A STUDY ON COST VOLUME PROFIT ANALYSIS OF SAINJU DAIRY PRIVATE LTD.

A Thesis Submitted

BY

SUMAN SAINJU

Shanker Dev Campus

Campus Roll No. : 1228/062

T.U. Regd. No. : 7-1-25-350-97

Symbol No. : 4311

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RECOMMENDATION

This is to certify that the thesis

Submitted by :

Suman Sainju

Entitled

A STUDY ON COST VOLUME PROFIT ANALYSIS OF SAINJU DAIRY PRIVATE LTD.

has been prepared as approved by this Department in the prescribed format of the Faculty of Management. This thesis is forwarded for examination.

………………………..	……………………..	……………………..
Yamesh Man Singh	Bishweshor Man Shrestha	Prof. Prakash Singh Pradhan
Associate Professor	Professor	Associate Professor
Supervisor	Head of Research Department	Campus Chief

VIVA –VOCE SHEET

We have conducted the viva-voce of the thesis presented

By :

Suman Sainju

Entitled:

A STUDY ON COST VOLUME PROFIT ANALYSIS OF SAINJU DAIRY PRIVATE LTD.

And found the thesis to be the original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirement for the degree of

Master of Business Studies (MBS)

Viva-Voce Committee

Head, Research Department …………………………

Member (Thesis Supervisor) ………………………….

Member (External Expert) ………………………….

DECLARATION

I hereby declare that the work reported in this thesis **" A Study on Cost-Volume-Profit Analysis of Sainju Dairy Private Limited."** Submitted to Shanker Dev Campus, Faculty of Management, Tribhuvan University is my original work. It is done in the form of partial fulfillment of the requirement for the Master Degree in Business Studies (M.B.S) under the supervision and guidance of **Associate Professor Yamesh Man Singh,** Shanker Dev Campus, Faculty of Management, T.U.

…………………………………………......

Suman Sainju

Researcher

T.U.Regd.No: 7-1-25-350-97

Roll No : 1228/062

Shanker Dev Campus

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Table of Contents

Cover Page
Inner Cover Page
Supervisor's Format
Viva-Voce Format
Declaration
Acknowledgement
Table of Contents

	Page No.
CHAPTER-1	
INTRODUCTION	
1.1 Background of the Study	1
1.1.1History of Dairy Development in Nepal	4
1.2 Introduction of Sainju Dairy Pvt Ltd	5
1.2.1 Goal of Sainju Dairy	6
1.3 Statement of the Problems	7
1.4 Objective of the Study	8
1.5 Significance of the Study	9
1.6 Limitations of the Study	9
1.7 Organization of the Study	9
CHAPTER-2	
2.1.1 Profit	11
2.1.2Planning	12
2.1.3Profit Planning and Control	12
2.1.3.1 principle and Purpose of Profit Planning and Purpose	14
2.1.3.2 Advantage and Importance of Profit Planning and Control	14
2.1.3.3 Basic Assumption and Limitation of Profit Plan	16
2.1.4 Cost volume profit analysis as a tool of profit planning and control	18
2.1.5 Concept of Cost-Volume-Profit Analysis	18
2.1.5.1Use of CVP Analysis in Profit Planning	20
2.1.5.2 Application of CVP Analysis	20
2.1.6 Computation of CVP Analysis	21
2.1.6.1 Break-even Analysis	21

2.1.6.2Determining the Break-even Point 22
2.1.6.3 Application of Break-even Analysis 24
2.1.6.4 Assumption of Break-even Analysis 24
2.1.6.5 Limitation of Break-even Analysis 25
2.1.6.6 Application of Break-even Analysis 25
2.1.7 Sensentive Analysis on CVP Analysis 26
2.1.8 Risk Measurement on CVP Analysis as Operating leverage 26
2.1.9 Measurenent of Profitability in CVP Analysis 31
2.2 Review of Related Studies 31
2.3 Research Gap 46
CHAPTER-3
RESEARCH Methodology
3.1 Research Design 47
3.2 Sources of Data 47
3.3 Population and sample 47
3.4 process of Data Collection 48
3.5 Perood Covered 48
3.6 Data processing Procedures and Tools Used 48
CHAPTER-4
PRESENTATION AND ANALYSIS OF DATA
4.1 Cost Planning of SD 52
4.2 Sales of different products of Sainju Dairy PVT. Ltd 52
4.3 Profitability Ratio Analysis 57
4.3.1 Gross Profit Margin 58
4.3.2 Net Profit Margin 59
4.3.3 Operating Ratio 60
4.4 Degree of Operating Leverage 62
4.5 Cost Volume Profit Analysis 63
4.5.1 Contribution Margin 63
4.5.2 Profit volume Ratio 64
4.5.3 Break-Even-Analysis 64
4.6 Change Effects and Relationship of CVP Analysis factors 66
4.6.1 Change in Sales Value 66
4.6.2 Change in Fixed Cost 67
4.6.3 Change in Variable Cost 68

