CHAPTER I

INTRODUCTION

1.1 General View of Nepal

Nepal is an independent, multiparty, democratic and developing country. It is situated in the lap of the Himalayas the latitude of 26o 22' N to 30o 27' N and 80o 4' E to 88o 12' E with the elevation ranging from 90 to 8848 meters. The average length is 885 km. east to west and average breadth is about 193 km north to south. Nepal is known to be a country of its own culture, heritage and natural beauty. It is laded by the maiden nature and the beauty running throughout the Plains, Mountains and the Himalayas. It is thus the heartthrob of many tourists and countrymen.

The boon of the nature lands in the Himalayan region standing vertically up to the height of 8848 meters in the name of Mt. Everest. There are eight of the ten highest peaks in the world including all except second tallest and another one. One of the beauty beholders Tony Hagen (Passed away lately in May 2003), geologist, had marked that "I never hesitate to say that Nepal is the most beautiful as well as varied country in the world."

Nepal has an area of 147181 square kilometers. This area is 0.3% of Asia and 0.03% of the world. Topographically Nepal is characterized by the Terai in the southern region, by Mountains in the middle order and by the evergreen snow-white Himalayas in the northern region. Terai occupies 17% of total land, Mountain 68% and Himalayas 15% of the total land. There are five development regions and 75 administrative districts.

Economic growth of the country has not improved remarkably over time to overtake population growth. One of the major causes of being very low economic growth is due to the lack of peace and political stability. After the Public Revolution (Janaandolan) 2 there

was some expectation in field of economic growth but this expectations are also seems to going down.

Nepalese Economy has undergone many changes since 1951 when Nepal received foreign aid and assistance for the first time from the USA, India and UK in its development program. In the 1950s, India and USA were the main nations to assist Nepal.

The aid amounted three thousand US dollar. However, this did not feature in the "Budget in Nepal". Since then many projects covering agriculture, transportation, communication, education, health, electricity etc. have been receiving foreign assistance. In 1951, Nepal had 276 km. of motor road, 6.2 thousand hector of irrigated land, 1.1 MW of electricity, two hospitals, 300 schools and 25 telephone lines. Forty seven years later (in 1997) road network has increased to 11867 km, irrigation capacity increased to 610 thousand hector, and electricity generation increased to 252.6 MW. Similarly, number of Hospitals increased to 82.

The economic Structure of the country is of mixed type. Even in such a system the private sector has to play a predominant role in market oriented and competitive economic activities in order to increase production through enhancement in resource use. However, the government involvement in some of the specific and basic service development, pre-requisites services and industries assisting in the improvement of the economic condition of the rural, poor and the downtrodden and relating to important defense matters is still inevitable. Public enterprise in Nepal is overturned first by expansion and then by contraction. Till the early eighties, public enterprises sector expanded in the country. Public enterprises are established in public services, industries, trade, finance and other sectors to create the infrastructure for basic services.

1.2 Overview of Public Enterprises in Nepal

Public Enterprises (PEs) were established as a strong means of development after the Second World War in developing countries. Such enterprises were established in developed countries from eighteenth century. However, in developing countries, constrained with the scarcity of capital and professional skills, the significance of such enterprise was evidently even greater; so in these countries, right from the infrastructure and service areas to the production and even distribution sector, public enterprise were established.

When Nepal opened to the world, the private sector had neither the capital nor the technical and managerial skills to established new industries, especially in area where they were designed for import substitution. The cement, dairy, sugar, cotton, and cigarette industries emerged as part of such a program. At one point, Nepal's three cement industries fulfilled over 80 percent of internal demand. The two sugar factories supplied over 50 percent of parked requirements and the nation had attained self-sufficiency in cigarettes.

PEs has a nearly half century long history in Nepal. The first on emerged in 1953 A.D. with the partial nationalization of Nepal Bank Ltd, the first commercial bank established in the private sector in 1937 A.D. There has been a rapid growth in the number of PEs after 1956 A.D. The number crossed the 60 public enterprises in 1989/90, including 51 non-financial and nine financial enterprises. Most of the country's PEs was built as turnkey projects under bilateral agreements and with the help of international donors.

After Nepal Bank Limited was established as a public enterprise, other such enterprises like Nepal Industrial Development Corporation and Royal Nepal Airlines Corporation (now Nepal Airlines), also came into being. In the industrial sector also, industries like the Janakpur Cigarette Factory, Birgunj Sugar Mill and Bansbari Lather Shoe Factory were established in 1961. Subsequently, Banks, Business Sectors, Tele Communications, Electricity, Water Supply in the services sectors, Cement, Bricks, Medicines and Textiles

in the industrial sectors came in to existence. In this way, at present more than 62 different public enterprises are established in Nepal.

Several enterprises were established in the public sector during the 60's and 70's, with the industrial sector enterprises mainly set up under the financial and technical assistance of bilateral donors. The major objectives underlying establishing these enterprises were:

1. To generate economic activities in the country as there was the absence of significant role-play by the private sector in this regard,
2. To avail goods and services to the general people at fair prices and in abundant quantity,
3. To Create employment opportunities in the organized sector,
4. To substitute imports and save foreign exchange,
5. To utilize the foreign aid, and
6. To develop economic and social infrastructure

Due to the demand of milk and milk products, government stressed upon the need of developing modern dairy industry in public sector. As a result Dairy Development Corporation (DDC) was formed. DDC is totally owned by government. It provides qualitative milk and milk products to the customer at national level.

1.3 A Brief Overview of Dairy Development Corporation

The First Five Year Plan stressed upon the need of developing modern dairy industry. At that time, the demand of milk and milk products were gradually increasing. As a result, dairy development center was established at Bhotahity in 2010 B.S. This center started to distribute the collected milk with processed, to the urban people in Kathmandu. The demand of milk and milk product was increasing day by day, the dairy plant become necessary. Due to the inadequacy of space this center was shifted to Lainchaur. The Dairy Development Commission was constituted to guide the Dairy Development Section. At that time, dairy expert were provided by Swiss Association for technical assistance. The

Dairy Development Commission had been converted into Dairy Development Board in 2009 B.S. ultimately in Act 2021 B.S.

The Dairy Development activities in Nepal started in Tusal, a village of Kavre District in 2009 B.S. (1952 A.D.) on experimental basis with a small scale milk processing plant under the development of agriculture. In the year 2010/11 B.S. at the initiative of Dairy Development Board, the central dairy plant was established and started milk collection, processing and marketing activities from the year 2014 B.S. (1957 A.D.) The third five year plan to provide the potential market to the farmer, who are far distance and remote areas to supply the homogenized and pasteurized milk and other milk products to the consumer of urban area and to ensure the improvement of life style of farmer.

DDC is totally owned by government. It is also financially supported by the foreign grants and loans at a rate of interest. World Food Organization (WFP) has been supporting DDC since B.S. 2030/31. The New Zealand and Danish government had contributed towards the establishment of milk processing plants. At present, USAID and Danish government are the major donors.

Dairy Development Corporation provides qualitative milk and milk products to the customer at national level. All of the people like children, adult, and old persons are using the dairy products of its good taste and quality. The demand of the milk is increasing day by day because of high quality and hygienic. Thus, DDC has expanded its branch offices in different parts of the country such as Kathmandu, Hetauda, Pokhara, Butwal and so on.

The main objectives of DDC:

- To provide a guaranteed market for milk to the rural farmers with fair price.
- Supply pasteurized milk products to urban consumers.
- Develop organized milk collection system to meet increasing demand for pasteurized milk and milk products.
- Develop organized marketing system for milk and milk products in urban areas.

For the fulfillment of these objectives DDC has implemented various programs to develop numerous milk collection centers, milk producer organization and billing in the various areas.

DDC has been collect cow, buffalo and yak/chauri milk from 39 districts. Milk is collected through the farmers owned organization: Milk producer cooperative society (MPCS). Its present milk collection network has spread from Panchthar in the east to Surkhet in the west.

Hetauda Milk Supply Scheme (HMSS) also supports Kathmandu Milk Supply Scheme (KMSS) by supplying excess milk that is above their local requirements whereas Biratnagar Milk Supply Scheme (BMSS) manufactures skimmed milk powdered from its excess milk and that of other Milk Supply scheme as well. DDC has been playing a special role in contributing to uplift the economic status of rural farmers. Thus dairy has been recognized as an effective tool of poverty alleviation. In the fiscal year 2063/64 (2006/07) DDC purchased about 150,000 liters of milk per day from the farmers.

1.4 Statement of the Problem

Economic prosperity depends upon a sustainable economic development. For the attainment of accelerate economic development in the country industrialization is equally as important as that of agriculture and other primary sectors. Public enterprises are necessary to create new employment opportunities and economic integration. As long as this sector can't be expanded on a promotional bases for development of the economy cannot be possible.

In Nepal, industrialization has not been able to make the desire headway due to constraints in the supply of raw materials, basic infrastructure, low purchasing power of people, under developed capital market, lack of technical know-how, and instability of government industrial policy.

Success isn't a matter of change, profit doesn't just happen. It is to be planned and managed. Cost Volume Profit analysis provides the techniques of profit planning framework. Based on the annual report published, performance of Nepalese industries cannot be considered as satisfactory. Poor performance is the outcome of poor planning, controlling and decision making. This has raised the question whether Nepalese managers are competent enough? Do they practice cost-volume-profit analysis tools and techniques to carryout planning, controlling function and decision making? The research questions mainly posed in this research are:

- What is the actual position regard target sales and profit?
- Whether or not DDC is practicing CVP analysis?
- What are the major difficulties in application of CVP analysis?
- In which areas of the business operation CVP analysis can be applied to improve the competitiveness of DDC?
- Which parts (i.e. CM BEP, MOS etc.) of CVP analysis are mostly practiced and which aren't practiced till now.

1.5 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 DDC." To achieve this objective, the following sub objectives have been set:

- To find out the target, actual sales and profit of DDC.
- To analyze the variances between target, actual sales and profit of DDC.
- To evaluate the profitability position of DDC.
- To access the cost-volume-profit of the DDC and its impact in profit planning.

1.6 Significance of the Study

In the recent days the nation is facing with lots of hurdles, in this situation the public enterprises sector are also running slowly. This study will be helpful to the DDC to

overview their profit planning and to formulate future strategies to do much better in their horizon.

Not only to the DDC, this study will also be beneficial to the other public enterprises in the population.

Further, the concerned scholars, academicians, investors, professionals may also be benefited from this study. This study will also help to inform the decision makers about the importance of CVP analysis for their further success.

1.7 Limitations of the Study

In every research, there is pragmatic limitation under which the study is made. Theory and practical aspects do not necessarily match always. Other working problems such as time constrain, resources unavailability, study type and various technical difficulties hinder in the study.

A research work may have limit and barrier. The objective of the study restricts the study in one dimension. Of course the field problems engross the study to particular direction. In this study also, various aspects dragged the case to a limit.

This study is confined only to cost-volume-profit analysis as a tool of profit planning and control of DDC. The limitations of this study are as follows:

- DDC has been chosen as sample among various public manufacturing enterprises. Hence, the finding could not be extensively generalized to all existing public enterprises of the country.
- This study only concerns CVP analysis of DDC, so the only related tools are used.
- The study covers the period of 7 years beginning from 2057/058 to 2063/064 FY.
- The study mainly based on secondary data and primary data to some extent. So the result of the analysis depends upon the data provided by DDC.

1.8 Organization of the Study

This study has been divided into five chapters. These are as follows:

Chapter 1: Introduction

It is first stage of research which includes general background of the study, introduction of DDC, objective of the study, limitation of the study and design of the study.

Chapter 2: Review of Literature

This chapter deals with the conceptual framework like concept, types, policy, determinants, review of relevant research studies and related dissertations.

Chapter 3: Research Methodology

This chapter includes general meaning of research methodology, research design, data collection procedure, methods of presentation and analysis of data, period cover research question and research variables.

Chapter 4: Presentation and Analysis of Data

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

Chapter 5: Summary, Conclusion and Recommendations

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

Besides this, a list of Bibliography and appendix are attached at the end of study report.

CHAPTER II

REVIEW OF LITERATURE

Review of literature is the review of past studies in the concerned subject matters that may be Text Books, Theses/Dissertations, Articles, Journals, or any sort of publications concerning the organization and the related topic. The purpose of this review of literature is to get enough knowledge about the subject matter that is going to be researched. It also gives the knowledge about the study being undertaken.

2.1 Conceptual Framework

Text Books that are prescribed under academic studies are the primary sources of the conceptual framework.

2.1.1 Profit

A general term for the excess of revenue, proceed, or selling price over related costs; any pecuniary benefit arising from a commercial operation. In Economics, a payment or commitment to a person (entrepreneur) undertaking the hazards of enterprise remuneration or reward for uncertainty bearing "pure" profits a residual and can-not ordinarily be predetermined. By way of contrast, risk, being calculable in advance, like rent, and frequently insurable, is a cost rather than a profit. In any objective probabilities sense, profit can be accurately measured only in respected; hence, any preliminary imputation of profit is wholly subjective in character and is labeled accordingly (Kohler, 1975: 379-380).

In marketing, the excess of the selling price over all costs and expenses incurred in marking a sale.

In finance, the reward to the entrepreneur for the risks assumed by him or her in the establishment, operation, and management of a given enterprise or undertaking.

In accounting, the money remaining after a business has paid all its bills (Jerry, 1983: 396).

Profit is the primary measure of business success in any economy. If a firm cannot make profit, it cannot obtain or hold capital for very long. If it cannot obtain capital, it cannot secure and retain other resources such as manpower, materials and machines etc.

Usually, profits don't just happen. Profits are managed. Before we can make an intelligent approach to the managerial process of profit planning, it is important that we understand the management concept of profit. There are, after all, several different interpretations of the term "Profit". An economist will say that profit is the reward for entrepreneurship for risk taking. A labour leader might say that it is a measure of how efficiently labour has 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 or her money. An internal revenue agent might regard it as the base for determining income taxes. The accountant will define it simply as the excess of a firm's revenue over the expenses of producing revenue in a given fiscal period (Lynch and Williamson, 1999: 99).

2.1.2 Planning

Planning is deciding in advance who will do what a certain time and how it is to be achieved. In order to achieve anything of importance it is necessary to look ahead and plan, in advance before doing anything. Its focus is on making things happen. It is the first management function. Planning involves the determination of objectives based on intelligent forecasting and development of precise program to achieve the objectives. It governs survival, growth and prosperity of any organization in competitive and ever-changing environment. Planning is essential to accomplish goals. It reduces uncertainty

and provides direction to the employees by determining the course of action in advance (Pandey, 1999: 238)

This simple plan has all the ingredients an objective, an assessment to be dealt with, allocation of resources, and a time frame (Reitz and Jewell 1985).

Planning on the other hand involves the determination of what should be done, how the goals may be received as what individual are to assume responsibility and to held accountability (Grace, C.E., 1972: 10)

2.1.3 Profit Planning

Profit planning or budgeting is forward planning and involves the preparation in advance of the quantitative as well as financial statements to indicate the intention of the management in respect of the various aspects of the business. It acts as a business barometer as it is complete program of activities of predetermined detailed plan of action developed and distributed as a guide to current operations and as a partial basis for the subsequent evaluation of performance (Gupta, 1995: 521).

A profit plan (or budget) is a comprehensive and coordinate plan, expressed in financial terms, for the operations and resources of and enterprise for same specific period in the future (Fremgen, 1973: 144).

Profit planning is a comprehensive plan expressed in financial terms by which an operating program is effective for a given period of time. Business managers are continually involved in planning, organizing and controlling the operation of both large and small business organizations. Budgeting is one of the most important management tool used to plan and control business operations. Budgets are financial plans prepared as a guide to plan and control business operations. The budgets should be designed to coordinate the effort of the sales department, production department, and all other departments (Bajracharya, Ojaha, Goet and Sharma, 2004: 344).

2.1.4 Cost-Volume-Profit Analysis as a Tool of Profit Planning and Control

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

2.1.5 Concept of Cost-Volume-Profit Analysis

Cost-Volume-Profit analysis is the process of examining the relationship among revenues, costs and profit for a relevant range of activity and for a particular time frame. It is one of the most important and powerful tools that managers have at their command in short-term planning. It helps managers understand the inter-relationship between cost, volume and profit in an organization by focusing on interaction between the following five elements [Munankarmi, 2003: 4, 01].

- Price of products
- Volume or level of activity
- Per unit variable costs
- Total fixed costs
- Mix products sold.

CVP analysis is the technique explores the relationship which exists between cost, revenue, output level and resulting profit. CVP analysis can be extended to cover the effects on profit on changes in selling prices or services fee, cost, income tax rate and

product mix. The aim of cost volume profit analysis is to have a fair estimate of total cost, total revenue, and profit at various sales volumes. CVP analysis provides the management with a comprehensive overview of effects on revenue and costs of all kinds of short-run financial changes. It is related to profit, sales volume and cost. CVP analysis provides information regarding [Munankarmi, 2003: 4, 01].

