllable factors that may reduce the sales volume.

4.11.2 Assessing the Impact when Variable Cost is Changed.

The impact of changes in variable costs on profit is straight forward if it does not cause any changes in selling price or volume. An increase in variable cost will lower the PV ratio and decrease in variable cost will increase the PV ratio. Increase and decrease of variable costs by 10% with other factors assumed to remain the same, it gets following results:

Table 4.21
Income Statement with Change in Variable Cost for the Year 2004/05 to 2008/09
(In Rs. '000')

Fiscal Year		Sales	V.C.	C.M.	F.C.	Profit	V/P Ratio	BEP	%Change in BEP
2004/05	Original	535494	350479	185015	145598	39417	0.35	421408	-
	10% Increase	535494	385527	149967	145598	4369	0.28	519893	23%
	10% decrease	535494	315431	220063	145598	74465	0.41	354294	(16%)
2005/06	Original	609654	445550	164104	146576	17528	0.27	544537	-
	10% Increase	609654	490105	119549	146576	(27027)	0.20	747481	37%
	10% decrease	609654	400995	208659	146576	62083	0.34	428262	(21%)
2006/07	Original	632114	436714	195400	160829	34571	0.31	520278	-
	10% Increase	632114	480385	151729	160829	(9100)	0.24	670027	29%
	10% decrease	632114	393043	239071	160829	78242	0.38	425238	(18%)
2007/08	Original	746581	455414	291167	166226	124941	0.39	426220	-
	10% Increase	746581	500955	245626	166226	79400	0.33	503715	18%
	10% decrease	746581	409873	336708	166226	170482	0.45	369391	(13%)
2008/09	Original	1002720	621687	381033	187933	193100	0.38	494560	-
	10% Increase	1002720	683856	318864	187933	130931	0.32	587291	19%
	10% decrease	1002720	559518	443202	187933	255269	0.44	427120	(14%)

The table 21 shows that 10% increase in variable costs increases the break-even point and 10% decrease in variable costs decreases the break-even point which indicates that variable costs and break-even point have positive relationship. There is the increment of BEP by 23%, 37%, 29%, 18% and 19% with the 10% increase in variable cost in the year 2004/05, 2005/06, 2006/07, 2007/08 and 2008/09 respectively. From the observation the rate of increment is higher than the rate of reduction in BEP with the constant change in variable cost in the respective years. Therefore, it can be said that the increase in variable cost affects the company more

than the decrease in variable costs by same percent, and the change trend of variable cost is in increasing order.

Therefore, company should be careful in the fluctuation of variable cost, especially in those controllable factors that may increase the variable cost and should try to control the cost to get stability in variable cost.

4.11.3 Assessing the impact when fixed cost is changed.

A change in fixed costs does not influence the PV ratio. Other factors remaining the same, a rise in the fixed costs causes an increment in BEP and decrease the profit. The changes of fixed costs with other factors remaining the same, it will get the following result:

Table 4.22
Income Statement with Change in Fixed Cost

(Rs in '000')

Fiscal Year		Sales	V.C.	C.M.	F.C.	Profit	V/P Ratio	BEP	%Change in BEP
2004/05	Original	535494	350479	185015	145598	39417	0.35	421408	-
	10% Increase	535494	350479	185015	160158	24857	0.35	463549	10%
	10% decrease	535494	350479	185015	131038	53977	0.35	379267	(10%)
2005/06	Original	609654	445550	164104	146576	17528	0.27	544537	-
	10% Increase	609654	445550	164104	161234	2870	0.27	598990	10%
	10% decrease	609654	445550	164104	131918	32186	0.27	490083	(10%)
2006/07	Original	632114	436714	195400	160829	34571	0.31	520278	-
	10% Increase	632114	436714	195400	176912	18488	0.31	572305	10%
	10% decrease	632114	436714	195400	144746	50654	0.31	468250	(10%)
2007/08	Original	746581	455414	291167	166226	124941	0.39	426220	-
	10% Increase	746581	455414	291167	182849	108318	0.39	468843	10%
	10% decrease	746581	455414	291167	149603	141564	0.39	383597	(10%)
2008/09	Original	1002720	621687	381033	187933	193100	0.38	494560	-
	10% Increase	1002720	621687	381033	206726	174307	0.38	544016	10%
	10% decrease	1002720	621687	381033	169140	211893	0.38	445105	(10%)

The table 22 shows that the 10% increase in fixed costs increases the BE amount with same percentage and 10% decrease in fixed costs decreases the BE amount by 10%. Therefore it can be concluded that break-even point and fixed costs have proportionate

relationship. From the observation, the change in fixed cost affects the BEP in same rate. The fixed cost of the company is increasing continuously. Therefore, company should analyze the nature and variability of cost and find the real and actual fixed cost; since, the current system of cost analysis and segregation is not scientific and practical.

4.12 Major Findings

The major findings of this study based on the analysis of available data are pointed out as follows:

- Segregation of fixed and variable cost is ignored by BNL. CVP analysis is not practicing by BNL. No any method has been adopted to segregate cost in to Fixed or variable.
- Relevant internal and external market variables are not fully explored.
- Sales and production targets are not achieving because there is not an effective forecasting system.
- Enterprises has no financial plan, they have only sales and production plan in term of required target.
- The company's sales trend is in increasing trend. It reached Rs1,00,27,20,000 for the fiscal year 2008/09 which was Rs. 53,54,94,000 in the fiscal year 2004/05.
- There is no any effective plan for cost reduction and control.
- There is lack of effective cost control programmers or techniques.
- The profit trend of the company is not satisfactory. As compared to profit, proportion is very low with fluctuated trend.
- The company has no detailed and systematic expenses plan. The fixed, variable and mixed expenses plan is the necessary elements for profit planning and control.
- In the company, there is no effective inventory policy. The inventory management, raw material handing and controlling system are not efficient and effective.
- There are no any proper criteria for performance evaluation for financial analysis.