4.7 Major Findings of the Study 70

CHAPTER-5
SUMMARY, CONCLUSITION AND RECOMMENDATION
5.1 Summary 71
5.2 Conclusion 72
5.3 Recommendation 72
BIBLOGRAPHY
APPENDIX

Chapter -1

Introduction

1.1 Background of the study

Nepal sandwiched between the two giant countries, India and China, is a landlocked country. Its half-century of experiments and efforts to raise the quality of life of its populace is defeated. Almost half of its population lies under absolute poverty line, especially living in the rural areas are deprived of even basic needs and facilitates like enough calories, pure drinking water, sanitation facilities, electricity, road facility etc. some of the basic human indicators like life expectancy, literacy, nutrition level etc. also show that Nepal occupies among the nation to eliminate the massive poverty persisting in the country through gradual development of giant countries, India and China.Actually slow pace of economic developing of Nepal is due to nothing but landlocked position, poor resources mobilization, weak infrastructure development and more over unstable eco-political environment.

Manufacturing organizations in Nepal are facing so many problems. There are need for a large of good managers and good managerial decisions. Most of organizations are in loss. Profit earning is necessary to survive. Achieving objective of the business organization needs profit . A firm would be able to obtain funds from the capital market if it earns profit.

Profit planning is the process of determining the required amount from each principal unit of business. A profit plan is a framework of expected achievement at most efficient operating standards. It established against which actual accomplishment regularly compared.

"Profit planning is on estimation and predetermination of revenues and expenses that estimate how much income will be generated and how it should be spent in order to meet investment and profit requirement. It the case institutional operation, it presents a plan spending income in manner that does not result in a loss." (Ninemeirer and Scmidgall, 1984:133). The profit planning tells managers how much money remains to spend in each expenses category. Profit plans are also used to develop new budgets.

Profit planning or budgeting is forward planning and involve 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. Profit planning in fact, is a management technique or a business budget is a written plan, in which all aspects of business operations with respect to a definite future period are included. It is a formal statement of policy, plan and objectives and goal established by the top management in respect of some future period.

A success of the business depends on the performance of organization in which measures in terms of profit. Profit is the primary measurement and the blood of success in any economy, if firm is not able to earn than it fails to hold the capital for long period. When business firm can't hold capital, it can't secure and retain other sources, such as manpower, materials and machine etc. in other words the more profitable firms/ enterprises are more attractive to the holders of the available capital. These firms can attract capital, which they need.

Usually, profit doesn't just happen. Profit is managed, when a management plans its profit performance that is known as profit planning. Profit planning is a part of overall planning process of an organization. Before making an intelligent approach to the managerial process of profit planning, it is important to understand the management concept of profit. There are several different interpretation of the term 'Profit'. According to an economist, profit is the reward for entrepreneurship for risk taking, leader of labor might say that profit is a measure of how efficiently labor has produced and that it provides a base for negotiation of wage increase, an investor will view it as a gauge of the return on his/ her money. An internal revenue agent might regard it as a base for determining income taxes. An accountant will explain it simply as the excess of firm's revenue over expenditure of producing revenue in a given fiscal year.

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

Planning is the first essence of management and all other functions are performed within the framework of planning, planning means deciding in advance what is to be done in future? Planning starts from forecasting and predetermination of future event. Planning is the whole concept of any business organization. No firm can achieve its predetermined goal and objectives in the absence of proper plan. Hence, it is life of an organization which makes efficiently run towards the competitive environment.

Control can be defined as the process of measuring and evaluating performance of each organizational component of an enterprise and initiating corrective action when necessary to ensure efficient accomplishment of enterprise objectives, goals, policies standards, planning esablishers the goal objectives, policies and standards of an enterprise.