- Minimum level of sales to avoid losses
- Sales level to earn target profit
- Effects of changes in prices, costs and volume on profits
- Effects of changes in sales mix on profit
- New break-even point for changes
- Impact of expansion plan on CVP relationship
- Products those are most profitable and least profitable
- Whether to continue or discontinue the sales of product or operation of plan
- Whether to close or not the firm for a short-term
- Effect on operating profit with the increase in fixed cost.

2.1.6 Use of CVP Analysis in Profit Planning

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

- To determine the break-even-points in terms of unit or sales value
- To determine 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 labour and increase output
- To help management to find the most profitable combination of cost 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 the most profitable and least profitable product
- To determine new break-even-point for changes in fixed or variable cost [Munankarmi, 2002: 123-124].

2.1.7 Variables Usually Used in CVP Analysis

2.1.7.1 Sales Value

Manufacturing organizations have varieties of products but service organizations have different types of services. The sales value of products or services is calculated by the quantity of total sales multiplying by selling price per unit. Selling price per unit is calculated by total sales value divided by total sales unit.

2.1.7.2 Fixed Cost

Fixed costs are cost associated with those inputs, which do not vary with the changes in volume of output or activity within a specified range of activity or output (relevant range). Fixed costs, thus, remain constant whether activity increases or decreases within a relevant range. For example, the rent of factory or office premises, property, insurance, senior executives' salaries, lease payments, depreciation etc. remains the same whether there is an increase or decrease in the volume of activity.

2.1.7.3 Variable Cost

Costs that tend to vary in total in direct proportion or in a one to one relationship to changes in production activity or same other measure of volume are referred to as variable cost. Material cost, direct labour cost, and supplies are examples of variable cost. The cost of these inputs increases or decreases in proportion to increase or decrease in volume it is so these inputs are used in the exact quantities needed.

2.1.7.4 Semi-Variable Cost (Mixed Cost)

All cost, which are neither perfectly variable nor absolutely fixed in relation to volume changes, are called semi-variable costs. Semi-variable costs are also known as mixed

costs as they consist both of fixed costs and variables costs. The fixed component of mixed costs represents the cost of providing capacity, whereas the variable component is caused by using the capacity. The first part is not affected by the changes in activity (and, is thus, like the fixed cost), while the latter part is influenced by the changes in activity (and, is thus, like the variable cost).

2.1.7.5 Jumping Cost (Step Cost)

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

2.1.8 Application of Cost-Volume-Profit Analysis

Business organization is run to earn profit planning is the fundamental part of the overall management function. Profit planning can be done only when the management has the information about the cost of the product, variable cost, fixed cost and selling price of the product. Profit of a business organization is affected by selling price of the product volume of sales, unit variable costs, total fixed costs and sales mix. The most important factor that affect the planning for profit are cost both fixed and variable volume of sales. The cost-volume-profit relationship will be established by break-even analysis. Cost-volume-profit analysis is applied specially for:

- Contribution Margin Analysis
- Break-Even Analysis
- Profit Volume Analysis

  (Munankarmi, 2003: 4.01-4.02)

2.1.8.1 Contribution Margin Analysis

Contribution margin is the difference between the sales revenues and variable cost of production. It is also known as "Gross Profit" or "Gross Margin". In other word, fixed cost plus the amount of profit is equivalent to contribution margin. In formula it can be expressed as under:

Contribution Margin = Selling Price – Variable Cost [CM = SP – VC]

Or, Contribution Marin = Fixed Cost + Profit [CM = FC + Profit]

Each unit sold provides a certain amount of contribution margin that goes toward the covering the fixed cost. Unit selling price minus per unit variable cost will be unit contribution margin.

CMPU = SPPU – VCPU

We can derive from it that profit cannot result unless contribution exceeds fixed cost. In the other word, the profit if no profit no loss shall be arrived at where contribution is equal to fixed cost [Maheshwari, 200: 176].

CVP analysis is the amounts of contribution margin available from the sales volume of absorbs fixed cost and also contribute towards company's profit goal after deducting all variable cost of sales. When the contribution margin is high, than also profit is high. Contribution margin usually is expressed on a percentage of sales.

In formula:

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

$$\text{OR, Contribution Margin Ratio} = 1 - \frac{Variable\ Cost}{Sales}$$

2.1.8.2 Break-Even-Point (BEP)

The study of cost-volume-profit analysis is frequently referred to as break-even-point analysis. Determination of the break-even-point and margin of safety is incidental to CVP analysis. A widely used technique for study of CVP relationship is BEP. BEP analysis is most widely known form of CVP analysis. However, some people state that up to the point of activity where total revenue equates to the total expenses the study can be called as BE analysis and beyond that point, it is the application of CVP relationship (Munankarmi, 200: 175-181).

CVP analysis includes the entire games of profit planning. The point which breaks the total cost and the selling price evenly to show the level of output or sales at which there

shall be neither profit nor loss is retargeted as break-even-point (Maheshwari, 2000: 175; 181).

At this point the income of business exactly equals its expenditure. The break even point can be determined by following two methods:

1. Algebraic Methods
    a. Contribution margin approach
    b. Equation technique
2. Break-Even chart presentation

1. Algebraic Methods

a. Contribution margin approach to BEP

Contribution margin is the difference between the sales and variable cost of production. It consist the fixed cost and profit. It is presented already in formula.

b. Equation Techniques

Break-Even can be calculated by using following algebraic equations:

BE Sales (in Rs.) = FC + (BE sales in units × VCPU)

Or, BE sales (in Rs.) = FC + VC ± Profit

$$\text{Or, BE Sales (in Rs.)} = \frac{FC}{\frac{CMPU}{SPPU}}$$

$$\text{Or, BE Sales (in Rs.)} = \frac{FC}{1-\frac{VCPU}{SPPU}}$$

$$\text{Or, BE Sales (in Rs.)} = \frac{FC}{P/V\ Ratio}$$

Where,

$$\text{P/V Ratio (Profit-Volume Ratio)} = \frac{CM}{Sales}$$

CM (Contribution Margin) = SPPU – VCPU

SPPU = Selling price per unit

VCPU = Variable cost per unit

FC = Fixed cost

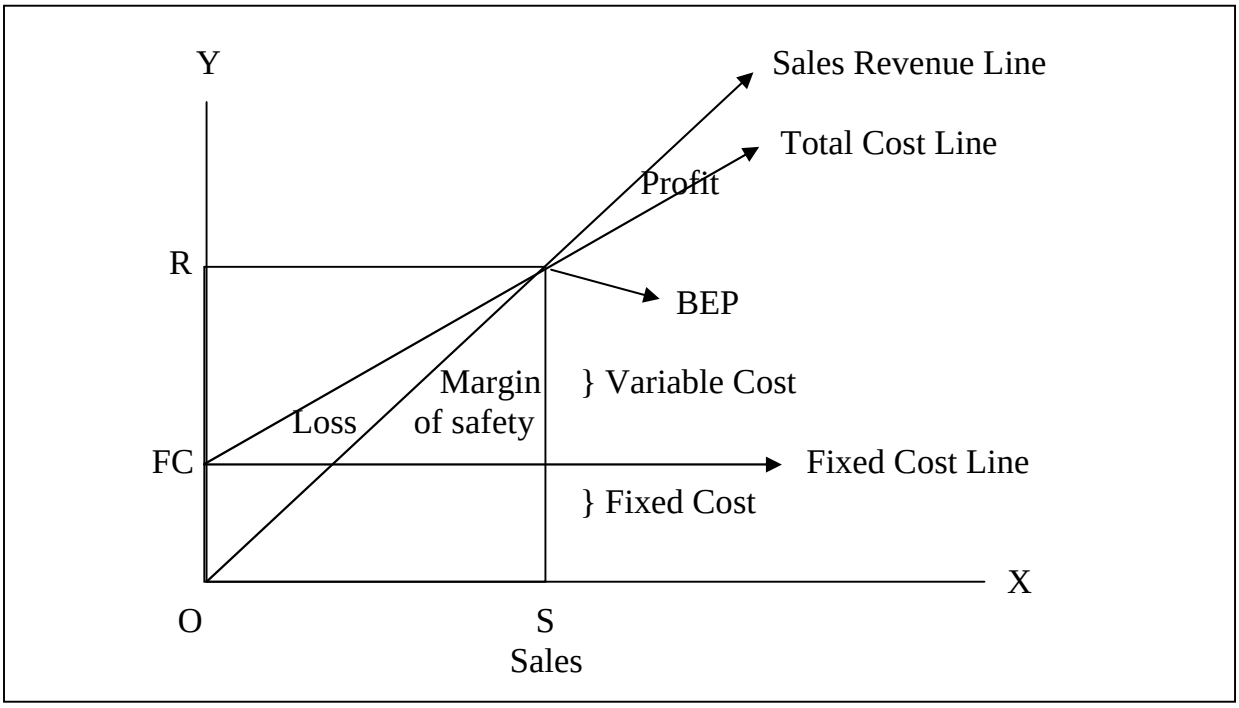
1. Break-Even Chart Presentation

To depict the relationship between profit and volume of activity, a cost-volume-profit graph is commonly used. Graphical presentation of CVP is preferred [munankarmi, 2003: 4]:

- Where a simple overview is sufficient.
- Where there is need to avoid a detailed of numerical approach. Avocation of numerical approach specially required if the recipients of the information have on accounting background.

It can be shown as below:

Break Even Chart



[Source: Munankarmi, 2002: 145]

2.1.8.2.1 Cash BEP

For cash break-even, cash fixed cost is considered and fixed cost that does not involve cash like depreciation cost is excluded from cost. Cash break-even-point is calculated using formula is given below:

$$\text{Cash BEP} = \frac{Cash\ Fixed\ Cost}{UCM\ or\ PV\ Ratio}$$

While calculating cash break even point, the cash fixed costs i.e. fixed costs less depreciation and deferred expenses are considered [Munankarmi, 2002: 135]

2.1.8.2.2 Break-Even-Capacity

Break even capacity provides information about at what percentage of normal capacity will result the break-even point. That is, at what percentage of normal capacity break-even point will result. In other words, Break even capacity provides information about the percentage of normal capacity for break-even point. It is calculated using following formula:

$$\text{Break-even capacity} = \frac{Fixed\ Cost}{P/V\ Ratio}\ x\ \frac{100}{Sales} = ...\%$$

2.1.8.2.3 Cost-Break-Even Point

Cost-BEP shows that situation where cost of operating two alternative plants is equal. The point enables the firm to identify which plant is the best to operate at a given level of output assuming that sales price per unit is the same (Maheshwari, 2000: 181).

2.1.8.2.4 Break-Even Applications

- Sales volume required to produce desired operating profit/target net profit.
- Sales volume required to produce the desired profit after tax.
- Operating profit at a given level of sales volume
- Effect on operating profit at a given percentage increase in sales volume (in Rs.)

- Additional sales volume required to offset a reduction in selling price or sales volume needed to maintain present profit level or sales volume to offset a reduced selling price.
- Required sales volume for increased selling price
- Effect of changes in fixed cost (Munankarmi, 2002: 132).

2.1.8.2.5 Assumptions of Break-Even Analysis

Break-even analysis is based on a specific set of assumptions that are as follows:

- All cost can be classified into two parts, fixed cost and variable cost. There is not another cost other than fixed and variable.
- There is a relevant range of activity for using the result of the analysis and sales price does not change as units of sales change.
- There is only one product or in case of multiple products, the sales among the product remain constant.
- Basic management policy about operation will not change materially in short run.
- General Price level (inflation/deflation) will remain essential 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.

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

2.1.8.2.6 Limitations of Break-Even Analysis

Break-even analysis in many business situations can be used for effective decision-making, but there are many short coming limitations in its analysis and interpretations. Some of these can be listed as:

- The assumption of producer's market phenomenon may not hold good for all types of commodities.
- The fixed costs may not remain constant as well as the variable costs may not vary in fixed proportions at different levels of output.
- Variation in the prices of items or services. Which also depends upon the factors affecting its 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.
- Consumers may be given certain discount on purchases to promote sales. This revenue may not be perfectly variable with levels of sales output (Maheshwari, 2000: 184).

2.1.8.2.7 Composite Break-Even-Point

While dealing concern with several products, a composite break even point can be computed according to the following formula:

$$\text{Composite BEP (in Rs.)} = \frac{Total\ FC}{Composit\ P/V\ Ratio}$$

$$\text{OR,} \quad \frac{TFC}{TCM}$$

2.1.8.2.8 Profit Volume Ratio

Like as cost volume analysis, profit volume can also analyze between profit and volume. More sales unit can generate more revenue and for the existence of business, a portion of sales revenue should be the shares of profit. In the other words, business can't live with only sales revenue it must earn profit smoothly. Profit and Volume are interconnected and dependent with each other. Profit depends upon sales and selling price to a greater extent will depend upon the volume of production. Profit volume ratio is important for studying the possibility of operations of business. It establishes a relationship between the contribution and the sales value. It can be computed by using following formula [Munankarmi, 2003: 4.04]:

$$\text{P/V Ratio} = \frac{Unit\ Contribution\ Margin}{Unit\ Sales\ Price}$$

When, total sales and total cost (without break up for fixed and variable components) are given to periods of activities the following formula may be used to calculate PV ratio:

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

Profit = Sales – Costs

Where, cost includes both fixed and variable costs.

2.1.9 Safety Margin

From the past study, we know break even amount should earn to be alive a business organization. But being alive isn't the target of any business enterprises. So less or more profit is necessary for existence for future. Margin of safety analyze about the safety position of business organization. It is the excess of budgeted or actual sales over the break even sales volume. It is the difference between the budgeted and actual revenue and the break even sales revenue. It is the position above the BEP. It states the amount by which sales can drop before losses begin to be incurred. It gives management a feel for how closed projected operations are to be organizations break even point.

The margin of safety can be expressed as units, value or a percentage. The following formulas are applicable:

Margin of safety = Actual Sales – BE sales (units and value)

Or, BE sales = Actual sales – Safety margin

Or, Actual Sales = BE sales + Safety margin

Or, Margin of safety (in value) = Profit/PV ratio

Or, Margin of safety (in units) = Profit/VCM

Or,

$$\text{Margin of safety ratio} = \frac{Actual\ Sales - BE\ Sales}{Actual\ Sales}$$

Or,

$$\% \text{ of margin of safety on sales} = \frac{Margin\ of\ Safety}{Actual\ Sales} x 100$$

Higher the safety of margin is better to business organization. So, to increase the amount of safety margin, business enterprises may follow one of the following guidelines:

- Increase in selling price per unit
- Increase in total sales volume
- Decrease in unit variable cost
- Decrease in total cost

2.1.10 Sales Mix and CVP Analysis

For any organization selling multiple products, the relative proportion of each type of product sold is called the sales mix. It is a relative combination in which a company's products are sold. The sales mix is an important assumption in multi-product CVP analysis. Contribution on each product may be different; any change in the ratio/mix would affect profit, BEP and margin of safety of the business as a whole. A shift in sales mix from high margin items to low-margin items can cause total profit to decrease even though the total sales may increase and vice-versa (Munankarmi, 2003: 4.15).

A change in the product mix will not affect the firm's break even point and profit, if each product has same P/V ratio. However, change in the product mix will change the break even point and profit when product has unequal P/V ratios (Maheshwari, 2003: 187).
If the sales mix changes, then the break even point will also change. Thus, to enhance the profit, the firm may introduce required changes in the ratios with the help of break-even analysis (Muanankarmi, 2003: 4.15)

So, aggregate break even point has to be computed in multi product firm. The sales mix is used to compute a weighted average unit contribution. This is the average of the several products' unit contribution margin weighed by the relative sales proportions of each

product following procedures are followed to calculated BEP for sales mix (Munankarmi, 2003: 4.15).

a. Calculate CM/PV ratio for each product.

b. Calculate proportion of sales mix in units and or value as follows:

$$= \frac{\textit{Individual product's sales units/value}}{\textit{Total of all products' sales unit/value}}$$

c. Calculate weighted average for all products as follows:

Or, sales mix (units) × unit contribution margin

Or, sales mix (units) × PV ratio

d. Calculate BEP = $\frac{\textit{Fixed Cost}}{\textit{Weighted / average}}$

So far we have assumed that a change takes place in one of the three variables affecting profits-cost, price and sales volume. In case where more than one factor is affected, the BEP analysis can be applied as shown below:

BEP (Desired Sales Volume) =

$$\frac{\textit{Fixed Cost + New FC +} \ \frac{\textit{Desired net income}}{\textit{1-Tax rate}}}{\textit{Unit contribution margin (New selling price – New variable cost)}}$$

2.1.11 Multi-Product CVP Analysis with Resource Constraints

We know that resources are scare. Unlimited uses of resources aren't possible especially in multi-product environment. As such a CVP analysis in multi-product environment can't focus attention only on products of high contribution margin. One should identity all the resources of the firm that could limit production. Such resources could include:

- Availability of machine time
- Availability of labour hours
- Availability of raw materials
- Other resources

Efficient allocation of resources considering their constraint among competitive activities in a optimal manager is necessary for maximizing the return.