CHAPTER - V

SUMMARY, CONCLUSIONS & RECOMMENDATIONS

5.1 Summary

Profit planning of is very important and necessary tools for both deficit and surplus units of the growing financial markets of our country Nepal. So, profit plan is the lifeblood of every organization, which not only keeps it alive but also assures the future and creates the soundness on it. PPC means the development of objectives, which motivates the organization to achieve the objectives effectively and efficiently. It is one of the most important mechanisms for planning and controlling business operations. The effective operation of a business concern resulting into the excess of income of income over the expenditure fully depends upon as to what extent the management follows proper planning, effective coordination and dynamic control. Management can effectively achieve organizational objectives through the efficient use of scarce available resources in a changing environment of business. Future is uncertain which creates risk and only the good management can reduce it. CVP analysis is an analytical technique for studying the relationship between volume, costs and profit which helps manage future costs and profit. Profit planning is a management technique and it is a written plan in all aspect of business operations for definite future period. CVP analysis is a technique used to determine the usefulness and effectiveness of profit planning process of the organization. In fact, the entire field of profit or profit planning is associated with the CVP inter relationship.

The main objective of the present research is to examine the use of cost-volume profit analysis to plan the profit. Therefore, this study is undertaken to analyze cost-volume-profit relationship in BNL to plan the profit. As per the nature of the study, the secondary data were used and related other information were collected through informal interviews for sales analysis, costs analysis, inventory analysis, contribution margin analysis, P/V ratio analysis, BEP analysis.

The cost-volume-profit analysis of BNL shows that the company has low contribution, low P/V ratio, high BEP and low margin of safety. The sensitivity test of cost-volume profit analysis showed that the increase in costs (i.e. variable and fixed),

increases the BEP and the decrease in costs decreases the BEP. But increase of selling price decreases the BEP. It indicates the relationship between selling price and BEP is correlate negatively. To fulfill the company's objectives, it takes burden of all types of fixed costs but not control effectively. Company's profit condition is satisfactory. Lack of detail information and extra cost burdens are the main reasons behind not practicing profit planning and control tools like a CVP analysis.

5.2 Conclusion

Different types of tools and techniques of profit planning are not applied by BNL. BNL has neither applied cost-volume-profit analysis nor has a practice of segregation of costs into fixed and variable. Increasing operating and maintenance cost in each year another remarkable problem for BNL. The company did not adapt the cost control programs. Company had no practice of separating into fixed and variable. The classification of cost is not scientific and systematic. Therefore, BNL is unable apply CVP analysis needed to the realistic budget. After analyzing in detail the present practice on the field of profit planning in BNL, the following conckysuibs have been derived from the major findings of this study.

- **Lack of Clear Objectives**

The objective of the company is not clearly defined. There is not a long-term strategic plan to achieve the unclear defined objectives. There is not complete and comprehensive budgeting system. BNL has not prepared long-term strategic profit plan but has prepared only short-term profit plan in term of budget for each year.

- **Lack of Skilled Planner and Budgeting Experts**

There is not a scientific budgeting system. Budgets are prepared on traditional basis. There is no planning for purchasing or materials and sales or goods. All overhead expenses or shown in general expenditures budget.

- **Lack of Participatory Management**

The plans are prepared from top level and later it is communicated to the lower level in terms of required target but not in the term of the action plan. There is lack of authorities to formulate various plans in lower level management.

- **Lack of Analyzing System of SWOT**

Company has not analyzed its strength and weakness. Quality products, local manpower, latest production technology, etc. are the strength whereas high production costs, market competition, difficulties to import raw materials, high fixed costs, etc. are the weakness of the company.

- **Ineffective Budgetary Control System**

Fixed cost and non-manufacturing cost are growing higher. Past year, actual cost is taken as a budget for the current year and there is not any program to study about variation between budget and actual expenditures.

- **Not Optimum Utilization of Fixed Cost**

There is not the optimum utilization of fixed cost because the fixed cost are growing higher without any reason and from this situation the relation between actual sales and actual profit has become an unpredictable relation.

- **Lack of Systematic Accounting and Classification of Cost**

There is no systematic classification of cost as fixed and variable components. There is not the system of analysis of cost and clear-cut policy to separate semi-variable cost into fixed and variable. The costs are roughly classified and such classification is not scientific and appropriate.

- **Lack of Suitable Inventory Policy**

BNL has no inventory policy. The finished goods inventory levels have been fluctuating each year.

- **Lack of Systematic and Complete Profit Planning Program**

Total sales achievement and production of BNL are fluctuating year after year. Similarly, gross profit margin and net profit margin are in fluctuating trend. So, the rate of trend and growth is not stable. The company has not developed the alternative plan to earn profit. There is significant correlation between sales target and sales achievement, production target and production achievement. It indicates that increases in targeted sales will also increase sales achievement, similarly also affected is production plan. The regression line about sales of BNL indicates positive trends. Coefficient of determination of sales and production shows that there are some other factors affecting the forecasting of sales and production. However, BNL has not searched those factors to make its profit plan complete and systematic.