Thus, profit planning and control is an important approach, mainly in profit-oriented enterprises. Profit planning is merely a tool of management. It is not an end of management or substitute of management. It facilitates the managers to accomplish managerial goals in a systematic way. Profit planning and control is used for the development and acceptance of objectives and goals and running organization efficiently to achieve the objectives and goals. The broad concept of PPC entails an integration of numerous managerial approaches and techniques, such as sales forecasting, sales quota system, capital budgeting, cash flow analysis, cost volume profit analysis and variable budget, time and motion study, standard cost accounting, strategic planning, production planning, management by objectives, organizational planning, managerial planning and cost control. PPC has wide application. It can be applied in profit and non-profit, manufacturing and non manufacturing organization.

Out of various profit planning tools, C-V-P analysis is the most important tool. The systematic relationship between cost, volume and profit is known as cost-volume-profit analysis. It is an analytical tool for analyzing the relationship among cost, price, profit, sales and production volume. Mainly there are three elements in cost-volume-profit analysis. They are cost, sales or production volume and profit. All these terms interconnected. For instant, profit per unit of a product depends on its selling price and cost per sales. The selling price to a greater extent will depend upon the cost and cost depends upon the volume of production.

It is highly essential for the management to have the indept knowledge about the interrelationship among the cost, volume and profit. A study concerning this interconnection is taken through cost-volume-profit analysis. Cost-volume-profit is analysis extremely helpful in profit planning and control management decision, cost control, budgeting etc.

1.1.1 History of Dairy Development in Nepal

The production of yak cheese had been started in Lang Tang in 1952, AD but formally the dairy development activities in Nepal has been started in Tusal, a village of Kavre District in 1954 AD on experiment basis with a small scale milk processing under the department of agriculture. In the year 1956, AD as the initiative of Dairy Development Board, the central dairy plant was established and started milk collection at the rate of 500 liter per hour in processing and marketing department. The first five- year plan stressed upon the need of development of modern dairy industries in public sector. The demand of milk and milk product increased day by day. Dairy Development Corporation was established in 1969 AD. It has been difficult for DDC to fulfill the increased demand of people; hence private dairies have been started in 1980 AD. The status of Dairy sector in Nepal is presented as below:

Table 1.1 Status of Dairy Sector in Nepal

Livestock sector contribution	15% in GDP
Dairy sector contribution	2/3 of livestock sectors
Growth of milk production	30% in last 10 years
Annual milk production	1.2 million mt.(3327mt./dat)
Total milk market in Nepal	16% of the total production

Source: Report of Dairy Development Corporation, 2007/08

1.2 Introduction of Sainju Dairy Pvt Ltd

Sainju Dairy today has been making the finest quality dairy products. It has been enjoying establish reputation of “The Cream of Dairy”. Sainju Dairy safeguards the interest of the rural milk products by providing competitive price. Sainju Dairy is committed for providing the highest quality product to its consumers at the most reasonable price. Milk and milk products are getting wide acceptance by general consumers day by day. In the mean time the challenge of providing safe and hygienic milk and milk products are standing a head in Nepalese context.

Sinju Dairy aims to be the leading Dairy and food processing industry in country. It has been successfully introducing varieties of dairy products harmonizing with the changing taste of upcoming generation since its establishment i:e 2045 AD. It is firmly committed to high quality production of world class standard at most reasonable price and giving consumers' services of high satisfaction. It is aimed to do the based create conducive environment to its customers at its various outlet. From the angle of national interests its whole effort has been found to center around at solving the national problem of milk holiday at the services of poor milk farmers.

Sainju Dairy Pvt. Ltd focuses its business model to be the industry leader by producing and marketing of a milk product with assured quality an affordable price. The strategies of the Sainju Dairy to achieve its goals are :

- Add more value to dairy products for the more profit margin.
- Extend the life of the products.
- Focus on investing on information technology to keep track of research and development, scheduling, accounting and customer information. Management trading partners across your supply chain and raw material intake.
- A better way to reduce linkage and wastage to reduce the operation cost.