2.1.12 Cost Volume Profit Analysis under Uncertainty

2.1.12.1 Introduction

CVP analysis based on single value estimates assumes that all costs and revenues are known with certainty. That is, it does not include department of risk and uncertainty as it severely limit its usefulness. Profit is very much dependent mostly on the quantity of sales units, unit selling price, the variable costs and the fixed costs, but also on uncertainties in one or more of these factors. Although margin of safety ratio explain the degree of sensitivity of the project and product in general but it fails to explain among of certainty in the product and also between the alternatives. To overcome such difficulty, risk and uncertainty analysis like in 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 of the factors, sales, price or profits (Munankarmi, 2003: 5.1).

2.1.12.2 Mean and Standard Deviation of Sales

For decision under the condition of uncertainty sales random variable should be normally distributed. The normal distribution is an appropriated representation of the probability distribution of sales. A wide range of computations can be performed to characteristic profit. Under uncertainty once the probability distribution of sales has been specified. From normal probability distribution of sales need to estimate central tendency (mean) and dispersion (the standard deviation). We can use the following formula:

Mean = S_1 x P_1 + S_2 x P_2 + …… S_n x P_n

Where,

S = Likely demand of sales

P = Probability

Standard deviation (σ) = $\sqrt{\sum pdcf^2}$

Where,

P = Probability

CF = Random variable

dcf = Deviation from cf

dcf^2 = Square of deviation from cf

2.1.12.3 Probability Distribution

Probability distribution approach is simple statistical tools, 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 events in consideration. Personal judgment plays significant role in the management decision making. It must be understood here that probability assigned is subjective probability based in personal judgment of the man making such an analysis (Pandey, 2003: 17).

2.1.13 Jumping Fixed Cost and Multiple BEPS

BEP is determined by dividing the fixed cost by the contribution margin per unit. If the fixed cost is jumping one i.e. step fixed, then it is required to be considered a different amount of fixed costs corresponding to each step. As such, BEP is computed for each level of fixed cost. Some of these computed BEPs might not be feasible because they may violate the limits imposed by the relevant range corresponding to the level of fixed costs considered in their computation. As a result, real or actual BEP is determined through trial and error approach.

2.1.14 Cost Structure and Operating Leverage

1. Cost Structure

Cost structure refers to the relative proportion of fixed and variable cost in an organization. The relationship of a company's variable and fixed costs is reflected in its operating leverage. Company with lower fixed costs and higher variable costs will enjoy greater stability in net income and will be more protected form losses during bad years but at the cost of lower net income in goods years.

2. Operating Leverage

Operating leverage is a measure of the extent to which fixed costs are being used in organization. The relationship of company's variable and fixed cost is reflected in its operation leverage. Higher the amount of fixed costs, higher the operating leverage and break even point and vice versa. In other words, the firm with relatively high operating leverage has proportionately high fixed expenses, and the firm's break even point will be relatively high. The operating leverage of a factory is determined with the help of the following formula:

Degree of Operating Leverage = Contribution Margin/Net Income (Munankarmi, 2002: 145-146).

2.1.15 Segregation of Semi-Fixed (Mixed) Costs

Cost-Volume-Profit analysis requires segregation of all costs between two parts fixed and variable. This means that the semi-variable costs will have to be segregation into fixed and variable elements. This may be done by any of the following methods:

1. Level of Output Compared to Level of Expenses Method:

According to this method, the output at two different levels in compared with corresponding level of expenses. Since the fixed expenses remain constant, the variable overheads are arrived at by the ratio of change in expenses to change in output, whereas;

Variable Elements = [Change in amount of expenses/change in activity or quality]

2. Range Method

This method is similar to levels of output compared to level of expenses method expect that only the highest and lowest points of output are considered out of various level. This method is also designated as "High and Low" method. The high-low method is explained, step by step, as follows:

- Select the highest pair and the lowest pair
- Compute the variable rate 'b' using the formula,

  Variable rate = Difference in cost 'y'/Difference in activity 'x'

- Compute the fixed cost portion as,

  Fixed cost portion = Total semi-variable cost – variable cost.

3. Degree of Variability Method

In this method, degree of variability is noted for each item of semi-variable expenses. Some semi-variable items may have 30% variability while others may have 70% variability. The method is easy to apply but difficulty to face in determining the degree of variability.

4. Scatter-graph Method

In this method, the given data are plotted on a graph paper and line of best fit is drawn, whereas semi-variable expenses are plotted on the vertical axis (x-axis). The scatter graph method is relatively easy to use and simple to understand. However, it should be used with extreme caution because it does not provide an object test for assuring that the regression line drawn is the most accurate fit for the underlying observation.

5. Least Square Regression Method

Management must have some way of estimation fixed and variable costs. Also the financial analyst would like to know how much of firm's given costs are fixed and how much are variable. Among the approaches to cost estimation, the least square regression method, a statistical technique, is considered as more objective and precise approach of estimating fixed and variable costs. Regression analysis starts by assuming that a linear relationship exists between the dependent variable and the independent variable. Also supplies information about the reliabilities and the confidence that can have in the estimate. The method uses mathematical formulas to fit the regression line and takes all of the data into account when estimating the cost formula (Munankarmi, 2002: 27).

2.1.16 Impact of Changes on Profits

Profit is the function of a variety of factors. It is affected by changes in volume, cost and prices. Profit may be affected by the changes in the following factors:

*** Effect of price changes**

An increase in the selling price will increase the PV ratio and, as a result, will lower the break-even-point. On the contrary, a decrease in selling price will reduce the P/V ratio and therefore, result in a higher break-even-point.

*** 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 break-even-point remains unchanged. Profit will increase with an increase in volume and will be reduced with a decrease in volume.

*** Effect of price and volume changes**

A change is price invariably affects volume. A price reduction may increase in 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 material fall in volume.

*** Effect of changes in variable costs**

The impact of the changes in variable costs on profits 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, push up the BEP and reduce profits. On the other hand, if the variable costs decline P/V ratio will increase, BEP will be lowered and profit would rise.

*** Effect of changes in fixed costs**

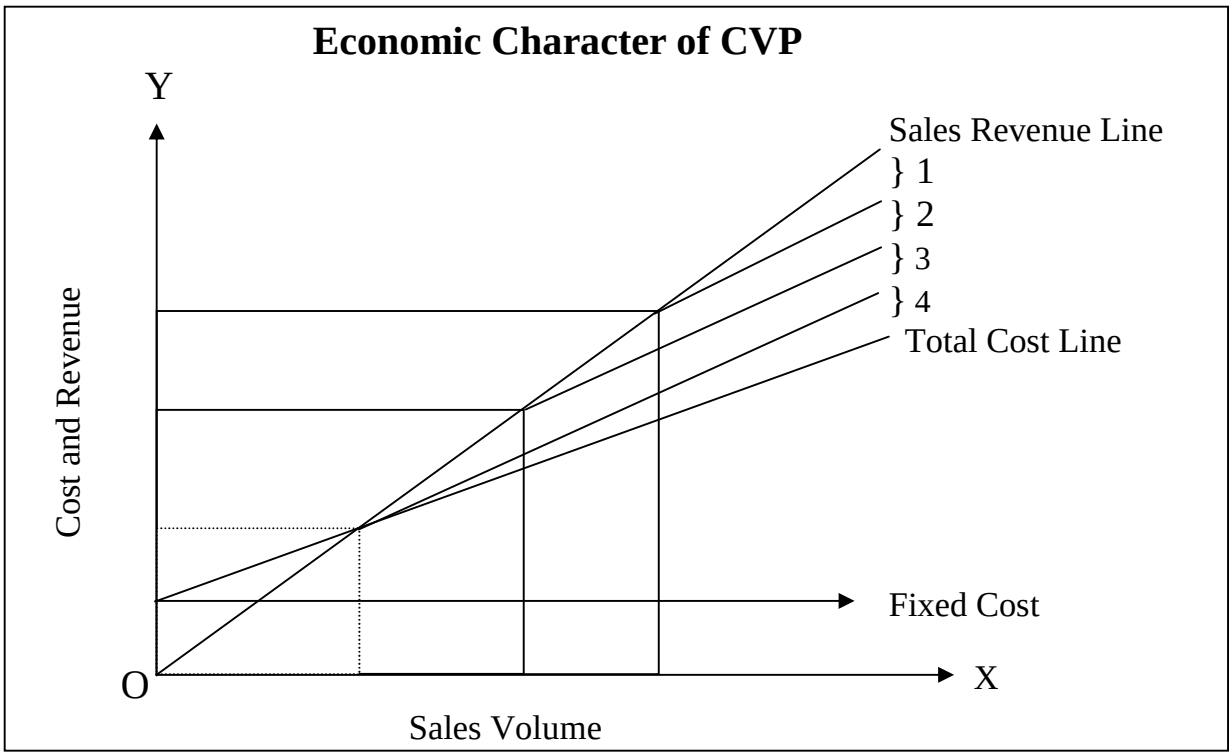
A change in fixed cost does not influence P/V ratio. Other factors remaining unchanged, a fall in the fixed costs will, however, lower the BEP and raise profits. An increase in fixed cost caused either due to some external factors or due to some changes in the management policy, will raise the BEP. Increase in factory rent or insurance and taxes are examples of external factors, while increase in depreciation or salaries of mangers may be the result of management decision.

*** Effect of changes in a combination of factors**

The financial manger or the management accountant, evaluating the profit plans or budgets, must realize that a change in one factor leads to a change in other factor or factors. Therefore, all such changes should be carefully visualized and their net impact on profit must be seen (Pandey, 1999: 203-208).

2.1.17 Economic Characteristics of Cost-Volume-Profit Analysis

Where cost-volume-profit analysis is reasonably accurate they can help management decision making. Essentially, CVP analysis offers greater insight into the other economic characteristics of a company and may be sued to determine the approximate effect of various alternatives. CVP analysis is based on estimates, however and arithmetical manipulations generally involve averages. Hence, the result should never be interpreted as precise. Rather the analysis may be characterized appropriately as a 'slide rule' approach that may be used to develop and test, with the minimum of effort the approximate effects on costs and profit of several types of management decision (Welsch, 1979: 467-468).



Indication:

1 = Retained earning 2 = Common dividend

3 = Preferred dividend 4 = Income tax (estimated)

[Source: Welsch, 1979: 468]

2.1.18 Profitability Analysis

The word 'profitability' may be defined as the ability of given investment to earn a return from its use. Profitability has been considered, to a great extent, role of the main criteria to judge the extent to which the management has been successful in efficiently utilizing the funds at its disposal or in other words, how for the management has been successful in maximizing its profits or minimizing its losses, if any.

The importance of profitability analysis has further been heightened in recent years because it helps in critically analyzing and interpreting the current and prospective, earning capacity of Business Corporation.

Profitability analysis becomes all the more important when within the business there is an earning goal that helps to guide the behaviour of mangers and other employees.

In the process of analysis and interpretation, certain methods are adopted to measure more systematically to trends of business profits. Profitability analysis owing to its empiricism or methods enables both official and unofficial agencies to measure the trends of profits, to construct a number of indicators of business activity and to analyze, evaluate and interpret in right perspective the earning capacity of business.

In a capitalistic or free economy, where profits are the *sine qua non* of every business enterprise the usefulness and validity of measuring its profitability on the basis of trends of profits is not challenged, but in a centrally controlled economy, it is enjoyed up every enterprise to operate within the framework of national planning and make the target contribution to gross national product or national income.

In a country where the new credo of mixed economy has been accepted for fostering private sector and promoting public sector side by side in a planned way for the overall development of the country, while the free enterprise is given the prerogative of maximizing its profits.

2.1.19 Measurement of Profitability

The most important precaution in connection with the measurement of profitability is that the investment figure used should be related to its associated income figure. Profit is a constantly changing phenomenon and is the end product of business activity based on so many variables like volume of sales,…., price and cost on the one hand and the size of capital investment on the other hand.

The profitability of an undertaking may be measured by means of different techniques. But ratio technique is one of the best and the most understandable technique to measure the profitability of any concern. "Profitability ratios are of two types, those showing profitability in relation to investment".

The result of ratio analysis is of particular interest to those potential creditors or owners who are contemplating long term commitments in the business under consideration as well as to management in judging its own effectiveness.

Profitability can be measured in different point of view such as:

1. Profitability in relation to sales
2. Profitability in relation to assets.
    i. The profit margin realized on sales.
    ii. Ratio of net profit to total assets.

2.2 Review of Related Studies

2.2.1 Concept

Literature review is the study of past research. This was conducted by previous researcher in selected area or topic of cost volume profit as a tool to measure effectiveness of profit planning and control. The purpose of literature review is to find out what research studies have been conducted in one's chosen field of study and what remains to be done? It provides the base for developing comprehensive theoretical framework from which hypothesis can be developed for testing literature review can be done by conducting library where there are all kinds of published. Materials including theses, business reports, government publication and other articles are available.

There is no research work made on related topic of CVP separately. Whatever the research in area of profit planning have been made are also not depth and detail on the CVP because objectives is broad but find out is not exist due to the time and resource limit. Some dissertations have been made to review, submitted in the topic of profit planning and control.

2.2.2 Review of Dissertation

Subedi, (1998) who has done research on, "Milk Collection and Distribution by the DDC in Kathmandu", objectives of: problems of dairy marketing promotion, past trend of milk collection and distributions by DDC, and suggest to overcome existing marketing problems of farmers, cooperatives milk production centers and DDC. Mr. Subedi has summarized his unforgettable finding as: poor quality of raw milk, no proper training for dairy farmers on commercial dairy farming, collection stoppage due to the milk holiday, dairy business involves higher risk and lower return, poor milk price, limited knowledge of milk hygiene, non-availability of milk fact tester, lack of the grass producing area, lack of insurance of cattle, lack of the proper recording system, lack of the all facilities and scientific animal husband, lack of the vans and tankers to transport milk, problem of

support service and infrastructure like water, electricity, telephone and row, ambiguous government policy on dairy development industry, so there are many problems for distributions.

Pahari, (2000) who has done research on, "Profit Planning in DDC", objectives of: examine the present profit planning premises adopted by DDC, analyzes the various functional budgets that are prepared by DDC, evaluate the variances between budgeted and actual achievement of the enterprises, sketch the trend of profit and loss of DDC. Mr. Pahari has summarized his unforgettable findings as: DDC has planned only short term plan rather than long term planning and collected milk only by 39 district and distributed their products only a few urban city, the collections and sales of milk and milk product has smoothly in increasing trend, availability of the manpower are more than its requirements, there is not separate planning department and not planning expert, planning are made only on adhoc basis, the pricing policies of the corporation is not scientific and the government directly interference to the price of raw milk and milk products, there is not proper coordination between collection, production, inventory and sales department, DDC has suffering the loss all over the research period, financial position of the corporation is not good, net profit margin return on assets is negative but current and quick ratio is satisfactory, the corporation has not trying to meet BEP, actual sales is lower than BE sales, DDC has not applied any inventory policy, a systematic can flow plan has not prepared, the top level executives are only involved in planning and decision making task and lower level participation is not encouraged, no performance reporting, reward and punishment system and completely ignored the variance analysis.

Thapaliya, (2001) who has done research on, “Comprehensive budgeting in manufacturing enterprises”, objectives of: to examine the present practice of PPC and its effectiveness in DDC, analyze the marketing plan, evaluate the financial performance of the DDC, trace out a picture of profit planning process adopted in DDC, point out the suggestions of recommendations for improving the profit. Mr. Thapaliya has summarized his unforgettable findings as: inadequate evaluation of relevant internal and external

market variables, DDC does not assets its weakness and strengths to support planed activities, low productivity of manpower due to lack of motivated staffs co-ordination of management within the organization and co-ordination with the concern authorities, there is lack of clear cut measurable objectives, communicated among personnel and inadequate authority and responsibility to them, DDC is operating under Break Even Point and it is suffering from high fixed costs, DDC has been running in over capacity and inviting risk, DDC fails to maintain its periodic performance report for the evaluation of performance to find the underlying causes of poor achievement, the top level executive are only involved in planning and decision making and lower level participation is not encouraged, its seems that budgeted sales is higher than actual sales, financial position of DDC is not satisfactory, there is nominal net profit margin, current and quick ratio is satisfactory except some year, no proper management to supply milk in the urban areas and there is similar problems in collecting with from rural areas, it is found that there is losses in the quantity of milk in the different stages of collection and processing such losses is found to be 5%, sales of the milk covers about 77% of the total sales revenue and 23% from the other milks products, purchasing price of the milk is set by the NDDD's guidance, for this DDC can not control outflows of cash and on the other hand DDC has to sale the milk under administered price.