5.3 Recommendations

On the basis of the study of use of CVP analysis to plan the profit of BNL, it seems necessary to develop, implement and improve the process of CVP analysis. Nepal is proceeding towards globalization with membership of WTO. Nepalese companies should make fit with the global environment with best-fitted managerial strategies. For better utilization of the limited resources and achieve goal, application of advance profit planning and control tools can be of great help. Thus, the recommendations based on the findings of the research study are as follows:

- **Analyze the SWOT**

For long life of the company, it should analyze its strengths and weaknesses in internal environment of company and its opportunities and threats in external environment of the company.

- **Apply participatory Management System**

The participative management should play the important role in implementation of decisions. Therefore, the company should try for the involvement of more personnel in decision-making process as far as possible. The CVP and PPC manuals should be communicated from top to lower levels of the company.

- **Apply Budgetary Control System**

To strengthen the competitiveness of BNL and to carry out PPC activities, the company should use the profit planning and controlling tools. For budgeting activities tools like CVP analysis should be considered for planning.

- **Classify the Cost**

Classification of expenses and cost by their nature of variability is very essential. From this application of CVP analysis and preparation of flexible budgets becomes exact and easier.

- **Make optimum Utility of Fixed Cost**

BNL has huge amount in fixed cost. Therefore, the company should try to maximum and effective utilization of fixed cost to generate profit.

- **Use Effective Inventory Policy**

The ending inventory of the company does not show the any inventory policy. Therefore, the company should apply the effective inventory management policy, raw material handling and controlling system for continuous production and selling of the product.

- **Use Systematic and Complete Profit Planning Program.**

A systematic and complete profit planning programmed should be followed to generate more profit. From this, the efficiency and profitability of the company may be improved.

- **Use Performance Report**

Finally, a system of periodical performance report should be strictly followed to be conscious about poor performance and take corrective actions immediately.

BIBLIOGRAPHY

- Agrawal, A.N. and Lal, K. (1989). *Economics of Development and Planning*. New Delhi: Vikas Publishing House Pvt.Ltd.
- Bajracharya, P. and et.al. (2004) *Management Accounting*, Kathmandu: Ashmita Publication.
- Dangol, R.M. & Prajapati, K., (2001). *Accounting for Financial Analysis and Planning*. Kathmandu: Taleju Prakashan.
- Dangol, Ratna Man (1997). *Management Accounting*. Kathmandu: Taleju Prakashan.
- Dean, Joel (1971). *Managerial Economics*. New Delhi: Prentice Hall of India.
- Dewette, K.K. (1981). *Modern Economic Theory*. New Delhi: S. Chand and Company.
- Fago, G. (2003). *Profit Planning and Control*. Kathmandu: Buddha Academic Enterprises Pvt.Ltd.
- Garrison, R.H. (1985). *Managerial Accounting*. Texas: Business Publication Inc. Plan.
- George, R. Terry (1968). *Principle of Management*. Wood Mlions: Richard Irwin Inc. Home.
- Giri, T.P. (1994). *Accounting Practices*. Kathmandu: EKTA Publication.
- Gupta, S.C. (1997). *Advanced Accounts*. New Delhi: S. Chand and Company.
- Gupta, S.P. (1990). *Statistical Methods*. New Delhi: Tata McGraw Hill Publishing Company.
- Gupta, S.P. (1995). *Management Accounting*. Agra: Shahitya Bhawan Publication.
- Hiltion, R.W. (1997). *Managerial Accounting*. USA: McGraw-Hill Inc.
- Horngren, C.T. (1991). *Introduction to Management Accounting*, New Delhi: Prentice Hall of India.
- Horngren, C.T., Foster, George and Dattar, S.M. (1999). *Cost Accounting: A Management Approach*. New Delhi: Prentice Hall of India Pvt. Ltd.
- Jain, S.P. and Narang, K.L. (1993). *Advanced Accounting*. New Delhi: Kalyani Publishers.
- Kaplan, R.S. and Atkinson, A.A. (1998). *Advances Management Accounting*. New York Printice Hall International.

- Khan, M.Y. and Jain, P.K., (1993). *Management Accounting*. New Delhi: Tata McGraw Hill Publishing Company.
- Khan, M.Y. and Jain, P.K. (1996). *Financial Management*. New Delhi: Tata McGraw Hill Publishing Company.
- Kulkarni, P.V. (1985). *Financial Management*. New Delhi: Indian Himalayan Publication House.
- Lal, Jawahar, (1996). *Cost Accounting*. New Delhi: Tata McGraw Hill Publishing Company.
- Lynch, R.M. and Williamson, R.W. (1999). *Accounting for Management*. New Delhi: Tata McGraw Hill Publishing Company.
- Maheshwori, S.N. (2000). *Management Accounting and Financial Control*. New Delhi: Sultan Chand & Sons Educational Publishers.
- Munankarmi, S.P. (2003). *Management Accounting*. Kathmandu: Buddha Academic Enterprises Pvt.Ltd.
- Pandey, I.M. (1987). *Financial Management*. New Delhi: Vikas Publishing House Pvt. Ltd.
- Pandey, I.M. (1994). *Management Accounting*. New Delhi: Vikas Publishing House Pvt.Ltd.
- Paul, S.Kr. (1996). *Management Accounting*. Calcutta: New Central Books Agency Pvt.Ltd.
- Rathnam, P.V. (1994). *Budgeting*. New Delhi: Indian Himalayan Publication House.
- Saxena, V.K. and Vashist, C.D. (1995). *Advance Cost and Management Accounting*. New Delhi: Sultan Chand & Sons Educational Publishers.
- Sharma, R.K. and Gupta, K.S. (1993). *Management Accounting*. New Delhi: Kalyani Publishes.
- Van Horn, J.C. (1998). *Financial Management and Policy*. New Delhi: Prentice Hall of India.
- Welsch, G.A. Hilton, R.W. & Gorder, P.N. (1992). *Budgeting: Profit Planning and Controlling*. New Delhi: Prentice Hall of India Pvt. Ltd.
- Welsch, G.A. (1979). *Budgeting: Profit Planning and Control*. New Delhi: Prentice Hall of India Pvt.Ltd.
- Welsch, G.A., Hilton, R.W. and Gordon, P.N. (2001). *Budgeting: Profit Planning and Controlling*. New Delhi: Prentice Hall of India Pvt.Ltd.
- Weston, J.F. and Brigham, E.F. (1990). *Essentials of Managerial Finance*. Chicago: The Dryden Press.