(Source: Annual report Sainju Dairy private Ltd)

1.2.1 Goal of Sainju Dairy

The following goals of Sainju Dairy are as:

- Sainju dairy aims to be the leading dairy and food processing industry in Nepal.
- We have successfully introducing varieties of dairy products harmonizing with the changing taste of upcoming generation.
- We are firmly committed to high quality production of world class standard at most reasonable price and giving consumer's service of high satisfaction.
- We do our best to create conducive to our customers at our various outlets.
- From the angle of national interest, our whole effort is found to center around at solving the national problem of milk holiday at the service of poor milk farmers.
- (Source: Annual report book)

1.3 Statement of the problem

Nepal is in infancy period of industrialization. The manufacturing sector is very small. In recent years the growth rate is relatively more satisfactory. The manufacturing sector has to face numerous problems which have acted as constraints in the growth of manufacturing industries. Mainly such problems are caused by the landlocked situation of the country, under developed situation of physical human, financial and administrative infrastructure and energy at reasonable rates, non availability of trained and skilled manpower, shortage of capital, small size of market unawareness of the industrial potential, higher cost of production, low productivity of inputs, manpower and technology, instabilities in government policy etc.

The industrialization process in Nepal is being develop very slowly. In spite of various attractive policies of government in respect of industrialization, new investment made on industrial sector is not satisfactory. The financial performance of established manufacturing industries is also not good. Most of the industries are operating in losses and such condition of the established industries discourages the new investment both in non- manufacturing sector. There may be various and different reasons for the poor performance of manufacturing industries. Such reason be investigated and should be taken corrective measures for the improvement of their performance.

Like other business organizations, Sainju dairy is also established to earn certain amount of profit mostly success is measured in terms of profit. To earn desire level of profit, it is to be planned and managed. Cost-volume-profit analysis provides the technique of profit planning framework based on the annual report published. Performance of Nepalease 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 CVP tool and technique to carryout planning controlling function and decision-making? Sainju Dairy is currently facing problem to have fair estimate of total cost, total revenue and profit at various sales volume. Due to the lack of application of profit planning tool, it can't forecast budgeted sales to recover total cost and to achieve profit.

Thus, this study is basically designed to solve the following problems by taking into account the budget's role in planning profit:

- Is the company practicing CVP analysis for its profit planning?
- What are the major difficulties faced by SD in the application of CVP analysis?
- what sales volume is needed to achieve break even?
- What should be the sales volume to earn a desired profit?
- What is the profitability and performance of SD?
- What will be profit or loss to the specified level of sales?

1.4 Objective of the Study

The general objective of this study is to evaluate the C-V-P analysis of multi products of Sainju Dairy. The specific objectives of this study are as follows:

- To analyze and evaluate the CVP of Sainju Dairy.
- To analyze and evaluate the profitability and financial performance of Sainju Dairy**.**
- To study the application of CVP analysis as a tool of budgeting.
- To suggest and recommend an the basis of major findings of the study.

1.5 Significance of the study

Because of the globalization, today market has become very competitive. A few studies has been made in relation to tools of profit planning in Nepalese context and most of the studies are related to the profit planning and control of the public enterprises where CVP as one of the tools of PPC is hardly studied. This study is significant in the sense that it is concentrated on the study CVP analysis of Sainju Dairy company, which is one of the most important tools of PPC. This study is further significant because it highlights the relationship of CVP as applicable tool of budgeting and it also highlights the sensitivity of cost profit volume variables. The study would be very useful for entrepreneurs, decision makers, researchers and the managers because it deals with the practices of CVP analysis of Sainju Dairy as a very important tool of PPC.

1.6 limitations of the study

Each and every research has limitations. The study has been conducted with the following limitations.

- The study would based on secondary data.
- The study covers the data of five fiscal years only 5years.
- Analysis is concentrated in some managerial, financial and accounting aspect and it does not cover the areas of enterprises.
- The comprehensive and the accuracy of the study are based on the data available from the management of SD.

1.7 Organization of the study

This study has divided into five chapters Viz. introduction, review of literature, research methodology, presentation and analysis of data, conclusion, summary and recommendation.

Chapter-1 introduction

This chapter dealt with introduction that included background of the study, focus of the study, profile of the company, statement of the problems, objectives of the study, significance of the study, limitations of the study and organization of the study.

Chapter-2 Review of the literature

Review of the existing literature in the relevant area are included in this chapter. Mainly, it includes review of theories and journal, review of previous research work and research gap.

Chapter -3 Research Methodology

This chapter dealt with methodology that included research design, sources of data, data collection techniques, method of analysis and research variable.

Chapter-4 Presentation and Analysis of Data

This chapter dealt with the presentation and analysis of collected data and information. For this purpose, various analytical tools were used.

Chapter5-Summary, Conclusion and Recommendations

This chapter is the final chapter of the study it included summary of the study, conclusion and recommendations.