Paudel, (2002) who had done research on, "Distribution Channel Management of DDC Products in Kathmandu Valley", objectives of: analyze the present channel network system, evaluate channel strategy, analyze the existing distribution system, ascertain and analyze the attitudes and behaviours of channel members, suggest for effectiveness of distribution channel of management. Mr paudel has summarized his unforgettable finding as: DDC has adopted three type of distribution channel as zero middlemen channel followed by single middle man channel (both man) and double middleman channel (both man and retailer), DDC recognized only first two channel systems, it is not easier of double middle channel because consumer had to pay extra charge to while purchasing through this channel, very nominal booth man of DDC sale milk with other milk products of DDC, there are 10% dealers in Kathmandu valley, majority of the dealers are

unsatisfied about the timely availability of milk products that are delivered by DDC itself, 71% booth of Kathmandu valley are quite satisfied form the quantity provided by DDC, most of the dealers (84%) are dissatisfied about the commission provided by the DDC, in the study of 250 households 54% fulfill their demands of pasteurized milk produce by DDC. Sample study shows that the customers of Kathmandu valley used approximately 50% of DDC's ghee, in the course of interviews with consumers it has been found that about 65% consumers used DDC's cheese and 27% of DDC's ice-cream, the business houses respondents 37% purses DDC milk products because of 'well pasteurized and fresh' followed by 20% "quality assured", 13% "habituated" and 10% regular supply.

Adhikari, (2004) who has done the research on, "Profit Planning in Manufacturing Enterprises: a case study of DDC", objectives of: analyze the functional budgets on sales and production sector of DDC, analyze various accounting ratios, major profitability and efficiency of the DDC, analyze the budget target and its achievement along with reason of deviation (if any), provide valuable recommendations and suggestion based on analyses. Mr. Adhikari has summarized his unforgettable finding as: DDC has practice short term planning rather than long term planning, the time is covered by interim period and by product, production and sales of DDC is increasing annually although the growth rate is fluctuated, the correlation between actual and targeted sales is positive, the corporation has no proper practice in segregating cost into fixed and variables, there is positive correlation between targeted and actual production of milk, most of budget figures are higher than actual figure, DDC has applied stable inventory policy with opening stock of inventory but this policy is not applied on practice, DDC has 1% store losses and 0.05% distribution losses of milk, DDC has prepared direct labour budget only based on technical and administration, it is not prepared according to time and date, capacity utilization is very high but the production ratio is very less, the CVP analysis shows that DDC is operating below the break even point, flexible budget of DDC shows 90% variable cost of sale revenue, DDC utilized corporate fund as long term loan and/or from international agencies like US aid, DDC has not clear attainable objectives, policies and strategies, timely accounting and auditing work are not maintained, financial

statements accounting system are out of the financial rule, the present management doesn't have any programme of perfect profit planning.

Bhattarai, (2004) who has done research in his term paper "Sales Budget on PPC of DDC" objectives of: review of present PPC adopted by DDC, analyze sales budget and inventory policy prepared by DDC, evaluate the variance between budgeted and actual achievement of DDC, analyze the financial performance of DDC, and provide the suggestion and recommendations of improving the profit planning and control. Mr. Bhattarai has summarized his unforgettable finding as; DDC has short term plan only rather than long term planning, DDC is not preparing its periodic performance report for the evaluation of performance to find the causes of poor achievement, pricing policy of DDC is not significant, government directly interferes on it, no coordination found between purchasing department and sales and production found between purchasing department and sales and production department, the budgeted sales is higher than actual sales, not trying to adopt new technology for planning its production target, no performance reporting, revised and punishment system, totally ignored the variance analysis, over utilized its plant capacity and only top level management involved in planning and decision but lower level participation are not encouraged.

Kharel, (2005) who had done research on "Cost-Volume-Profit Analysis as a tool to measure effectiveness of PPC (A case study of NEBICO Pvt. Ltd.)", with the objectives of: analyze the variance between target and actual sales, evaluate the profitability position, analyze the cost-volume-profit of a company and provide suitable suggestion and recommendation based on analysis. Mr. Kharel has summarized his unforgettable findings as: budgeted and actual sales are in fluctuating trend, the company does not apply any appropriate and fluctuated, net profit margin has very low, operating ratio of the company is higher than normal, the profit volume ratio has not constant and sufficient profit too, variable costs have more portions as compared to fixed costs, there is separated costing system for each products, margin of safety is in fluctuating trend, BEP of the company has been in increasing trend, there is a little gap between actual sales and BE

sales, there is no any special system of taking corrective action for replanning, pricing policies of the company is not scientific, has not used its fully capacity and followed only ABC analysis to control inventory.

Paudel, (2006) who had done research on “Sales Budget on Profit Planning and Control in Manufacturing Public Enterprises (A Case Study of DDC)”, with objective of: analyzed the sales budget prepared by DDC, evaluate the variances between budgeted and actual achievement, compare the sales with profit of DDC, and provide the suitable suggestion and recommendations for the improvement of planning system of DDC. Mr. paudel has summarized his unforgettable findings as: DDC has not practice of systematic and scientific sales plan, not able to acquaint the comprehensive budgeting techniques, not practice of using statistical tools in sales forecasting, lack with expertise to formulate strategic and tactical plans and to implement it, DDC has clear objectives but it is lagging behinds the means to achieve such objective, sales achievements of DDC are highly fluctuates, DDC adopted traditional pricing method to determine price, DDC has used different statistical tools used to analyze the sales, portion of variable cost in every Rs. Of sales is 9.21%and contribution margin ratio is only 8.27%, DDC can be considered as a big contributory of fulfill the national demands with quantitative milky products.

Article

Profit planning can be defined as the set of steps that are taken by firms to achieve the desired level of profit. Planning is accomplished through the preparation of a number of budgets, which, when brought through, from an integrated business plan known as *master budget*. The master budget is an essential management tool that communicates management's plan throughout the organization, allocates resources, and coordinates activities.

Planning involves developing objects and preparing various budgets to achieve those budgets. Control involves the steps taken by management to increase the likelihood that

the objectives set down at the planning stage are attained and that all parts of the organization are working together toward that goal. To be completely effective, a good budgeting system must provide for both planning a control. Good planning without control is time wasting.

[Source: www.accountingformanagement.com]

2.2.4 Research Gap

All the previous research studies, mentioned above and the other consolations through out his study about profit planning and control system are basically related to application of profit planning system based on past period of time. All the dissertations have pointed out only in proper planning system and have recommended for the effective implementation of profit planning system. Which is based on the major findings of their study but none of them have cleared above the consequences of not working in the said manner.

All the studies reviewed were made on comprehensive profit planning and control of manufacturing public enterprise. This study so should be different value as it focuses on specific area of overall profit planning i.e. cost volume profit analysis as a tool of the profit planning. It examines the current practice of CVP analysis: as a tool of PPC in the DDC.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Introduction

Research is the aim to find out for the society or valuable for certain group of people. It is systematic and scientific study, the result of which not be acceptable, if any of these characteristics are not fulfilled. For research purpose, systematic study means to be not over expensive or overtime consuming with the availability of information. This research study attempts to examine the application of Cost-Volume-Profit Analysis as a tool to measure effectiveness of profit planning and control in manufacturing public enterprise in DDC. Cost-Volume-Profit analysis is one of the most important managerial devices that plays vital role for effective formulation and implementation of different plans in DDC.

Research is undertaken not only to solve a problem existing in the work setting but also to add or contribute to the general body of knowledge in a particular area of interest to the researcher. Research is thus a knowledge which can be used for different purpose. It is used to build a theory, develop policies, support decision making and solve problems with the opening of new frontiers of knowledge through research, new concepts and theories are developed to explain, verify and analyze the social phenomena [H.K. Wolff and P.R. Pant, 2002: 204].

Research methodology is the way to solve systematically the research problem [Kothari, 2000: 39]. Methodology helps to analyze, examine and interpret various aspects of research works such as cost, volume and profit and other aspects related with profit planning in this research work. Methodologists' states the method with which data has been used in interpretation of such data to fulfill the objectives. More especially it describes about the research design source of data and data collection, periods covered, populations and sample data processing procedures and tool used.

3.1.1 Research Design

Research design is an arrangement made for the collection and analysis of data that aims to achieve the purpose of the study in systematic and scientific way. The research design of this study is descriptive as well as analytical. This study attempts to show the relationship among the cost, volume, profit and various functional budgets for their achievements and effective application with in profit planning. Planned and actual of production and sales are examined and cost structure is also examined.

The study is design as to give a clear picture of the DDC's financial performance. On the basis of financial statement and other available data and adopting this proposed research design attempt is made to investigate into financial performance of the corporation followed by some useful suggestion and recommendations.

3.1.2 Sources of Data and Data Collection

This study has used the primary and secondary data. Basically, secondary data has been collected from annual reports which comprise the financial statements such as: balance sheet and profit & loss A/c. Thus, this is the main source of data and other necessary information was obtained through the research authorized staff at central office of DDC, Lainchaur, Kathmandu. Some of these data were published while other was unpublished. To obtain the objectives of study both primary and secondary data have been collected through questionnaire, contracts, visits and discussion with chief executives, accounts officers and other related person. The format of questionnaire is given in appendices of this research work.

3.1.3 Periods Covered

This research study covers the last seven years i.e. fiscal year 2057/58 to 2063/64 and the DDC's strength and weakness of managerial planning and other related things are identified.

3.1.4 Data Processing Procedures and Tool Used

Relevant data of this study are collected through primary and secondary sources. Tables, charts and graphs are used as per requirement. Accounting, mathematical and statistical tools are also used to analyze collected data.

3.1.4.1 Accounting and Financial Tools

Generally, the accounting and financial analysis are used for the purpose of the assessment of the financial position to a particular organization. They are as follows:

- Contribution Margin Ratio
- Break Even Analysis
- Gross Profit Margin Ratio
- Net Profit Margin Ratio
- Operating Ratio
- Degree of Operating Leverage

3.1.4.2 Mathematical and Statistical Tools

Generally, the statistical tools are used for attaining accuracy on analysis as well as on the study. They are as follows:

1. Arithmetic Mean

The mean of a data set is simply the arithmetic average of the values in the set, obtained by summing the values and dividing by the number of values. Arithmetic mean of a set of observations in their sum divided by the number of observations e.g. the arithmetic mean $\bar{x}$ of n observation $x_1, x_2 \ldots x_n$, is given by:

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x$$

2. Standard Deviation

Deviation just means how far from the normal. In statistics, standard deviation is a simple measure of the variability or dispersion of a data set. A low standard deviation

indicates that the data points tend to be very close to the same value (the mean), while high standard deviation indicates that the data are "spread out" over a large range of values. The Standard Deviation (**σ**) is a measure of how spreads out numbers are, usually denoted by the Greek letter small sigma (σ). For the frequency distribution of the given values from their arithmetic mean for the frequency distribution xi/fi, i = 1,2,3, ….n.

$$\pm = \sqrt{\frac{1}{N}\sum_i Fi(xi - \bar{x})^2}$$

Where,

$\bar{x}$ is the arithmetic mean of the distribution and

$\sum_i Fi = N$

3. Coefficient of Variation

Hundred times the coefficient of dispersion based upon standard deviation is called coefficient of variation. It is a relative measure of dispersion based on standard deviation. In order to compare the variability between two sets of data, coefficient of variation can be used as a useful method. For Comparing the variability between two or more than two sets of data, a distribution having more C.V. is considered more variable or less consistent and vice versa. Coefficient of Variation is often abbreviated as C.V. and defined as:

$$\text{C.V.} = 100 \times \frac{\pm}{\bar{x}}$$

4. Karl Pearson's Coefficient of Correlation

Of the several mathematical methods of measuring correlation, the Karl Pearson's method popularly known as Pearson's coefficient of correlation is most widely used in practice. It is one of the very few symbols that are used universally for describing the degree of correlation between two series (Gupta 1999: E-10.11). It is denoted by r. In the present context, the coefficient of correlation is computed in order to measure the relationship between budgeted and actual sales of DDC.

$$r = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{N\sum x^2 - (\sum x)^2}\sqrt{N\sum y^2 - (\sum y)^2}}$$

Here,

N = Number of pairs of x and y observed

x = Budgeted sales

y = Actual sales

r = Pearson correlation coefficient

The correlation should always lie between ±1, r_{xy} = +1 denotes the perfect positive correlation between two variables. As such r_{xy} = -1 denotes the perfect negative correlation between two variables. r_{xy} = 0 denotes independent variables or say non-correlation between the two variables.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

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 DDC". For accomplishment of this objective, a definite course of research methodology has been followed, which is described in third chapter. In this chapter primary and secondary data are used to accomplish basic objectives. The primary data are used for segregation of costs into variable and fixed costs. Similarly, secondary data are used to analyze sales trend, budgeted and actual sales. The statistical tools, cost plan, inventory ratio, profitability ratio, operating leverage and CVP analysis are used to find conclusion.

This study has tried to examine CVP analysis as a tool to measure effectiveness, present practice of CVP analysis could be applied to strengthen of the DDC. It presents the analysis and interpretations data from FY 2057/58 to 2063/64.

4.1 Analysis of Variance of Sales

To identify the sales trend of past and to forecast the possible future trend of the DDC, past years budgeted sales and their achievement is presented in the table. To analyze the past sales data of the DDC, the following table presents the budgeted sales and actual sales achievement in Rs. from FY 2057/58 to 2063/64.

Table No. 4.1

Budgeted Sales, Actual Sales, Achievement and Variance

(FY 2057/58 to 2063/64)

(Rs. in Million**)**

Fiscal Year	Budgeted Sales (Target)	Actual Sales	Achievement (%)	Variance Unfavorable Actual Sales - Budgeted Sales	
				In amount	In percentage (%)
2057/58	1609.68	1484.77	92.24	124.91	7.76%
2058/59	1640.50	1548.23	94.38	92.27	5.62%
2059/60	1672.75	1595.90	95.41	76.85	4.59%
2060/61	1707.67	1535.81	89.94	171.86	10.06%
2061/62	1729.89	1589.66	91.89	140.23	8.11%
2062/63	1760.71	1536.34	87.26	224.37	12.74%
2063/64	1837.56	1697.50	92.38	140.06	7.62%

[Source: Annual Report of Account Department of DDC]

The above Table No. 4.1 depicts that the enterprise is not able to achieve the budgeted sales during the study period of seven years. So the sales performance of the enterprise is not quite satisfactory. The sales achievement in the FY 2057/58 was 92.24 per cent and 94.38 percentage in FY 2058/59. In the FY 2059/60, it was 95.41 per cent. However, it sharply increased by 2.14% in FY 2058/59 and 1.03% in FY 2059/60 as compared to preceding year, such increasing trends can not remain constant in next year. In FY 2060/61 the sales achievement was dramatically decreased to 89.94%. In next year it was slightly increased to 91.89%. Follow decreasing trend, only 87.26% achievement in FY 2062/63. At the end of FY 2063/64, the sales achievement increased to 92.38%.

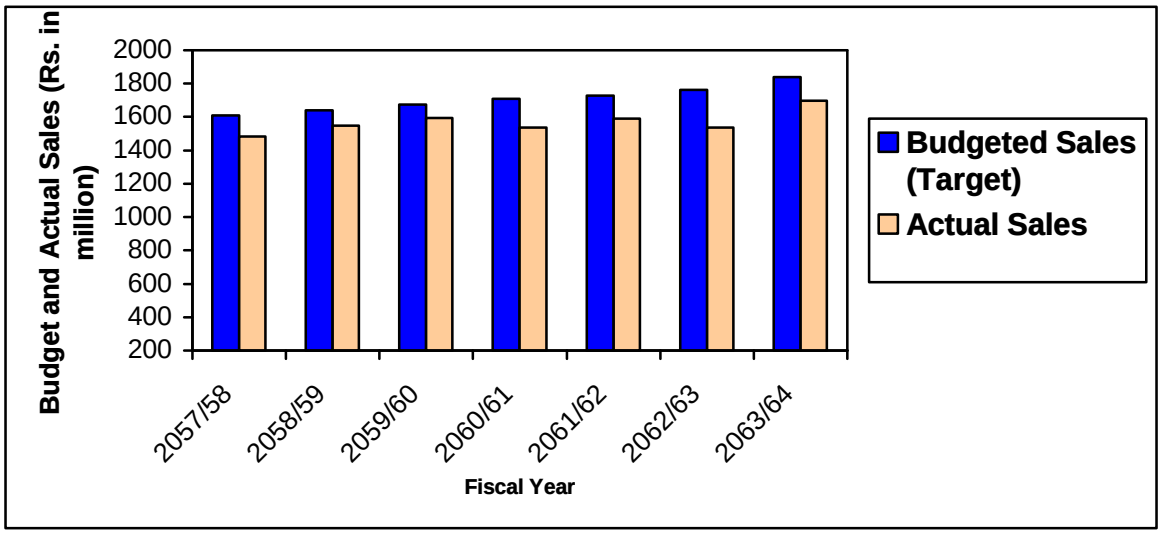
The above table also shows that budgeted sales of the enterprise are in increasing order but the actual achievement is fluctuating. In fiscal year 2059/60, the achievement percentage is 95.41. Which is the highest achievement during the study of 7 years and lowest achievement is 87.26% which is in the FY 2062/63. Non-achievement of the setting target may be attributed to inefficiency of management, higher margin of budgeted sales, political disturbances quality of products, delivery of products etc.