Weston, J.F. and Copland, J.E. (1992). *Managerial Finance*. Chicago. The Dryden Press.

Unpublished Master Level Thesis:

Acharya, Narayan Prasad. (2010) “Cost volume profit analysis as a tool of profit planning (With reference to Salt Trading Corporation)”. Unpublished Master Level Thesis, Nepal Commerce Campus Minbhawan, Kathmandu.

Aryal Chaturbhuj, (2006). “CVP analysis as a tool to measure effectiveness of PPC (A Case Study Herbs Production and Processing Com.Ltd.)”. Unpublished Master Level Thesis, Shanker Dev Campus, Ramsahapath, Kathmandu.

Bartakoti, Sanubabu (2009). “CVP Analysis as a tool of Profit Planning” An Unpublished Master Level Thesis, Nepal Commerce Campus Minbhawan, Kathmandu,

Bhusal, Bhesh Raj, (2007) “Uses of CVP analysis to plan the profit in Nepalese Manufacturing Companies (A Case Study of Bottlers Nepal Pvt.Ltd.)” Unpublished Master Level Thesis, to Shanker Dev Campus, Ramsahapath, Kathmandu.

Dahal, Narayan Prasad (1999). “Profit Planning in Nepalese Manufacturing Company: A Case Study of Himat Cement Company.” An Unpublished Master Level Thesis, Shanker Dev Campus.

Ghimire, Indira (2004). “Profit Planning in Manufacturing Company in Nepali; a Case Study of Bottlers Nepal Ltd”. An Unpublished Master Level thesis, Shanker Dev Campus.

Pokharel Oum (2008) “Cost Volume Profit Analysis (A comparative Analysis between Gorkha Corporation and Kantipur Publication Pvt. Ltd.)”. An Unpublished Master level Thesis, Nepal Commerce Campus. Minbhawan, Kathmandu,

Riajl, Madhav (2005). “Cost Volume Profit Analysis as a Tool to Measure Effectiveness of Profit Planning and Control. A Case Study of NEBICO Pvt.Ltd”. An Unpublished Master level Thesis, Shanker Dev Campus.

Sapkota, Rambabu (2003). “Profit Planning of Nepal Lever Limited”. An Unpublished Master Level Thesis, Shanker Dev Campus.

Sharma, Sagar (2002). “Management Accounting Practices in the Listed Companies of Nepal”. An Unpublished Masters Level Thesis, Shanker Dev Campus.

Journals, Report and Articles:

Central Bureau of Statistics, 2008. *Nepal Living Standard Survey-2008*, Vol.-II, Kathmandu.

Central Bureau of Statistics, 2004. *Nepal Living Standard Survey-2004*, Vol. – 1, Kathmandu.

Ministry of Finance, G/N, 2009. *Economic Survey, FY 2008/09*, Kathmandu

Ministry of Finance, G/N, 2008. *Economic Survey, FY 2007/08*, Kathmandu

Ministry of Finance, G/N, 2007. *Economic Survey, FY 2006-07*, Kathmandu

Ministry of Finance, HMG/N, 2006. *Economic Survey, FY 2005-06*, Kathmandu.

Ministry of Finance, HMG/N, 2005. *Economic Survey, FY 2004-05*, Kathmandu.

Ministry of Finance, HMG/N, 2004. *Economic Survey, FY 2003-04*, Kathmandu.

Ministry of Finance, HMG/N, 2003. *Economic Survey, FY 2002-03*, Kathmandu.

Ministry of Finance, HMG/N, 2002. *Economic Survey, FY 2001-02*, Kathmandu.

Websites;

w.w.w. google.com
w.w.w. bottlersnepal.com
w.w.w mof.gov.np

Appendix- I

Table: 1 Calculation of Statistical Measurements of Actual Sales and Budgeted Sales (in Rs. '000')

Year	Budgeted Sales(x)	Actual Sales(y)	(X-X)	(Y-Y)	(X- $\bar{X}$)(Y- $\bar{Y}$)	(X- $\bar{X}$) ²	(Y- $\bar{Y}$) ²
2004/05	567000	535494	-214400	-169825	3641048000	45967360000	28840530630
2005/06	670000	609654	-111400	-95665	1065708100	12409960000	9151792225
2006/07	740000	632144	-41400	-73175	3029445000	1713960000	5354580625
2007/08	810000	746581	28600	41262	1180093200	817960000	1702552644
2008/09	11200000	1002720	338600	297401	100699978600	114649960000	88447354800
Total	3907000	3526593	0	0	151977077000	175559200000	133496810900