The Bibliography and appendix were provided after chapter five.

CHAPTER-2

REVIEW OF LITERATURE

2.1.1 Profit:

"A payment or commitment to a person undertaking the hazards of enterprise, remuneration or reward for uncertainty bearing, "pure" profits a residual and cannot ordinarily be predetermined. By the way of contrast, risk, it is being calculable in advanced, like rent and frequently insurable, as a cost rather than a profit. In any objective probability sense, profit can be accurately measured only in expected; hence any preliminary imputation of profit is wholly subjective in character and is labeled accordingly" (Koheler, 1975:379-380).

Several economists have their different views in respect of the term profit. According to F.B Hawley, "profit is the reward for risk taking in business Schumpeter expressed that an entrepreneur earns profit as a reward for his introducing innovation". J.M Keynes held the view that "profit resulted from favorable movements of general price level". Robinson and chamberlain opined that "the greater the degree of monopoly power, the profit made by the entrepreneur" (Kapur, 1993:115)

In marketing "excess of selling price overall cost and expenses incurred in making 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" (Jerry, 1983:396)

2.1.2 Planning:

"Planning is essential for accomplish goals. It reduces uncertainty and provides direction to employees by determining the course of action in advance, formal planning, indicates the responsibilities of management and provides an alternative to grow. Planning on the other hand involves, the determination of what should be done, how the goals may be received as what individuals are to assume responsibility and to be held accountability" (Chaudhari, 1972:10)

The planning process of the enterprise would generally involve four fundamental steps:

a. Establishing the objectives
b. Determining the short- range objectives or goals.
c. Developing the strategies.
d. Formulating profit plan or budgets. (Pandey, 1985: 216)

Planning is deciding in advance and 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. It focuses in on making thing happen. It is first management function. "Planning involves the determination of objectives based on intelligent forecasting and development of prosperity of any organization in a 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,2003:238)

2.1.3 Profit Planning and Control:

Once the planning is determined, it must be carried out under controlled operation. Controlling shares management activity and for this, managers compare actual performance against the planned performance and find out the decision taking remedial steps to remove the deviations. Immediate action should be taken to remove the deviations to make an improvement on the performance because promptness is the essence of an effective control. "Controlling is the measurement and correction of performance in order to make sure those enterprise objectives and the plans devised to attain the are accomplished" (Kothari, 1990:69)

Profit planning involves streaming activities in order to get employees profit minded and to secure maximum benefit from minimum effort and expenditure. A best result seems to be obtained from a single product. The planner is a given the right to prove economics, the organization, the made of operation, the pricing and the marketing or any other fact of making and selling the product. The concentration of profit efforts upon to gross traditional boundaries of the enterprise to translate needs from one group to another and to obtain consumed profit building efforts among these who can affect profit planning (Chamberlain,2002:)**.** "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. A financial plan must be designed to serve as a guide for the activities. Best results are obtained when the planning period is the same as the company's fiscal year. The annual budget should be designer to co-ordinate the effort of the sales department (Bajracharya, 2004:344)"Controlling means evaluating the firm's activities against the plan and deciding what should be done if the plan is not being followed. It is a process of ensuring that actual activities confirm to plan activities". Control helps in correction. Therefore, planning and controlling are the major functions of management (Lynch and Williamson, 1995:`112)

Of course, it is difficult to confess the actual meaning and definition of PPC. But now a days it has realized that PPC is somewhat, rather than narrow traditional view of a budget as a critically derived set of quantitative schedules prepared by an accountant. In the past year, there has also been a tendency to view the budget primarily as mathematical model for an organization development by computer programmers. These above views completely overlook the three most relevant aspect of the PPC concept.

a. PPC requires major planning decisions by management.
b. PPC entails pervasive management control activities.
c. PPC recognizes many of the critical behavioral implication through the organization.

In comprehensive sense it can be said that, PPC one of the most important approaches that has been developed to facilities effective performance of the management process.

2.1.3.1 **Principle and purpose of profit planning and control**

The main principle and purpose of profit planning are as follows:

a. To provide a realistic estimate of income and expenses for a period and the financial position at the close of the period detailed by areas of management responsibility.
b. To provide a co–ordinate plans of action, which is designed to active the estimates reflected in the budget.
c. To provide a comparison of actual results with those budgeted and an analysis and interpretation on of deviation on by areas responsibility to indicate course of corrective action and to lead to improvement in procedures in building future plan.
d. To provide a guide for management decision in adjusting plans and objectives as uncontrollable conditions change.
e. To prove a ready basis for making forecasts during the budget period to guide management in making day to day division (Welsch, 1992:255).