The above table clears that there is no favorable variance in any fiscal year. The unfavorable variance between target sales and actual sales are 7.76%, 5.62%, 4.59% 10.06%, 8.11%, 12.74% and 7.62% in the FY 2057/58, 2058/59, 2059/60, 2060/61, 2061/62, 2062/63 and 2063/64 respectively. This unfavorable variance percentages shows that there is no systematic and scientific sales plan. To reduce or remove unfavorable variance percentage, the management should set the budget sales according to capacity of the enterprise.

Budgeted and actual sales of DDC can be presented in the bar diagram and graph.

Figure No. 4.1

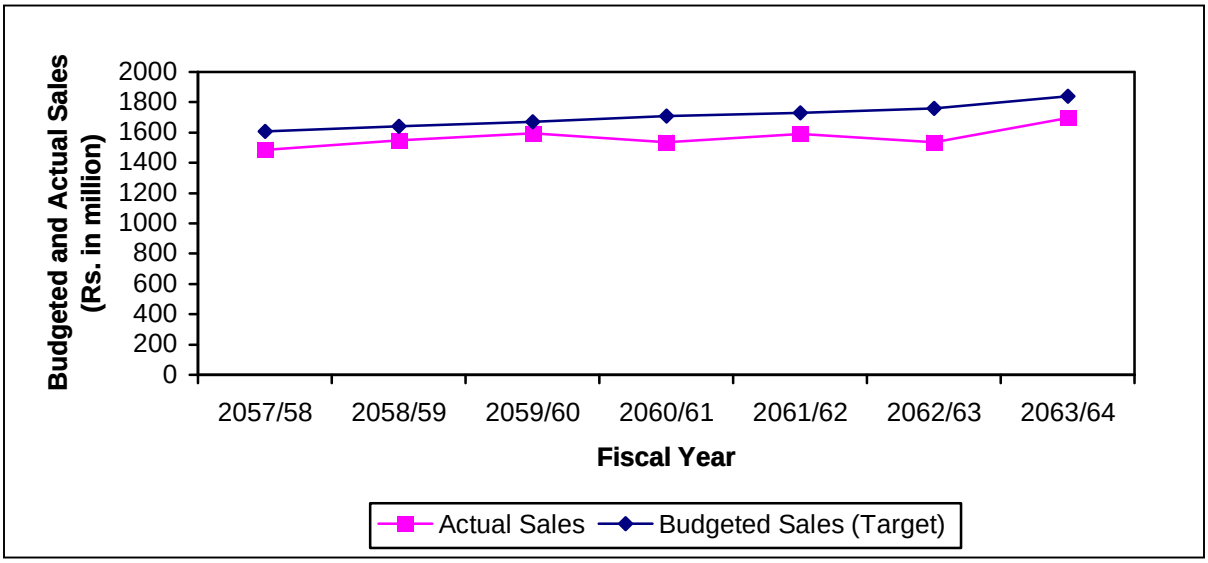
Budgeted and Actual Sales (FY 2057/58 to 2063/64)



The above diagram indicates that actual sales never meet the budgeted sales. The highest achievement of 95.40% in the FY 2059/60 and the lowest achievement of 87.26% in the FY 2062/63.

Figure No. 4.2

Budgeted Sales and Actual Sales (FY 2057/58 to 2063/64)



The above figure No. 4.2 shows the trend of sales budget and sales achievement. The graphical presentation indicates that the gap between target sales and actual sales are not very high but actual sales are always below than budget sales. The gap between budgeted and actual sales is very high in the FY 2062/63 and low gap is in the FY 2059/60.

Table No. 4.2
Summary of Statistical Value

Details	Budget Sales 'x' (Rs. in Million)	Actual Sales 'y' (Rs. in Million)
Mean $\bar{x}$	1708.39	1569.74
SD (σ)	71.22	62.51
C.V.	4.17	3.98
Correlation (r)	0.774	

[Source: Appendix No. 1]

The above Table No. 4.2 shows that mean budgeted sales (1708.39) is more than mean actual sales (1569.74). It clears that there is no any proper planning for making budget

and for achieving the target of the budget. Similarly, the standard deviation and coefficient of variation of actual sales (62.51 and 3.98 percent) both are lesser than budgeted sales (71.22 and 4.17 percent). It indicates that budgeted sales can be considered more variable or less consistent than actual sales. It may be due to inefficiency of the budget planner. The above table shows that the correlation between budgeted and actual sales is perfectly positive i.e. 0.774, which indicates the value of r is highly significant. It clears that if budgeted sales increase, the actual sales also increase and vice-versa. So, we can easily say that the actual sales of DDC are in the same direction towards the budgeted sales.

Here, Budgeted sales (x) is assumed to be independent and an actual sales (y) is assumed to be dependent variable.

The regression line of Y on x be

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

or, $Y-1569.74 = 0.774\frac{62.51}{71.22}(X-1708.39)$

or, $Y-1569.74 = 0.6793583\ (X-1708.39)$

or, $Y = 0.6793583\ X-1160.61 + 1569.74$

or, $Y = 0.6793583\ X + 409.13$

This regression line shows that there is positive relationship between the budgeted sales and actual sales. With the help of this line, we can estimate the expected actual sales in coming period.

4.2 Comparison of Actual Sales and Profit/Loss Trend of DDC

DDC was running in losses since the beginning period to fiscal year 2058/59 and the last three fiscal years of our study. The main cause of losses is excess burden of fixed administrative and manufacturing costs. DDC is running in profit during the fiscal years 2059/60 and 2060/61. The following table shows the actual sales and profit/(loss) trend of the study period.

Table No. 4.3

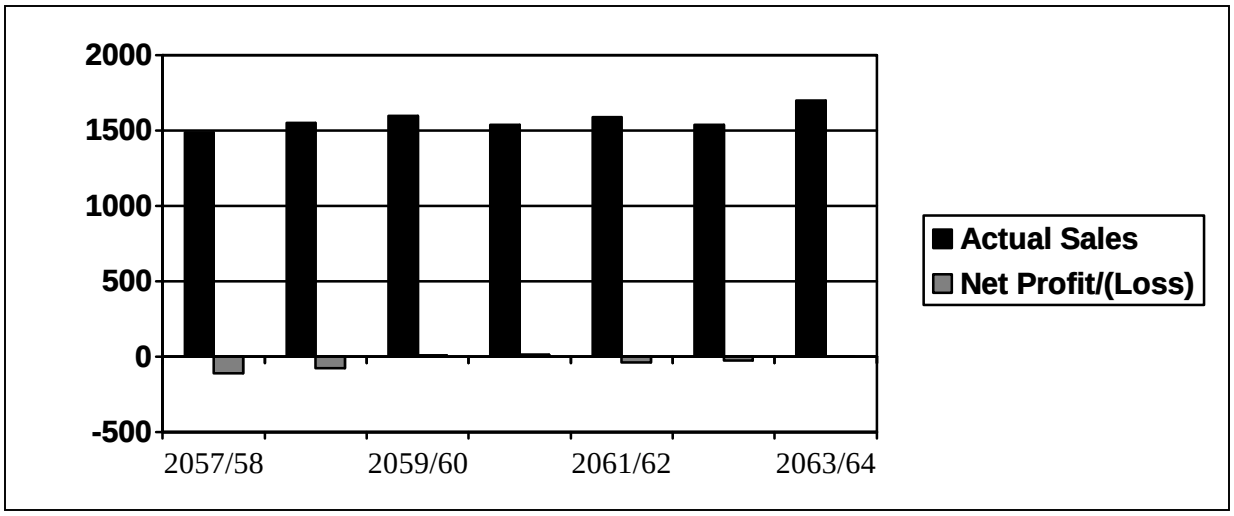
Actual Sales and Profit/(Loss) Trend of DDC (FY 2057/58 to 2063/64)

Fiscal Year	Actual Sales	Net Profit/(Loss) (Rs. in million)
2057/58	1484.77	(107.55)
2058/59	1548.23	(76.13)
2059/60	1595.90	8.93
2060/61	1535.81	14.12
2061/62	1589.66	(37.92)
2062/63	1536.34	(25.54)
2063/64	1697.50	(0.41)
Total	**10988.21**	**(97.58)**
Average	**1569.74**	**(13.94)**

[Source: P/L a/c and B/S of DDC of relevant year]

Actual Sales and Net Profit/(Loss) can be presented more effectively in the bar diagram.

Figure No. 4.3
Actual Sales and Profit/(Loss) Trend of DDC (FY 2057/58 to 2063/64)



The above Table and Chart no. 4.3 shows that DDC was suffering from a huge amount of loses upto the FY 2058/59 from the FY 2057/58 and From the FY 2061/62 to FY 2063/64. From the analysis of this table, it is found that the minimum loss is in FY

2063/64 of Rs. (0.41) million and the huge loss is in the FY 2057/58 of Rs. (107.55) million. DDC is in profit during the FY 2059/60 to 2060/61. It is said that DDC is in increasing trends. If the corporation will control the administrative costs, other non-manufacturing costs, production costs and factory expenses, it would be in profit in the coming fiscal years.

4.3 Cost Plan of DDC

Cost planning and controlling is necessary to maintain reasonable costs level to support objectives and planned programmes of the organization. The organization should not focus itself on decreasing the costs only rather it should for better utilization of limited resources. It should focus to establish the relationship between expenditures and the benefits derived from those organizations. The organization can reduce costs temporarily but it may bring many difficulties like break down of machines, inefficiency in works etc. in this study, all fixed and variable costs are categorized by cost of goods sold, administrative cost and distribution cost.

Cost of goods sold is also called production costs. Raw materials, production salary and wages, fuel and oil costs, electricity cost, water cost, launch cost, packaging cost, lab chemicals cost etc. are the example of cost of goods sold. Administrative cost and management cost, which are not directly relation with production. Administrative costs are salary and wages, allowances and incentives, donation, depreciation, interest etc. similarly, selling and distribution costs are those costs which occur selling of products of any organization such as transportation cost, promotional cost, godown cost etc.

4.3.1 Variable Cost Analysis

Variable costs are based on activity. The variable costs should be zero at zero activity. They change directly with changes in activity level in a responsibility center. Therefore, if output is doubled, variable expenses is to be doubled, if output increases by 15 percent the variable expenses also increase by 15 percent, if output is zero, the variable cost also zero. But variable cost per unit cost might be changed due to increase in price of material, labour and inventory costs etc.

Table No. 4.4

Variable Cost Sheet

Details	Fiscal Year						
	2057/58	**2058/59**	**2059/60**	**2060/61**	**2061/62**	**2062/63**	**2063/64**
1. Cost of Milk							
Purchase of Milk	1,097,064,611	1,054,764,809	1,112,413,152	1,045,469,720	1,100,969,720	1,078,769,720	1,143,583,720
Labour cost of transportation	21,927	16,801	12,651	33,904	45,504	51,154	76,512
Chemicals and detergent	2,903,600	3,346,705	3,153,280	3,637,340	4,797,340	4,681,340	4,560,540
Other dairy products	1,575,534	1,876,589	1,906,713	1,869,116	1,985,116	1,929,116	1,808,316
Water and Electricity	32,915,017	37,320,630	37,794,256	36,085,872	39,245,872	38,085,872	37,965,072
Allowance	7,954,026	7,681,718	7,256,738	7,164,428	8,324,428	8,208,428	8,087,628
Fuel	54,649,890	55,491,875	58,480,955	62,119,532	73,719,532	73,603,532	73,482,732
Scheme milk power expenses	1,153,424	47,694,050	52,816,397	39,656,569	51,256,569	45,656,569	45,535,769
Other raw materials	868,854	938,502	1,060,880	1,892,398	3,052,398	2,936,398	2,815,598
Packing goods	75,136,886	80,148,529	69,971,099	60,355,588	80,355,588	68,755,588	68,634,788
Cheese, butter, other transportation	510,971	562,504	587,095	927,164	1,004,713	888,713	767,913
Total	**1,274,754,740**	**1,289,842,711**	**1,345,453,216**	**1,259,211,631**	**1,364,756,780**	**1,323,566,430**	**1,387,318,588**
Increase/(Decrease)	**-**	**0.011836**	**0.055460**	**(0.012193)**	**0.070603**	**0.038291**	**0.088302**

2. Administrative Cost							
Allowances	4,904,246	4,575,063	4,332,339	3,982,786	5,284,786	6,344,786	6,460,786
Water and Electricity	18,932	19,914	20,719	24,572	36,172	47,772	59,372
Fuel	2,784,480	2,484,147	2,560,869	1,649,188	2,902,487	4,035,503	5,195,503
Total	**7,707,657**	**7,079,124**	**6,913,928**	**5,501,620**	**8,223,445**	**10,428,061**	**11,715,661**
Increase/(Decrease)	**-**	**(0.08155)**	**(0.10298)**	**(0.28621)**	**0.066919**	**0.352948**	**0.520003**
3. Selling and Distribution Cost							
Allowance	2,260,214	2,054,035	2,166,846	2,174,864	2,334,864	2,450,864	2,566,864
Water and Electricity	91,954	130,885	155,649	153,826	154,986	143,386	154,986
Fuel	4,014,410	4,142,232	5,042,548	3,450,546	4,610,546	4,770,546	4,886,546
Milk carrying cost	14,004,336	14,153,739	14,845,215	16,678,805	17,030,949	16,914,949	18,074,949
Travelling expenses	116,749	200,398	136,572	88,446	89,606	205,606	206,766
Total	**20,487,663**	**20,681,290**	**22,346,829**	**22,546,487**	**24,220,951**	**24,485,351**	**25,890,111**
Increase/Decrease	**-**	**0.009451**	**0.090746**	**0.100491**	**0.182221**	**0.195127**	**0.263693**
4. Total Variable Cost	**1,302,950,060**	**1,317,603,126**	**1,374,713,972**	**1,287,259,738**	**1,397,201,176**	**1,358,479,842**	**1,424,924,360**

[Source: Annual Report of DDC]

Above table No. 4.4 reveals all variable costs, which are used to produce dairy products in terms of cost of sales, administrative or operating costs and selling distribution costs. It also depicts the trend of cost. In above table, FY 2057/58 is taken as a base year. The cost of sales was in increasing trend in all FY other than FY 2060/61. The highest increased in FY 2063/64 by 0.088382. The reasons to increase in costs may be attributed to high increase in purchase of milk, scheme milk power expenses and cost of other raw materials. To reduce the cost of sales, the DDC should try to control in wastage of raw material, and scheme milk power expenses. DDC tried reducing cost of sales during the FY 2060/61. Administrative cost was in decreasing trend upto FY 2060/61. After FY 2060/61, administrative cost is in increasing trend. The highest administrative cost was in FY 2063/64 and lowest administrative cost is in FY 2060/61. The reasons for decrease in administrative cost are lower amount of allowance and decrease in fuel cost. Selling and distribution cost is in fluctuating trend over the study period. The highest distribution cost is in FY 2063/64 and lowest distribution cost was in FY 2057/58. It shows that DDC can not control the carrying cost of milk and cost of water and electricity. It proves that DDC is not using effective planning process in distribution methods.

4.3.2 Fixed Cost Analysis

Fixed costs are cost associated with those inputs, which do not vary with the changes in volume of output or activity within a specified range of activity or output (relevant range). Fixed costs, thus, remain constant whether activity increases or decreases within a relevant range. For example, the rent of factory or office premises, property, insurance, senior executives' salaries, lease payments, depreciation etc. remains the same whether there is an increase or decrease in the volume of activity.