Where,

$$\begin{aligned}\text{Mean Budgeted Sales } (\bar{X}) &= \frac{\sum X}{N} \\ &= \frac{3907000}{5} \\ &= 781400\end{aligned}$$

$$\begin{aligned}\text{Mean Actual Sales } (\bar{Y}) &= \frac{\sum Y}{N} \\ &= \frac{3526593}{5} \\ &= 705319\end{aligned}$$

$$\begin{aligned}\text{Standard deviation of Budgeted Sales } (\sigma_x) &= \sqrt{\frac{\sum (X - \bar{X})^2}{N}} \\ &= \sqrt{\frac{175559200000}{5-1}} \\ &= 2,09,499\end{aligned}$$

$$\begin{aligned}\text{Standard deviation of Actual Sales } (\sigma_y) &= \sqrt{\frac{\sum (Y - \bar{Y})^2}{N}} \\ &= \sqrt{\frac{133496810900}{5-1}} \\ &= 1,82,686\end{aligned}$$

$$\text{Coefficient of variation of Budgeted Sales (c.v._x)} = \frac{\sigma_x}{\bar{X}} \times 100$$

$$= \frac{209499}{781400}$$

$$= 26.81\%$$

$$\text{Coefficient of variation of Actual Sales (c.v._y)} = \frac{\sigma_y}{\bar{Y}} \times 100$$

$$= \frac{182686}{705319}$$

$$= 25.90\%$$

$$\begin{aligned} \text{Correlation Coefficient (r}_{xy}) &= \frac{\sum (X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum (X - \bar{X})^2 \sum (Y - \bar{Y})^2}} \\ &= \frac{151977077000}{\sqrt{175559200000 \times 13349686810900}} \\ &= 0.9927 \end{aligned}$$

$$\text{Probable Error (P.E.)} = 0.6745 \times \frac{1 - r_{xy}^2}{\sqrt{N}}$$

$$= 0.6745 \times \frac{1 - (0.9927)^2}{\sqrt{5}}$$

$$= 0.00437$$

$$\text{Coefficient of determination (r}^2) = (0.9927)^2$$

$$= 0.98551$$

Regression Equation of Actual Sales Y on Budgeted Sales X is given by:

$$Y - \bar{Y} = r_{xy} \times \frac{\sigma_y}{\sigma_x} (X - \bar{X})$$

$$Y - 705319 = 0.9927 \times \frac{209499}{182686} \times (X - 781400)$$

$$Y = 28902 + 0.8657X$$

Calculation of Estimated Sales

2004/05	$Y = 28902 + 0.8657X$	$Y = 28902 + 0.8657 \times 567000 =$
519754		
2005/06	$Y = 28902 + 0.8657X$	$Y = 28902 + 0.8657 \times 670000 =$
608921		
2006/07	$Y = 28902 + 0.8657X$	$Y = 28902 + 0.8657 \times 740000 =$
669520		
2007/08	$Y = 28902 + 0.8657X$	$Y = 28902 + 0.8657 \times 810000 =$
730119		
2008/09	$Y = 28902 + 0.8657X$	$Y = 28902 + 0.8657 \times 1002720 =$
998486		

Appendix-II

Table: 2 Calculations of Statistical Measurements of Actual Production and Budgeted Production (in Rs. '000')

Year	Budgeted Production (x)	Actual Production (y)	$(X - \bar{X})$	$(Y - \bar{Y})$	$(X - \bar{X})(Y - \bar{Y})$	$(X - \bar{X})^2$	$(Y - \bar{Y})^2$
2004/05	320000	308341	-109000	-75942	8277678000	11881000000	5767187364
2005/06	405000	376174	-24000	-8109	194616000	576000000	65755881
2006/07	425000	371348	-4000	-12935	51740000	16000000	167314225
2007/08	465000	393421	36000	9138	328968000	1296000000	83503044
2008/09	530000	472132	101000	87849	8872749000	10201000000	7717446801
Total	2145000	1921416	0	0	17725751000	23970000000	13801207320

Where,

$$\begin{aligned}\text{Mean Budgeted Production } (\bar{X}) &= \frac{\sum X}{N} \\ &= \frac{2145000}{5} \\ &= 429000\end{aligned}$$

$$\begin{aligned}\text{Mean Budgeted Production } (\bar{Y}) &= \frac{\sum Y}{N} \\ &= \frac{1921416}{5} \\ &= 384283\end{aligned}$$

$$\begin{aligned}\text{Standard deviation of Budgeted Production } (\sigma_x) &= \sqrt{\frac{\sum (X - \bar{X})^2}{N}} \\ &= \sqrt{\frac{23970000000}{5-1}} \\ &= 77411\end{aligned}$$

$$\begin{aligned}\text{Standard deviation of Actual Production } (\sigma_y) &= \sqrt{\frac{\sum (Y - \bar{Y})^2}{N}} \\ &= \sqrt{\frac{13801207320}{5-1}} \\ &= 58739\end{aligned}$$

$$\begin{aligned}\text{Coefficient of variation of Budgeted Production (c.v.x)} &= \frac{\sigma_x}{\bar{X}} \times 100 \\ &= \frac{77411}{429000} \\ &= 18.04\%\end{aligned}$$

$$\begin{aligned}\text{Coefficient of variation of Actual Production (c.v.y)} &= \frac{\sigma_y}{\bar{Y}} \times 100 \\ &= \frac{58739}{384283} \\ &= 15.29\%\end{aligned}$$

$$\begin{aligned}\text{Correlation Coefficient (r}_{xy}) &= \frac{\sum (X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum (X - \bar{X})^2 \sum (Y - \bar{Y})^2}} \\ &= \frac{17725751000}{\sqrt{23970000000 \times 13801207320}} \\ &= 0.9746\end{aligned}$$

$$\begin{aligned}\text{Probable Error (P.E.)} &= 0.6745 \times \frac{1 - r_{xy}^2}{\sqrt{N}} \\ &= 0.6745 \times \frac{1 - (0.9746)^2}{\sqrt{5}} \\ &= 0.0151\end{aligned}$$

$$\begin{aligned}\text{Coefficient of determination (r}^2) &= (0.9746)^2 \\ &= 0.9498\end{aligned}$$