Table No. 4.5

Fixed Cost Sheet

Details	Fiscal Year						
	2057/58	**2058/59**	**2059/60**	**2060/61**	**2061/62**	**2062/63**	**2063/64**
1. Cost of Milk							
Chemicals and detergent	1,575,534	1,625,584	1,592,251	1,503,363	1,536,696	1,475,586	1,542,252
Water and Electricity	168,854	173,867	171,645	170,646	171,090	170,202	170,868
Travelling Expenses	34,649,890	39,449,890	38,944,335	30,055,447	31,066,115	30,455,005	31,232,782
Other raw materials	1,153,424	1,203,424	1,170,091	1,114,536	1,147,869	1,138,981	1,216,758
Repair & Maintenance	75,136,886	80,117,049	79,340,656	66,431,195	76,920,084	69,126,862	76,967,310
Insurance	2,655,819	3,155,819	3,122,486	3,011,375	3,044,708	2,946,932	3,023,598
Total	**115,340,408**	**125,725,634**	**124,341,465**	**102,286,563**	**113,886,563**	**105,313,569**	**114,153,569**
Increase/(Decrease)	**-**	**0.090040**	**0.078039**	**(0.113177)**	**(0.012605)**	**(0.086933)**	**(0.010290)**
2. Administrative Cost							
Salary	99,538,499	54,949,993	52,746,771	56,080,104	56,862,105	84,195,107	78,939,552
Allowance	4,904,246	4,015,358	3,793,136	4,126,469	4,148,691	4,926,468	4,882,024
Water and Electricity	19,914	19,914	19,470	19,581	19,803	20,136	20,025
Insurance	9,479,309	8,590,421	8,368,199	8,812,643	8,834,865	9,612,642	9,544,160
Fuel	54,649,890	32,927,668	32,261,741	34,034,265	34,367,598	50,478,709	47,145,376
Total	**168,591,858**	**100,503,354**	**97,189,317**	**103,073,062**	**104,233,062**	**149,233,062**	**140,531,137**
Increase/(Decrease)	**-**	**(0.403866)**	**(0.423523)**	**(0.388624)**	**(0.381743)**	**(0.114826)**	**(0.166442)**
3. Selling and Distribution Cost							
Storage	9,479,309	9,515,138	9,848,471	8,959,583	9,037,360	9,704,026	9,770,692
Traveling	5,042,548	5,064,770	5,256,723	4,701,168	4,745,612	5,183,945	5,217,278
Advertisement	3,360,920	3,372,031	3,453,142	3,095,741	3,089,520	3,308,122	3,324,123
Total	**17,882,776**	**17,951,938**	**18,558,335**	**16,756,491**	**16,872,491**	**18,196,092**	**18,312,092**
Increase/Decrease	**-**	**0.003868**	**0.037777**	**(0.062982)**	**(0.056495)**	**0.017521**	**0.024007**
4. Total Fixed Cost	**301,815,042**	**244,180,926**	**240,089,117**	**222,116,116**	**234,992,116**	**272,742,723**	**272,996,798**

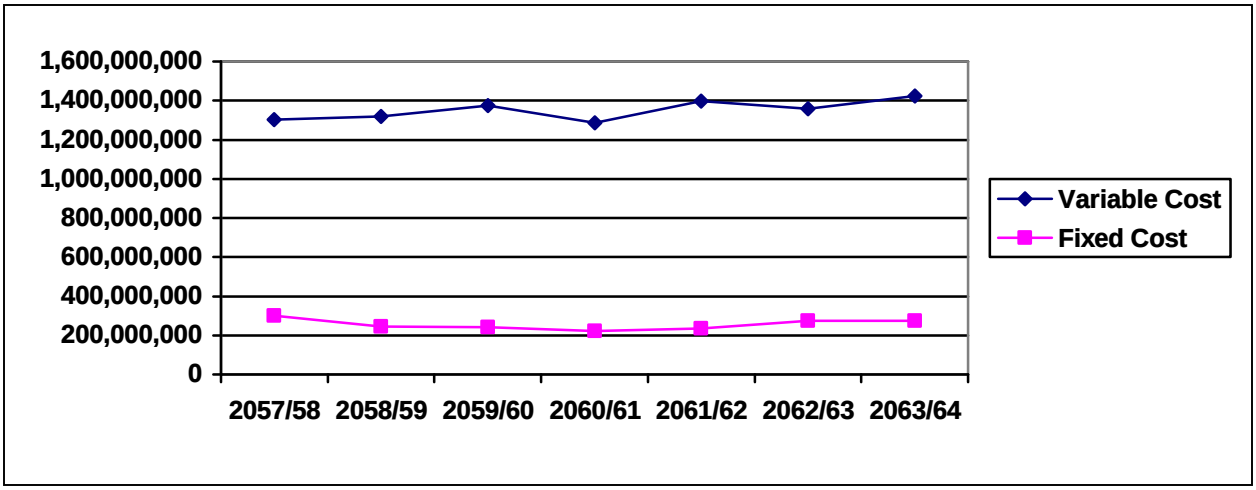
[Source: Annual Report of DDC]

In the above Table No. 4.5, it is observed that the fixed cost of sales of the DDC was in increasing trend up to FY 2059/60 as taken the FY 2057/58 as the base year. In the FY 2061/62, 2062/63 and 2063/64, the fixed cost of sales is slightly decreased as compared with the FY 2059/60. The highest fixed cost in the FY 2058/59 may be attributed the high expenses in repair and maintenance, travelling, and insurance expenses. Fixed administrative cost has never crossed the cost of FY 2057/58 during the study period of 7 years. It shows that DDC is trying to reduce fixed administrative cost by reducing the cost related to administration cost i.e. staff's salary, fuel expenses, and insurance expenses. The lowest administrative cost is in FY 2059/60 over the study period of 7 years. The Fixed distribution cost is so high in FY 2059/60 during the study period 7 years. It is the reason to increase storage expenses, traveling expenses and advertisement expenses. The lowest fixed selling and distribution cost is in FY 2060/61.

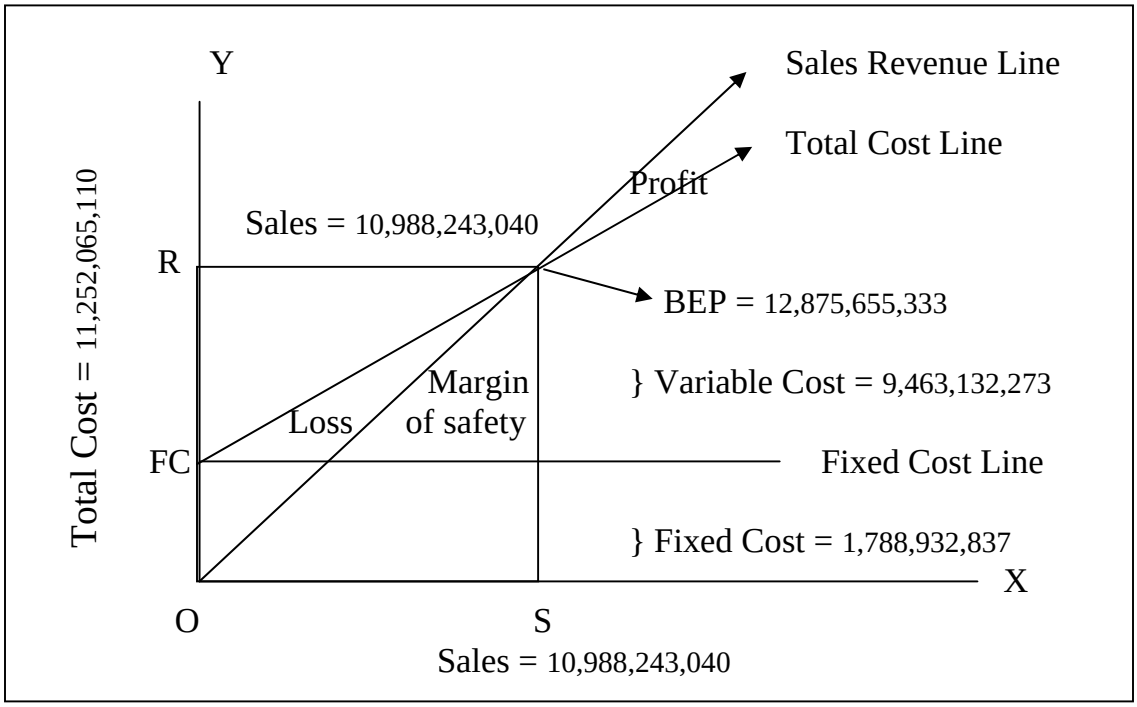
We can present more effectively above Fixed and Variable Cost trend in graph and chart, where Sales revenue is shown in x- axis and total cost amount is shown in y-axis.

Figure No. 4.4

Variable and Fixed Cost Trend of DDC (FY 2057/58 to 2063/64)



Total Variable and Fixed Cost Chart (FY 2057/58 to 2063/64)



4.4 Profitability Ratio Analysis

The word 'profitability' may be defined as the ability of given investment to earn a return from its use. Profitability has been considered, to a great extent, role of the main criteria to judge the extent to which the management has been successful in efficiently utilizing the funds at its disposal or in other words, how for the management has been successful in maximizing its profits or minimizing its losses, if any.

The profitability ratio measures the operating efficiency of the company. Besides management of the company, creditors and owner are also interested in the profitability of the firm, profitability ratios are of two types: profitability in relation to sales and profitability in relation to investment. But the present study concern only with profitability in relation to sales.

Table No. 4.6

Income Statement for the Year Ended

From 2057/58 to 2063/64

Details	Fiscal Year						
	2057/58	**2058/59**	**2059/60**	**2060/61**	**2061/62**	**2062/63**	**2063/64**
1. Sales	**1,484,771,892**	**1,548,239,961**	**1,595,906,712**	**1,535,810,462**	**1,589,663,476**	**1,536,340,564**	**1,697,509,972**
2. Cost of Sales							
Variable Cost	1,274,754,740	1,289,842,711	1,345,453,216	1,259,211,631	1,364,756,780	1,323,566,430	1,387,318,588
Fixed Cost	115,340,408	125,725,634	124,341,465	102,286,563	113,886,563	105,313,569	114,153,569
Total	**1,390,095,147**	**1,415,568,345**	**1,469,794,681**	**1,361,498,194**	**1,478,643,343**	**1,428,879,999**	**1,501,472,157**
Add: Opening Stock	95,105,659	100,933,245	38,870,266	64,731,817	45,188,469	41,183,989	98,248,773
Less: Closing Stock	100,933,245	38,870,266	64,731,817	45,188,469	41,183,989	98,248,773	83,731,817
Total	**1,384,267,561**	**1,477,631,325**	**1,443,933,130**	**1,381,041,543**	**1,482,647,823**	**1,371,815,215**	**1,515,989,113**
3. Gross Profit	**100,504,331**	**70,608,637**	**151,973,582**	**154,768,920**	**107,015,653**	**164,525,349**	**181,520,860**
4. Others							
Operating Cost							
Variable Cost	7,707,657	7,079,124	6,913,928	5,501,620	8,223,445	10,428,061	11,715,661
Fixed Cost	168,591,858	100,503,354	97,189,317	103,073,062	104,233,062	149,233,062	140,531,137
Distribution Cost							
Variable Cost	20,487,663	20,681,290	22,346,829	22,546,487	24,220,951	24,485,351	25,890,111

Fixed Cost	17,882,776	17,951,938	18,558,335	16,756,491	16,872,491	18,196,092	18,312,092
Total Cost	**214,669,953**	**146,215,706**	**145,008,408**	**147,877,659**	**153,549,948**	**202,342,565**	**196,449,000**
5. Operating Income	**(114,165,623)**	**(75,607,069)**	**6,965,174**	**6,891,260**	**(46,534,295)**	**(37,817,216)**	**(14,928,141)**
Add: Other Income	18,291,769	11,107,992	13,550,585	11,545,735	13,141,375	16,939,056	19,687,110
6. EBIT	**(95,873,854)**	**(64,499,076)**	**20,515,759**	**18,436,995**	**(33,392,921)**	**(20,878,161)**	**4,758,969**
Less: Interest	11,676,425	11,633,866	11,583,888	4,319,401	4,522,113	4,663,760	5,171,514
7. EBT	**(107,550,279)**	**(76,132,942)**	**8,931,871**	**14,117,594**	**(37,915,033)**	**(25,541,921)**	**(412,545)**

[Source Annual Report of DDC]

4.4.1 Gross Profit Margin

Gross profit margin shows the relationship between gross profit and sales of the firm, it reflects the efficiency with which management produces each unit of product. A higher ratio indicates good management of the firm and vice versa. It is calculated by dividing gross profit by sales.

We have,

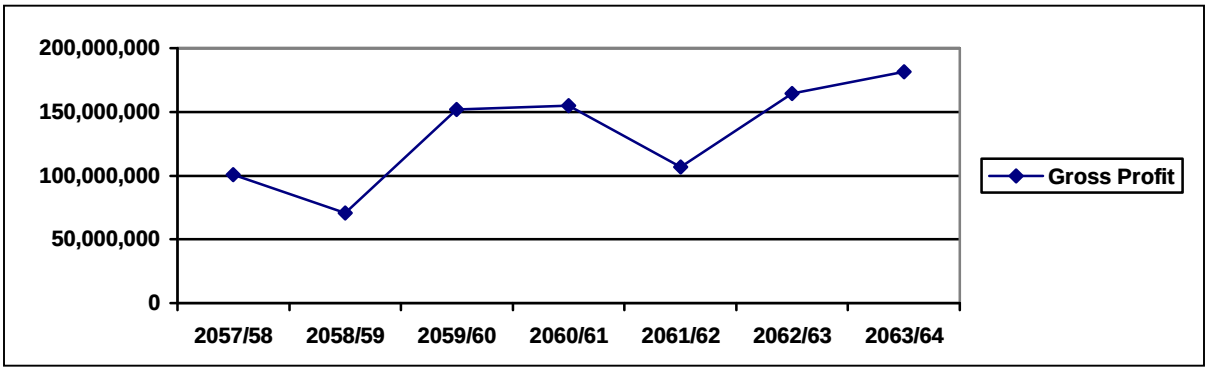
Gross Profit Margin = $\frac{Gross\ Profit}{Sales}$

Table No. 4.7
Gross Profit Margin of the Years

Fiscal Year	Sales amount	Gross profit	Gross Profit Margin
2057/58	1,484,771,892	100,504,333	6.77%
2058/59	1,548,239,961	70,608,636	4.56%
2059/60	1,595,906,712	151,973,582	9.52%
2060/61	1,535,810,462	154,768,919	10.08%
2061/62	1,589,663,476	107,015,654	6.73%
2062/63	1,536,340,564	164,525,350	10.71%
2063/64	1,697,509,412	181,520,860	10.69%
Total	**10,988,242,480**	**930,917,334**	**59.06%**
Mean	**1,569,748,926**	**132,988,191**	**8.44%**

[Source: Annual Report of DDC]

Figure No. 4.5
Gross Profit Trend of DDC (FY 2057/58 to 2063/64)



The above Table No. 4.7 and figure no. 4.5 shows that the gross profit margin of DDC was decrease in a FY 2058/59 and then increases in FY 2059/60 and 2060/61 as taken the 2057/58 base year. In FY 2061/62, GP is decrease and after that it increases upto FY 2063/64. Maximum ratio over the study period is 10.71% in the FY 2062/63 and minimum ratio is 4.56% in the FY 2058/59. The mean gross profit margin is very low 8.44; this is not favorable for the corporation. It clears that the cost of goods sold is very high in every fiscal years.

4.4.2 Net Profit Margin

Net profit margin measures the relation between net profit and sales of the firm. A high profit margin indicates adequate return to the firm and thus enables in withstanding in adverse economic situations. When sales price is declining, cost of production is rising and demands for the product are falling. A low profit margin shows just the opposite. Net profit margin is computed by dividing net profit by sales.

$$\text{Net Profit Margin} = \frac{Net\ Profit\ After\ Tax}{Sales}$$

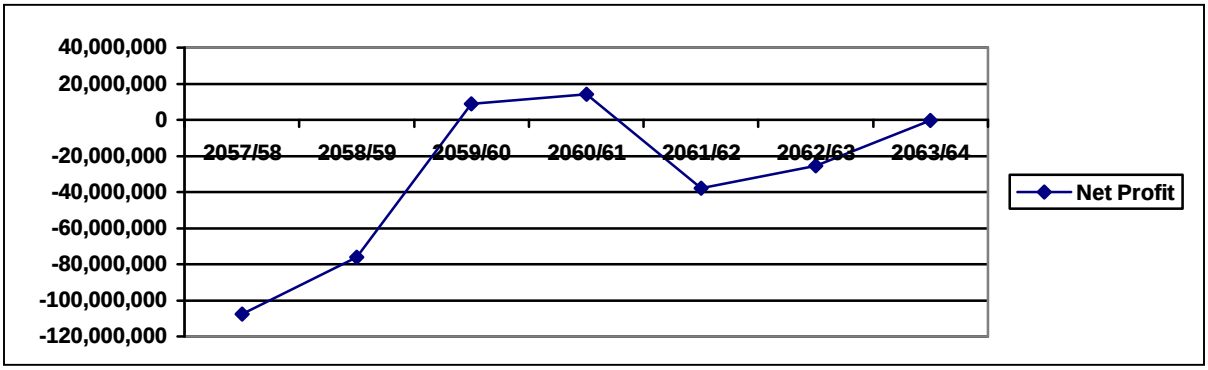
Table No. 4.8

Net Profit Margin of the Years

Fiscal Year	Sales Amount (Rs.)	Net Profit/(Loss) (Rs.)	Net Profit Margin (%)
2057/58	1,484,771,892	(107,550,279)	-7.24%
2058/59	1,548,239,961	(76,132,944)	-4.92%
2059/60	1,595,906,712	8,931,871	0.56%
2060/61	1,535,810,462	14,117,594	0.92%
2061/62	1,589,663,476	(37,915,033)	-2.39%
2062/63	1,536,340,564	(25,541,921)	-1.66%
2063/64	1,697,509,412	(412,545)	-0.02%
Total	**10,988,242,480**	**(224,503,257)**	**-14.75%**
Mean			**-2.11%**

[Source: Annual report of DDC]

Figure No. 4.6
Net Profit/(Loss) Trend of DDC (FY 2057/58 to 2063/64)



The above Table No. 4.8 and figure no. 4.6 shows that the firm has been operating under loss in almost study period. Only in two fiscal years, the firm makes profit. The firm has negative net profit margin from FY 2057/58 to 2058/59 and from FY 2061/62 to 2063/64. The highest negative net profit margin ratio is 7.2455% in fiscal year 2057/58 and highest net profit margin ratio is 0.92% in FY 2060/61. Overall, the firm has been operating under loss. The average or mean net profit margin is calculated (2.11) %. It shows that the firm has high operating expenses.