Regression Equation of Actual Production Y on Budgeted Production X is given by:

$$\begin{aligned}Y - \bar{Y} &= r_{xy} \times \frac{\sigma_y}{\sigma_x} (X - \bar{X}) \\ Y - 384283 &= 0.9746 \times \frac{58739}{77411} \times (X - 429000) \\ Y &= 67029 + 0.7395X\end{aligned}$$

Calculation of Estimated Production

$$\begin{array}{lll}2004/05 & Y = 67029 + 0.7395X & Y = 67029 + 0.7395 \times 320000 = \\ 303669 & & \end{array}$$

366526	2005/06	$Y = 67029 + 0.7395X$	$Y = 67029 + 0.7395 \times 405000 =$
381316	2006/07	$Y = 67029 + 0.7395X$	$Y = 67029 + 0.7395 \times 425000 =$
410897	2007/08	$Y = 67029 + 0.7395X$	$Y = 67029 + 0.7395 \times 465000 =$
458964	2008/09	$Y = 67029 + 0.7395X$	$Y = 67029 + 0.7395 \times 530000 =$

Appendix-III

Table: 3 Calculations of Statistical Measurements of Actual Sales and Actual Profit (in Rs. '000')

Year	Actual Sales (x)	Actual Profit (y)	$(X - \bar{X})$	$(Y - \bar{Y})$	$(X - \bar{X})(Y - \bar{Y})$	$(X - \bar{X})^2$	$(Y - \bar{Y})^2$
2004/05	535494	48610	-169825	18548	-3149914100	28840530630	344028304
2005/06	609654	19372	-95665	-10690	1022658850	9151792225	114276100
2006/07	632144	21595	-73175	-8467	619572725	5354580625	71690089
2007/08	746581	30272	41262	210	8665020	1702552644	44100
2008/09	1002720	30459	297401	397	118068197	88447354800	157609
Total	3526593	150308	0	0	-1380949308	53894191600	530196202

Where,

$$\begin{aligned}\text{Mean Actual Sales } (\bar{X}) &= \frac{\sum X}{N} \\ &= \frac{3526593}{5} \\ &= 705319\end{aligned}$$

$$\begin{aligned}\text{Mean Actual Profit } (\bar{Y}) &= \frac{\sum Y}{N} \\ &= \frac{150308}{5} \\ &= 30062\end{aligned}$$

$$\begin{aligned}\text{Standard deviation of Actual Sales } (\sigma_x) &= \sqrt{\frac{\sum (X - \bar{X})^2}{N}} \\ &= \sqrt{\frac{53894191600}{5-1}} \\ &= 2, 09,499\end{aligned}$$

$$\begin{aligned}\text{Standard deviation of Actual Sales } (\sigma_y) &= \sqrt{\frac{\sum (Y - \bar{Y})^2}{N}} \\ &= \sqrt{\frac{530196202}{5-1}} \\ &= 11513\end{aligned}$$

$$\text{Coefficient of variation of Budgeted Sales (c.v._x)} = \frac{\sigma_x}{\bar{X}} \times 100$$

$$= \frac{182686}{705319}$$

$$= 25.90\%$$

$$\text{Coefficient of variation of Actual Sales (c.v.y)} = \frac{\sigma_y}{\bar{Y}} \times 100$$

$$= \frac{11513}{30062}$$

$$= 38.30\%$$

$$\begin{aligned} \text{Correlation Coefficient (r}_{xy}) &= \frac{\sum (X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum (X - \bar{X})^2 \sum (Y - \bar{Y})^2}} \\ &= \frac{-1380949308}{\sqrt{133501202100 \times 5301962020}} \end{aligned}$$

$$= -0.0519$$

$$\text{Probable Error (P.E.)} = 0.6745 \times \frac{1 - r_{xy}^2}{\sqrt{N}}$$

$$= 0.6745 \times \frac{1 - (-0.0519)^2}{\sqrt{5}}$$

$$= 0.3008$$

$$\text{Coefficient of determination (r}^2) = (-0.0519)^2$$

$$= 0.0027$$

Regression Equation of Actual Sales Y on Budgeted Sales X is given by:

$$Y - \bar{Y} = r_{xy} \times \frac{\sigma_y}{\sigma_x} (X - \bar{X})$$

$$Y - 30062 = -0.0519 \times \frac{11513}{182686} \times (X - 705319)$$

$$Y = 27755 - 0.0033X$$

Calculation of Estimated Profit

2004/05	Y = 27755 - 0.0033X	Y = 27755 - 0.0033 × 535494 = 25988
2005/06	Y = 27755 - 0.0033X	Y = 27755 - 0.0033 × 609654 = 25743
2006/07	Y = 27755 - 0.0033X	Y = 27755 - 0.0033 × 632114 = 25669
2007/08	Y = 27755 - 0.0033X	Y = 27755 - 0.0033 × 746581 = 25291
2008/09	Y = 27755 - 0.0033X	Y = 27755 - 0.0033 × 1002720 = 24446

Appendix-IV

Table-4: Budgeted Sales and Actual Sales (In Rs. '000')

Year	Actual Sales	Budgeted Sales
2004/05	535494	567000
2005/06	609654	670000
2006/07	632144	740000
2007/08	746581	810000
2008/09	1002720	11200000

Source: Audit Report BNL

Table-5: Budgeted Production and Actual Production (In Rs. '000')

Year	Actual Production	Budgeted Production
2004/05	308341	320000
2005/06	376174	405000
2006/07	371348	425000
2007/08	393421	465000
2008/09	472132	530000

Source: Audit Report BNL

Table-6: Other income (In Rs. '000')

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Sales of post mix cup	35	6	-	-	-
Recovery of insurance claim	169	-	-	-	105
Interest Income	149	94	6	-	-
Exchange gain/(loss)	191	(102)	(1068)	(1052)	(2345)
Sales of scrap and others	1067	1265	1152	2316	1854
Total	1611	1263	90	1264	(386)

Table-7: Revised Statement of Other Incomes (In Rs. '000')

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Sales of post mix cup	35	6	-	-	-
Recovery of insurance claim	169	-	-	-	105
Interest Income	149	94	6	-	-
Exchange gain/(loss)	191	(102)	(1068)	(1052)	(2345)
Sales of scrap and others	1067	1265	1152	2316	1854
Dividend received from subsidiary company	16447	10985	10985	-	9684
Profit/(loss) on sale of fixed assets	0	(1)	(638)	53	10070
Total	18058	12247	10437	1317	30701

Table-8: Profit and Loss

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Sales Revenue	535494	609654	632114	746581	1002720
(-) Cost of Sales	306480	376263	358377	455134	621893
Gross Profit	229014	233391	273737	291447	380826
Other Income	1611	1263	90	1317	30701
Business Expenditure:					
Distribution Expenses	25051	24156	24199	25972	34822
Administration and general exp.	103272	130445	144572	217564	244810
Operating Profit	102302	80053	105056	49228	131894
Interest Expenses	82	284	4	20789	26193
Depreciation and amortization	44105	56277	63372	66444	70442
Profit/Loss on sale of fixed assets	0	1	638	10070	(9972)
Dividend received from subsidiary company	(16447)	(10985)	(10985)	(83483)	-
Provision of staff quarter	3328	1224	2574	1770	1763
Provision For bonus	5717	2977	4445	3363	3045
Total Expenditure	44827	50278	60048	18953	91471
Profit before tax	57475	29775	45008	30272	30459
Provision for tax	8865	4103	7208	2209	716
Tax paid in respects of earlier year	0	6300	16205	39492	9212
Profit after tax	48610	19372	21595	(11492)	20530
Balance brought forward	304834	333955	343583	178483	167054
Profit for distribution	353444	353327	365178	-	-
Purposed dividend	19489	9744	0	-	9744
Balance Carried forward	333955	343558	365178	167054	177840

Table-9: Office and General Expenses in Rs. '000'

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Salaries, wages and allowance	23156	26691	26560	66029	72107
Gratuity and contribution Provident Fund	3814	2906	2876	-	-
Security expenses	1570	32	12	-	4323
Rent	626	1007	628	5397	3632
Repair and maintenance	2892	4063	4793	3757	5296
Power and fuel	172	155	103	163	178
Traveling and conveyance	1717	1363	1847	8608	9492
Audit fees	220	220	220	220	220
Legal expenses	533	521	7775	1640	3232
Rates, registration and taxes	492	133	182	280	223
Bank charges	4853	153	672	346	225
Annual general meeting expenses	25	21	35	242	387
Insurance	215	274	941	102	66
Communication expenses	5075	3305	3690	5776	5863
Printing and stationary	713	680	813	1381	996
Training and development	11	157	717		
Uniform expenses	505	307	517	645	997
Provision for doubtful debts and obsolete stock and fixed assets	0	0	0	0	0
Royalties management fees	1425	2817	4421	-	7725
Obsolete stock and fixed assets written off	397	556	2655	1628	1626
Other expenses	1837	1031	1238	1677	2012
Total	50248	46392	60695	97891	118600

**Table-10: Calculation of sales at cost, Mark up percent and contribution margin
for opening stock (In Rs. '000')**

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Production at cost	308341	376174	371348	393421	472132
Add: opening sock at costs	5979	7840	7751	10722	18874
Total	314320	384014	379099	404143	491006
Less: Closing stock at costs	7840	7751	10722	18874	17371
Sales at costs	306480	376263	368377	385269	473635
Sales volume	535494	609654	632114	746581	1002720
Mark up percent on costs	174.72%	162.03%	172.59%	193.78%	211.70%
Contribution margin for opening stock*	10447	12703	13300	20777	39956

***Contribution margin for opening stock = Opening stock*Mark up percent on costs**

Table-11: Calculation cash fixed cost*(In Rs. '000')

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Total Fixed Costs	145598	146576	160829	243536	279633
Less: Non cash fixed cost					
Depreciation	51566	56277	63372	142724	159571
Obsolete stock and fixed assets write off	397	556	2655	1628	1626
	51963	56833	66027	67042	69497
Total cash fixed assets	93645	89734	94802	99184	118436

*Total Cash Fixed Costs=Total Fixed Cost-Non Cash Fixed Costs.

Table-12: Inventory Consideration (In Rs. '000')

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Stores, Spare and component	41664	48826	57613	44018	59864
Raw material	85288	122780	79958	47762	86586
Work in progress	1000	1023	1657	1219	2466
Finished goods	7840	7751	10722	18874	17371
Goods in transit	14692	1271	2213	1306	1986
Consumable	3706	5765	6207	4346	5876
Advertising material	1793	2985	1361	1849	1924
Bottles and shells	29358	36822	25330	24630	32680
Less: Provision for damage and obsolete	0	362	0	0	0
Total	185341	226861	184980	144004	208753

Table-13: Calculation of Current Assets in Rupees '000'

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Inventories	185341	226861	184980	144004	208753
Sundry debtors, receivable and other current assets	115210	88039	124178	262941	318206
Cash and bank balance	29456	5335	13755	36795	32768
Prepaid expenses, loan and advances	176418	212148	124918	377666	338743
Total Current assets	506425	532383	447831	586983	636513