4.4.3 Operating Ratio

The operating expenses ratio explains the change in the profit margin ratio. It is calculated by dividing operating expenses like as cost of goods sold plus selling expenses and administrative expenses (excluding interest) by sales. Lower the operating ratio indicates higher the operating profit and vice-versa.

We have,

$$\text{Operating Ratio} = \frac{Cost\ of\ Goods\ Sold + Operating\ Expenses}{Sales}$$

Where,

Operating expenses = Administrative expenses (Excluding Interest) + Selling and distribution expenses.

Table No. 4.9

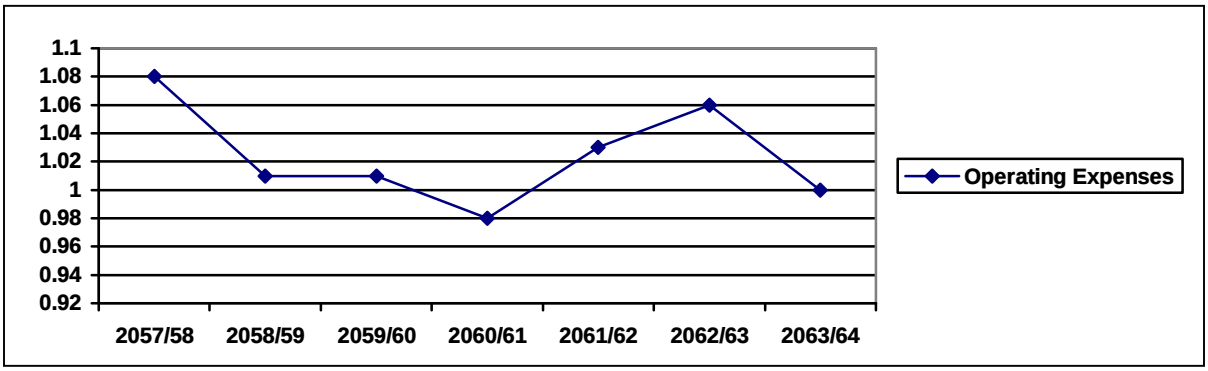
Operating Ratio of the Years

Fiscal Year	Sales Amount	Cost of Sales	Operating Expenses		Operating Ratio
			Administrative Expenses	Selling & Distribution Expenses	
2057/58	1,484,771,892	1390095148	176299515	38370439	1.08
2058/59	1,548,239,961	1415568345	107582478	38633229	1.01
2059/60	1,595,906,712	1469794680	104103245	40905164	1.01
2060/61	1,535,810,462	1361498194	108574682	39302978	0.98
2061/62	1,589,663,476	1478643343	112456507	41093442	1.03
2062/63	1,536,340,564	1428879999	159661123	42681443	1.06
2063/64	1,697,509,412	1501472157	152246798	44202203	1.00
Total	**10,988,242,480**	**10,045,951,865**	**920924347**	**285188898**	**7.17**
Mean	**1,569,748,926**	**1,435,135,981**	**131560621**	**40741271**	**1.02**

[Source: Annual report of DDC]

Figure No. 4.7

Operating Ratio Trend of DDC (FY 2057/58 to 2063/64)



The above Table No. 4.9 and figure no. 4.7 shows that the operating ratio is very high over the study period, which indicates the lower operating profit is in the DDC. There is over than 1 operating ratio in all six FY 2057/58, 2058/59, 2059/60, 2061/62, 2062/63 and 2063/64. It is so bad operating ratio. There is lower than one operating ratio only in

FY 2059/60, it is not also good ratio for the firm. The average operating ratio is 1.02, which indicates that the firm is poor to improve operating profit.

4.4.4 Degree of Operating Leverage

A ratio between contribution margin and EBIT is known as operating leverage or a ratio between the percentage changes in EBIT and percentage changes in sales amount is known as operating leverage. It measures the degree of business risk associated to a firm. Higher the percent of fixed cost indicates higher degree of operating leverage. It is calculated by dividing contribution margin by EBIT. The greater degree of operating leverage indicates the greater amount of business risk and vice-versa.

We have,

$$\text{Degree of Operating Leverage} = \frac{Contribution\ \text{Margin}}{Earning\ Before\ Interest\ and\ Tax\ (EBIT)}$$

Table No. 4.10

Degree of Operating Leverage of the Years

Fiscal Year	Contribution Margin	EBIT	DOL
2057/58	187,649,418	(95,873,855)	(1.957)
2058/59	168,573,857	(64,499,077)	(2.614)
2059/60	247,054,291	20,515,759	12.042
2060/61	229,007,376	18,436,995	12.421
2061/62	188,457,821	(33,392,920)	(5.644)
2062/63	234,925,507	(20,878,161)	(11.252)
2063/64	258,068,657	4,758,969	54.228
Total	**1,513,736,926**	**(170,932,289)**	**57.224**
Mean			**8.175**

[Source: Annual report of DDC]

The above Table No. 4.10 shows that operating leverage of DDC was (1.957), (2.613), 12.042, 12.421, (5.644), (11.252) and 54.228 in FY 2057/58, 2058/59, 2059/60, 2060/61, 2061/62, 2062/63 and 2063/64 respectively. The mean of DOL is 8.175, which indicates

that if sales increase by 1 percent the amount of operating profit (EBIT) increases by 8.175 percent. It shows that DDC has proper method of controlling the expenses.

4.5 Cost-Volume-Profit Analysis

Cost-Volume-Profit (CVP) is the process of examining the relationship among revenues, costs and profit for a relevant range of activity and for a particular time frame. It is one of the most important and powerful tool for profit planning and control. There are three factors of Cost-Volume-Profit analysis, which are interconnected and dependent with each other. Specially, cost control and profit planning is possible with the help of cost-volume-profit analysis. The CVP relationship would be established by BE analysis.

4.5.1 Contribution Margin

Contribution Margin is the difference between the sales revenue and variable costs of production. In other words, contribution margin is the sum of fixed cost and profit. High contribution margin shows high profit and vice-versa. It is calculated by using following formula;

Contribution Margin = Sales Revenue – Variable Cost

or

Fixed Cost + Profit

Table No. 4.11

Income Statement for the Years 2057/58 to 2063/64

Details	Fiscal Year						
	2057/58	**2058/59**	**2059/60**	**2060/61**	**2061/62**	**2062/63**	**2063/64**
1. Sales	**1,484,771,892**	**1,548,239,961**	**1,595,906,712**	**1,535,810,462**	**1,589,663,476**	**1,536,340,564**	**1,697,509,972**
2.Variable Cost							
Cost of Sales	1,268,927,153	1,351,905,690	1,319,591,664	1,278,754,979	1,368,761,260	1,266,501,646	1,401,835,544
Administrative Cost	7,707,657	7,079,124	6,913,928	5,501,620	8,223,445	10,428,061	11,715,661
Selling and distribution Cost	20,487,663	20,681,290	22,346,829	22,546,487	24,220,951	24,485,351	25,890,111
Total	**1,297,122,474**	**1,379,666,105**	**1,348,852,421**	**1,306,803,086**	**1,401,205,656**	**1,301,415,058**	**1,439,441,315**
3. Contribution Margin	**187,649,418**	**168,573,857**	**247,054,291**	**229,007,376**	**188,457,821**	**234,925,507**	**258,068,657**
4. Fixed Cost							
Cost of Sales	115,340,408	125,725,634	124,341,465	102,286,563	113,886,563	105,313,569	114,153,569
Administrative Cost	180,268,283	112,137,220	108,773,204	107,392,463	108,755,174	153,896,822	145,702,651
Selling and distribution Cost	17,882,776	17,951,938	18,558,335	16,756,491	16,872,491	18,196,092	18,312,092
Total	**313,491,467**	**255,814,792**	**251,673,004**	**226,435,517**	**239,514,229**	**277,406,483**	**278,168,312**
Less: Other income	18,291,769	11,107,992	13,550,585	11,545,735	13,141,375	16,939,056	19,687,110
Net fixed cost	**295,199,698**	**244,706,799**	**238,122,420**	**214,889,782**	**226,372,854**	**260,467,428**	**258,481,202**
Profit/(Loss)	**(107,550,280)**	**(76,132,943)**	**8,931,872**	**14,117,594**	**(37,915,033)**	**(25,541,921)**	**(412,545)**

[Source: Annual report of DDC]

The above Table No. 4.11 shows the contribution margin of DDC over the study period. Among the seven fiscal year, the maximum contribution margin of Rs. 258,068,657 in FY 2063/64 and the minimum contribution margin of Rs. 168,573,857 in FY 2058/59.

4.5.2 Profit Volume Ratio

Profit volume ratio is the relationship between the contribution margin and sales revenue. The two factors profit and volume are interconnected and dependent with each other. Profit depends upon sales; selling price to a greater extent will depend upon the volume of production. It is calculated by dividing contribution margin by sales.

We have,

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

Table No. 4.12
Profit Volume Ratio of the Years

Fiscal Year	Sales Amount	Contribution Margin	P/V Ratio
2057/58	1484771892	187,649,418	0.126
2058/59	1548239961	168,573,857	0.109
2059/60	1595906712	247,054,291	0.155
2060/61	1535810462	229,007,376	0.149
2061/62	1589663476	188,457,821	0.119
2062/63	1536340564	234,925,507	0.153
2063/64	1697509972	258,068,657	0.152

[Source: Annual report of DDC]

The above Table No. 4.12 shows the profit volume ratio of DDC over the study period, which was in fluctuating trend. The P/V ratio was high in FY 2059/60 i.e. 0.155 and low in FY 2058/59 i.e. 0.109.

4.5.3 Break-Even Analysis

Break even analysis is the term used to study of the interrelationship between cost volume and profit at various level of activity. It is the most widely known from of the

cost volume profit analysis. Therefore, cost volume profit analysis is also called as break even analysis.

The break even point is used under Break even analysis. Break even point is the level of activity at which total cost equals to total revenue. In other words, break even point is a point of "no profit no loss". If the sales or production is higher than the break even point volume, there will be profit and if the sales (production) are less than BEP sales there will be loss. Break even point can be determined by using these following methods.

1. Algebraic or Formula Method
2. Graphic or Chart Method

1. Algebraic or Formula Method

$$\text{BEP} = \frac{\textit{Total Fixed Cost}}{\text{Pr}\textit{ofit Volume Ratio}}$$

Table No. 4.13

Break Even Point of the Years

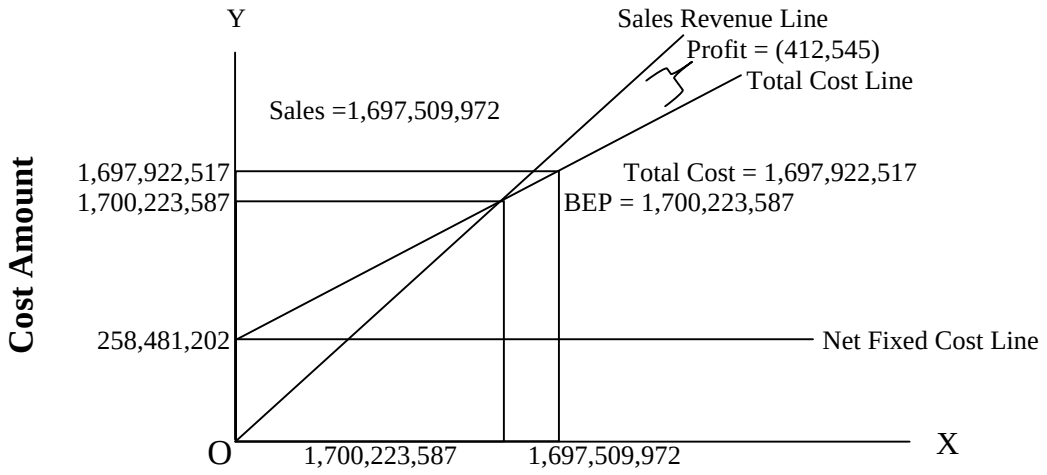
Fiscal Year	Fixed Cost	P/V Ratio	BEP
2057/58	295,199,698	0.126	2,335,761,118
2058/59	244,706,799	0.109	2,247,470,950
2059/60	238,122,420	0.155	1,538,209,134
2060/61	214,889,782	0.149	1,441,132,512
2061/62	226,372,854	0.119	1,909,481,159
2062/63	260,467,428	0.153	1,703,376,873
2063/64	258,481,202	0.152	1,700,223,587

The BEP of DDC as shown in Table No. 4.13 was in decreasing trend upto FY 2060/61 and then it is slightly increase in FY 2061/62. After that BEP is again going to decrease upto FY 2063/64. The highest BEP of the DDC is Rs. 2,335,761,118 in FY 2057/58 due to the increase of fixed costs, the lowest BEP is Rs. 1,441,132,512 in the FY 2060/61. Actual sales are lower than BEP sales in the study period of seven fiscal years. So, the DDC was suffering from huge losses.

2. Graphic or Chart Method

A specialized form of profit graph, called the Break-even chart, is frequently used to present diagrammatically significant cost-volume-profit relationship; relating total costs at various sales volumes to the expected revenue and profit or loss at each alternative volume. The break-even chart is also used for determining the break-even point. The break even point indicates in the chart will be on at which total cost line and total sales like intersects with each other.

The break-even chart of DDC for the fiscal years 2063/64 is given below, where sales revenue is shown in x-axis and cost amount is shown in y-axis.



Sales Revenue

The above chart shows that fixed cost is always equal within a certain level of activity, so fixed cost curve is parallel to x-axis. Total cost curve is slopping upwards to right side because total cost amount increase with increase in sale revenue (Sales Units x SPPU). Total cost curve starts from fixed cost line. The amount of fixed cost 258,481,202 is also total cost when the sales revenue is zero. The sales revenue curve originates from the origin because sales revenue is zero when the sales volume is zero. The chart shows that the sales revenue curve is slopping upwards to right. An equilibrium point between total cost and total revenue curve is known as break-even point where both the total cost and total revenue is equal Rs. 1,700,223,587. If the actual sales amount is more than break

even sales amount, the firms will earn profit and if the actual sales amount is less than the break even sales, the firm will suffer from loss. Above chart clearly shows that the actual sales amount Rs. 1,697,509,972 is lesser than the total cost amount Rs. 1,697,922,517, which generates the loss of Rs. 412,545.

4.5.4 Margin of Safety

Margin of safety is the difference between the budgeted or actual sales revenue and the break even sales volume. It states the amount by which sales can drop before loss begins to incurred. Larger the margin of safety saves the firm. A high margin of safety is particularly significant in times of depression when the demand for the firm's product to falling. A low margin of safety may result for a firm, which has a low contribution ratio.

Margin of safety can be calculated by using the following formula:
Margin of Safety (MOS) = Actual Sales – Break Even Sales

Table No. 4.14
Margin of Safety of the Years

Fiscal Years	Actual Sales	BEP Sales	Margin of Safety
2057/58	1484771892	2,335,761,118	(850,989,226)
2058/59	1548239961	2,247,470,950	(699,230,989)
2059/60	1595906712	1,538,209,134	57,697,578
2060/61	1535810462	1,441,132,512	94,677,950
2061/62	1589663476	1,909,481,159	(319,817,682)
2062/63	1536340564	1,703,376,873	(167,036,309)
2063/64	1697509972	1,700,223,587	(2,713,614)

[Source: Annual report of DDC]

The above Table No. 4.14 shows the margin of safety of DDC from FY 2057/58 to 2063/64. Margin of safety was negative in first two fiscal year and last three fiscal year 2058/59, 2057/58, 2061/62, 2062/63 and 2063/64 respectively as per our research duration. Margin of safety is positive only in FY 2059/60 and 2060/61. It reflects that the DDC is not considering about margin of safety therefore the firm is suffering from huge losses during the study period.

4.6 Major Findings of the Study

Analytical part, which is the heart of the study, makes an analysis of various aspects of the financial performance of DDC by using some important financial as well as statistical tools. Having completed the basic analysis required for the study, the final and most important task of the researcher is to en list findings issues and gap of the study and gives suggestions for further improvement. This would be meaningful to the top management of the corporation to initiate action and achieve the desired result. The objective of the researchers is not only to point errors and mistakes but also to correct them and give directions for further growth and improvement.

On the basis of data presentation and their analysis the most remarkable findings are listed below:

- The corporation has failed to achieve budgeted sales during the study period.
- Appropriate and effective sales forecasting techniques like survey method and statistical method are not in practice.
- The highest achievement of budgeted sales is 95.41 per cent in FY 2059/60, and lowest achievement is 87.26 per cent in FY 2062/63.
- The correlation between budgeted and actual sales is perfectly positive i.e. 0.774, that indicates the value of r is highly significant.
- The standard deviation and coefficient of variation of actual sales are 62.51 and 3.98 per cent both are lesser than budgeted sales 71.22 and 4.17 per cent. It indicates that budgeted sales are more variable than actual sales.
- The corporation is used market studies and experimentation method for sales forecasting.
- The average gross profit margin is found 8.44. The maximum rate is 10.71 and the minimum ratio is 4.56.
- The highest net profit margin is 0.92% and lowest is (7.24%). The average net profit margin is found (2.11%).
- The operating ratio of the corporation is higher than normal. There is existed little gap between actual sales and operating expenses which implies that the margin is

too low. The average operating ratio is found very high i.e. 1.02, which implies the corporation, is at very risk.

- The degree of operating leverage is very high, which shows the corporation observed more fixed cost.
- The financial position of the corporation is not satisfactory.
- The corporation has not applied any special techniques for segregation of costs into fixed and variable costs.
- There is no separate costing system to allocation of expenses for each product.
- Variable costs have more portions as compared to fixed costs due to the high portions in variable costs like carrying cost, cost of water and electricity, and other raw materials.
- The contribution margin is found maximum of Rs. 258068657 in FY 2063/64 and minimum of Rs. 168573857 in FY 2058/59.
- Actual sales are lower than BEP sales in the study period of seven fiscal years. So, the DDC was suffering from huge losses.
- Margin of safety is positive only in FY 2059/60 and 2060/61. It reflects that the DDC is not considering about margin of safety therefore the firm is suffering from huge losses during the study period.
- DDC has not practiced cost volume profit tools for profit planning because the corporation has not any proper policy for using CVP tools.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

Cost-Volume-Profit (CVP) is one of the most important and powerful tool for profit planning and cost control. The study entitled cost volume profit analysis as a tool to measure effectiveness of profit planning and control, a case study of DDC. This study tries to answer the question like, what is the overall profit planning and control in DDC? What are the major problems and issued relating to development and implementation profit planning? The significance of the study is really on the examination that whether the DDC is applying cost volume profit analysis system properly or not? This study undertaken with the objective: to analyze the variance between target, actual sales and net profit, to evaluate the profitability financial position and senility of DDC's activities, to assess the cost volume profit of the DDC and its impact in profit planning, and to provide suggestions and recommendations for improvement of DDC financial conditions.

This study covers the analysis of only seven years (FY 2057/58 to 2063/64) annual report. This study concentrates in financial and accounting aspects. This study has been divided into five different chapters as introduction, review of literature, research methodology, presentation and analysis of data and summary, conclusions and recommendations.

To make research fruitful, review of related studies has been concerned in second chapter. To obtain and findings and to reach closer to conclusion explanation of the tools and techniques has been concerned in chapter third and then implemented in chapter four.

5.2 Conclusion

Conclusively, it can be stated that the corporation has not applied CVP tools for profit planning and control. Profit planning was found in traditional way where as no any plan and policy has been made for production plan, sales plan and other operating plan. This research has particularly found that this corporation has not applied any policy for segregation of costs into fixed as well as variable costs. The main problem faced by the corporation is increase in variable operating cost because it has adopted neither the cost control system nor systematic and scientific plan for classification costs. The corporation has not been able to trade of profitability so that the profit was found very low in the DDC. DDC has not using BEP and MOS tools for planning so that the corporation is suffering from huge losses.

There is no any perfect sales policy or sales planner, as a result the corporation has not able to meet the target sales. Target sales is always greater than actual sales.

The corporation has not utilized its full capacity because of the lack of raw material inefficiency of management and lack of skilled production specialist. There is communication gap between top level employee and lower level employee. The decisions and policies are made only by top level management. DDC should immediate seek for drastic change in its policy and should plan for using CVP tools for profit plan .It would be beneficial to manage according to the recommendation given below.

5.3 Recommendation

CVP analysis is most powerful tool for profit planning and control. It seems necessary to develop and implement CVP analysis in the DDC. It helps to DDC for better utilization of the limited resources to achieve the corporation goals from the application on profit planning and control. On the basis of the findings of the study following viable suggestions has been recommended.

1. The DDC should formulate strategic programme and policies according to the basic objectives, missions and goals.
2. A systematic approach should be made towards comprehensive profit planning. This can considerably contribute to the increase in profitability of Dairy Development Corporation.
3. The DDC should use survey method and statistical method for sales forecasting
4. The DDC should focus on promotional tools to achieve the budgeted sales.
5. DDC has bearing huge losses in almost years. One of the factors that count for such negative profitability due to high operating cost. DDC should apply the cost reduction and cost control techniques in its operation.
6. DDC should try to use optimal capacity which has been idle now to maintain the level of customers demand. By this way corporation's profitability will be increase.
7. DDC should make a specific framework and responsibility center for classification of expenses such as variable, fixed and semi-fixed costs which helps to control/reduce the cost.
8. The management of DDC should adopt CVP analysis to avoid losses and make the profit.
9. To reach the BEP, the corporation should effort to increase in sales volume by improving product quality, adopting effective channel of distribution and providing special cash discount on bulk purchase.
10. The DDC should increase CM ratio to cover the fixed cost. It will be possible either increase in sales volume or decrease in variable costs.
11. DDC should give its attention on CVP tools while preparing sales plan, production plan and setting the price of different dairy products.
12. DDC's management should take its own decision in favour of corporation without prior acceptance of the government.
13. DDC should prepare its periodic performance report for evaluating of performance of poor achievement.

14. DDC should prepare at least monthly trial balance and cash flow statement as prescribed by accounting standard committee (ASC), the institute of Chartered Accountants of Nepal 2002.
15. Participative management approach should be introduced in formulation of plans, policies and decision making process of the corporation.
16. Regular inspection, monitoring and evaluation of budget centers should be undertaken. There should be timely evaluation of strength and weakness. Different aspects such as managerial involvement, responsibility accounting, full communication, realistic expectations, time dimension, flexible application, behavioral management and follow up program should be made more effective, productive and result oriented for the progress of the organization. Accounting system of the organization should be uniform, simple, flexible, and transparent.
17. There should be as democratic style of management while formulating plans, policies for the organization. The lower level management should be highly encouraged in profit planning and similarity. There should be proper communication to all level of management about the tactical and strategic plan of the organization to run effectively.

BIBLIOGRAPHY

Books

Bajracharya, P., Ojha, K.P., Goet, J., and Sharma, S., (2004). **Managerial Accounting Nepalese Prospective, Vol. 1.** Kathmandu: Asmita Books Publishers and Distributors.

Fremgen, J.M. (1963). **Accounting for Managerial Analysis.** Homewood: Irwin Inc.

Garrison, R.H. (1985). **Managerial Accounting.** Texas: Business Publication Inc. Plan.

Grace, C.E. (1972). **Management Control.** New York: Michel and Comapany.

Gupta, S.P. (1992). **Management Accounting.** New Delhi: Sahitya Bhawan Publishing Company

Harngren, C.T., Datar, G. and Foster, S.M., (1999). **Cost Accounting: A Managerial Apporach**. New Delhi: Prentice Hall of India Pvt. Ltd.

Heyel, C. (1963). **The Encyclopedia of Management**. London: Reinhold Publishing Corporation, Chapman and Hall Ltd.

Jerry, M.R. (1983). **Dictionary of Business and Management, Second edition.** A Wiley Interscience Publication.

Khan, M.Y. and Jain, P.K. (1993). **Management Accounting.** New Delhi: Tata McGraw Hill Publishing Company

Kohler, Eric L. (1975). **A dictionary for Accountants, Fifth Edition.** Prentice Hall, Inc. Englewood, Cliffs, N.J.

Lynch, R.M. and Williamson, R.W. (1999). **Accounting for Management.** New Delhi: Tata McGraw Hill Publishing Company.

Maheshwari, S.N. (2000). **Management Accounting and Financial Control.** New Delhi: Sultan Chand and Sons Education Publishers.

Munankarmi, S.P. (2002). **Management Accounting, Second Edition.** Kathmandu: Buddha Academic Publishers and Distributors Pvt. Ltd.

Pandey, I.M. (2003). **Management Accounting.** New Delhi: Vikas Publishing House Pvt. Ltd.

Pant, P.R. (2003). **Business Environment in Nepal.** Kathmandu: Buddha Academic Publishers and Distribution Pvt. Ltd.

Pradhan, R.S. (1994). **Industrialization in Nepal.** New Delhi: NBO Publishers and Distributors

Welsch, G.A., Hilton, R.W. and Gordon, P.N. (1992). **Budgeting: Profit Planning and Controlling.** New Delhi: Prentice Hall of India.

Wolf, H.K. and Pant, P.R. (2002). **Social Science Research and Thesis Writing.** Kathmandu: Buddha Academic Publishers and distributors Pvt. Ltd.

Dangol, R.M. and Prajapati, K.P. (2001). **Accounting for Financial Analysis and Planning.** Kathmandu: Taleju Prakashan.

Pandey, I.M. (1999). **Financial Management.** New Delhi: Vikas Publishing House.

Joshi, S. (1997). **Public Enterprises Management.** Kathmandu: Taleju Prakashan.

Joshi S. (1995). **Managerial Economics.** Kathmandu: Taleju Prakashan.

Kothari, C.R. (1998). **Research Methodology: Methods and Analysis.** New Delhi: Vikas Publishing House

Kotler, P. (1994). **Marketing Management.** New Delhi: Prentice Hall of India Pvt. Ltd.

Pradhan B.B. (1973). **Public Sector Enterprises and Pricing of Product and Services.** Kathamndu: Buddha Academic Publishers and Distributors

Gupta, S.C. (1991). **Statistical Methods.** New Delhi: Sultan Chand and Sons Publication.

Thesis

Bhattratai, G. (1993). *Profit Planning in Nepal: a case study of Royal Drugs Limited*. An unpublished Master Degree Thesis. Tribhuvan University.

Pahari, P. (2000). *Profit Planning in Dairy Development Corporation*. An unbublished Master Degree Thesis. Tribhuvan University.

Thapaliya, R. (2001). *Comprehensive Budgeting in Manufacturing Companies*. An unpublished Master Degree Thesis. Tribhuvan University.

Adhikari N. (2004). *Profit Planning in Manufacturing Enterprises: a case study of DDC*. An unpublished Master Degree Thesis. Tribhuvan University.

Kharel, G. (2005). *Cost-Volume-Profit Analysis as a tool to measure effectiveness of PPC: a case study of NEBICO Pvt. Ltd*. An unpublished thesis. MBS. Tribhuvan University.

Paudel, D. (2006). *Sales Budget on Profit Planning and Control in Manufacturing Public Enterprises: A case study of DDC*. An unpublished thesis. MBS. Tribhuvan University.

Reports, Periodicals, Journals

Annual Report Published By DDC from 2057 to 2063.

Budget Reports of DDC from 2057/58 to 2063/64.

Ministry of Finance (2064). The Economic Survey (2063/64). Kathmandu: Department of Printing.

Ministry of Finance, Target and Performance of Public Enterprises, 1997.

Central Bureau of statistics, "Nepal in figure 2004", HMG/N – NPCS, CBS. Kathmandu

www.ddc.gov.np

www.dairydev.com.np.

www.mof.gov.np

www.accountingformanagement.com

APPENDIX – I

Statistical Calculation

Calculation of Mean, Standard Deviation and Coefficient of Variation

(Amount in million)

Fiscal Year	Budgeted Sales (X)	Actual Sales (Y)	$x = (X - \bar{x})$	$Y = (Y - \bar{y})$	x 2	
2057/58	1609.68	1484.77	-98.71	-84.97	9744.51	
2058/59	1640.50	1548.23	-67.89	-21.51	4609.63	
2059/60	1672.75	1595.90	-35.64	26.16	1270.52	
2060/61	1707.67	1535.81	-0.72	-33.93	0.52	
2061/62	1729.89	1589.66	21.50	19.92	462.07	
2062/63	1760.71	1536.34	52.32	-33.40	2736.93	
2063/64	1837.56	1697.50	129.17	127.76	16683.78	
N = 7	∑x = 11958.76	∑y = 10988.21	∑x = 0	∑y = 0	∑x2 = 35507.97	

Let X and Y be the budgeted sales and actual sales respectively.

1. For the budgeted sales

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

$$= \frac{11958.76}{7}$$

$$= 1708.39$$

$$\sigma_x = \sqrt{\frac{\sum x^2}{N}}$$

$$= \sqrt{\frac{35507.97}{7}}$$

$$= 71.22$$

$$CV_x = \frac{\pm_x}{\bar{x}}$$

$$= \frac{71.22}{1708.39} \times 100$$

$$= 4.17\%$$

1. For actual sales

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

$$= \frac{10988.21}{7}$$

$$= 1569.74$$

$$\sigma_y = \sqrt{\frac{\sum y^2}{N}}$$

$$= \sqrt{\frac{27353.16}{7}}$$

$$= 62.51$$

$$CV_y = \frac{\pm_y}{\bar{y}}$$

$$= \frac{62.51}{1569.74} \times 100$$

$$= 3.98\%$$

Calculation of Correlation Coefficient:

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 . \sum y^2}}$$

$$= \frac{24123.34}{\sqrt{35507.97 \times 27353.16}}$$

$$= \frac{24123.34}{31164.97}$$

$$= 0.774$$

CURRICULUM-VITAE

Dictum: "Accept challenges, to create the opportunities for self and others"

Personal Background

Name	: **BINOD SUBEDI**
Father's Name	: Bhuwani Prasad Upadhyaya
Date of Birth	: 8th Dec. 1982 (24-08-2039 B.S.)
Sex	: Male
Nationality	: Nepali
Religion	: Hindu
Marital Status	: Single
Language Known	: Nepali, English, Japanese and Hindi
Contact Address	: Kuleshwor, Kathmandu -14, Nepal
Permanent Address	: Golpark, Butwal-5, Rupandehi, Nepal
E-mail Address	: b_subedi@hotmail.com / b_subedi1@yahoo.com
Contact Number	: 071-545006 / 9847047799 / 9841975680

Academic Qualification:

Year	Name of Examination	University	Percentage	Remarks
2065	Master of Arts (Sociology)	T.U. Nepal		On going
2064	Master of Business Studies (MBS Account)	T.U. Nepal	64.67	Thesis not yet submitted
2060	Bachelor of Business Studies (BBS Finance)	T.U. Nepal	41.71	
2057	10+2 (Commerce)	H.S.E.B. Nepal	42.80	
2054	S.L.C.	H.M.G. Nepal	50.57	

Computer Training:

1. Name of the Course : Diploma in Computer of 13 months, Year 2055 B.S.
   Institute : Network Computer Center, Butwal
2. Name of the Course : Graphic Designing Course of 3 months, Year 2060 B.S.
   Institute : Micro-Data System, Butwal

Other Training and Workshops:

1. Appreciative Inquiry Training, organized by NEST from 15th to 16th june 2006, in chitwan, Nepal
2. Four Days Basic Training for Insurance Agent, organized by NLIC in March 2006.
3. Three months MC Training from Prativa Movies, Kathmandu in the year 2059 B.S.
4. Workshop on Thesis and Report Writing from Shanker Dev Campus, Kathmandu in the year 2059 B.S.
5. Dissertation on "CVP Analysis of DDC" for the partial requirement of Degree of Master of Business Studies, submitted to Trivbhuvan University in the year 2009.

Previous Work Experience:

1. Work as an "Accountant cum Computer Operator" in Kalika Copy Industry and Distributors, Butwal from February 2003 to August 2003.
2. Work as "Computer Instructor" in Network Computer Center, Butwal from July 2000 to July 2001.
3. Work as "Branch Manager" in SLJ & Co. Charter Accountants, Bhairahawa from January 2006 to January 2007.

Presently Working:

- As a "Manager", in L.A. Associate Pvt. Ltd., Kathmandu, since February 2007 to till this date.