Table-14: Calculation of Quick assets (In Rs. '000')

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Sundry debtors, receivables and other current assets	115210	88039	124178	262941	318206
Cash and bank balance	29456	5335	13755	36795	32768
Total Quick assets	144666	93374	137933	299736	350974

Table-15: Calculation of total fixed assets (In Rs. '000')

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Fixed assets	416993	377394	326096	558537	614402
Capital work in progress	-	-	-	84426	23644
Investment	112628	112628	112628	112628	112628
Total Fixed Assets	529621	490022	438724	755591	750674

Table -16: Calculation of current liabilities (In Rs. '000')

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Trade Creditor and Other Payables	189995	184099	117199	340941	501178
Provision	150120	148749	56823	75359	93694
Total Current Liabilities	340115	332848	174022	416300	594872

Table – 17: Calculation of Equity Shareholders Fund (In Rs. '000')

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Share Capital	194889	194889	194889	194889	194889
Reserve and Retained Earning	501042	510670	532265	334141	344927
Total equity shareholders' fund	695931	705559	727154	529030	539816

Table – 18: Calculation of Capital Employed (In Rs. '000')

Particular	2004/05	2005/06	2006/07	2007/08	2008/09
Share capital	194889	194889	194889	194889	194889
Reserve and retained earning	501042	510670	532265	334141	344927
Total capital and long liabilities	695931	705559	695931	200000	133332
Less: deferred expenses	-	(16002)	(14621)	(23568)	(19618)
Total capital employed	1391862	1395116	1439687	705462	653530

Appendix-VI

Table 19: Calculation of Gross Ratio

Year	Gross Profit	Sales	Gross Profit Ratio= $\frac{\text{Gross Profit}}{\text{Net Sales}} \times 100$
2004/05	229014	535494	42.77
2005/06	233391	609654	38.28
2006/07	273737	632144	43.31
2007/08	291447	746581	39.04
2008/09	380826	1002720	38.08

Table-20 Calculation Operating Profit Ratio

Year	Operating Profit	Sales	Operating Profit Ratio= $\frac{\text{Operating Profit}}{\text{Net Sales}}$
2004/05	102302	535494	19.70%
2005/06	80053	609654	13.13%
2006/07	105056	632144	16.62%
2007/08	49228	746581	6.59%
2008/09	131894	1002720	13.15%

Table-21: Calculation Net Profit Ratio

Year	Net Profit	Sales	Net Profit Ratio= $\frac{\text{Net Profit}}{\text{Sales}} \times 100$
2004/05	48623	535494	9.08%
2005/06	19387	609654	3.18%
2006/07	21619	632144	3.42%
2007/08	28071	746581	3.76%
2008/09	37100	1002720	3.07%

Table-22: Calculation of Return on Shareholders' Investment Ratio

Year	Net Profit	Equity shareholders' fund	Return on shareholders' Investment Ratio = $\frac{\text{Net Profit after Tax, Interest and Preference Dividend}}{\text{Equity Shareholders' Funds}} \times 100$
2004/05	48623	695931	6.98%
2005/06	19387	705559	2.75%
2006/07	21619	727154	2.97%
2007/08	28071	529030	5.31%
2008/09	37100	539816	6.87%

Table-23: Calculation of Return on Total Assets

Year	Net Profit	Total Assets	Return on Total Assets= $\frac{\text{Net Profit after tax}}{\text{Total Assets}} \times 100$
2004/05	48623	1036046	4.69%
2005/06	19387	1038407	1.87%
2006/07	21619	901176	2.40%
2007/08	28071	958055	2.93%
2008/09	37100	1526749	2.43%

Table-24: Calculation of Current Ratio

Year	Current Assets	Current Liabilities	Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$
2004/05	506425	340115	1.49
2005/06	532383	332848	1.60
2006/07	447831	174022	2.57
2007/08	586983	416300	1.14
2008/09	636513	594872	1.07

Table-25: Calculation of Quick Ratio

Year	Quick Assets	Current Liabilities	Current Ratio = $\frac{\text{Quick Assets}}{\text{Current Liabilities}}$
2004/05	144666	340115	0.43
2005/06	93374	332848	0.28
2006/07	137933	174022	0.79
2007/08	299736	416300	0.72
2008/09	350974	594872	0.59

Table-26 Calculation of Fixed Assets Ratio

Year	Fixed Assets	Capital Employed	Fixed Assets Ratio= $\frac{\text{Fixed Assets}}{\text{Capital Employed}} \times 100$
2004/05	529621	1391862	0.38
2005/06	490022	1395116	0.35
2006/07	438724	1439687	0.30
2007/08	755591	705462	1.07
2008/09	750674	653530	1.15

Table-27: Calculation of Current Assets to Fixed Assets Ratio

Year	Current Assets	Fixed Assets	Current Assets to Fixed Assets Ratio= $\frac{\text{Current Assets}}{\text{Fixed Assets}} \times 100$
2004/05	506425	529621	0.96
2005/06	532383	490022	1.09
2006/07	447831	438724	1.02
2007/08	586983	755591	0.78
2008/09	636513	750674	0.85

Table 28: Calculation of Proprietary Ratio

Year	Shareholder's Funds	Total Assets	Proprietary Ratio= $\frac{\text{Shareholder's Funds}}{\text{Total Assets}} \times 100$
2004/05	695931	1036046	0.67
2005/06	705559	1038407	0.68
2006/07	727154	901176	0.81
2007/08	529030	958055	0.55
2008/09	539816	1526749	0.35