2.1.3.2 Advantages and Importance of Profit Planning and Control

A profit planning is financial narrative expression of the expected results from the planning decision. It is called the profit plan or budget because it states the goals in terms of time expectations and expected financial result (return on investment profit costs.) for each major segment of entity. Many benefits are derived from budgeting although it is a means not as end in itself. PPC is a feed forward process, it makes and evaluation of the variables likely to affect future operations of the enterprise. It predicts future with reasonable precision and removes uncertainty to great extent (Pandey, 2003:112).

The main advantages or importance of comprehensive profit planning and control are as follows:

a. PPC focuses basic policies to initiatives.
b. It sets responsibilities of employees in relation to each function.

c. It creates the feeling of co–operation and understanding between different departments of enterprises.
d. It leads to maximum and most economical utilization of material, labor, capital and other sources with a view to ensure maximum return.
e. It forces the management to keep adequate and correct historical data in the business.
f. In competed management to plan future, the budgeting process forces management to look a need and become more effective and efficient administration in the business operations.
g. It forces the management to take necessary steps for getting satisfactory results.
h. It improves the quality of communication. The enterprises objectives budget, goal, plan, authority, and responsibility and procedures to implement plans are clearly written and communicates through budgets to all individuals in the enterprise. This results in better understanding and harmonious relations among managerial and sub–ordinates.
i. Develops and atmosphere of profit mindedness and cost consciousness.
j. It highlights upon the efficiency of lack of it in the business and thus helps the management to take remedial action.
k. It tends to remove the cloud of uncertainty that exists in many firms especially among lower levels of management relative to basic policies and enterprises objectives.
l. Profit planning necessitates a periodical and critical appraisal of every elements of business.
m. **Performance evaluation.** The profit plan provides a continuing standard against which sales performance and cost control can quickly be evaluated.
n. **Awareness of responsibilities.** With the profit plan, personnel are readily aware of their responsibilities for meeting sales objectives, controlling costs, and the like.
o. **Cost consciousness.** Since cost excesses can quickly be identified and planned, expenditures can be compared with budgets even before they are incurred, cost consciousness is increased, reducing unnecessary costs and overspending.
p. **Disciplined approach to problem-solving.** The profit plan permits early detection of potential problems so that their nature and extent are known. With

this information, alternate corrective actions can be more easily and accurately evaluated.

q. **Thinking about the future.** Too often, small businesses neglect to plan ahead: thinking about where they are today, where they will be next year, or the year after. As a result, opportunities are overlooked and crises occur that could have been avoided. Development of the profit plan requires thinking about the future so that many problems can be avoided before they arise.
r. **Financial planning.** The profit plan serves as a basis for financial planning. With the information developed from the profit plan, you can anticipate the need for increased investment in receivables, inventory, or facilities as well as any need for additional capital.
s. **Confidence of lenders and investors.** A realistic profit plan, supported by a description of specific steps proposed to achieve sales and profit objectives, will inspire the confidence of potential lenders and investors. This confidence will not only influence their judgment of you as a business manager, but also the prospects of your business' success and its worthiness for a loan or an investment.

   (Sourse :Villagement, web office, small business 2011, 2)

2.1.3.3 **Basic Assumption and Limitation of Profit Plan**

There are so many assumption for using profit–planning programs. First of all it is required to measure the basic plan in terms of money. Secondly co–ordination every aspect of the business for the optimum profit goals and thirdly, profit gives guidelines about what to do? It things happened as forecast but it also gives guidelines of things workout differently from the forecast.

a. In developing and using of profit planning and control program, the following additional limitations should be kept in mind.
b. The profit plan based on estimations.
c. Execution of a profit plan will not occur automatically.
d. The profit plan, will not occur automatically.
e. The profit plan is not a substitute of management.

"Profit plans are based upon estimates. Inevitably, many conditions can expected when the plan was prepared will change. Crystal balls are often cloudy. The further down the road one attempts to forecast, the cloudier they become. In a year, any number of factors can change, many of its beyond the control of the company. Customers' economic fortunes may decline, suppliers' prices may increase, or suppliers' inability to deliver may disrupt plan.

The profit plan requires the support of all responsible parties. Sales quotas must be agreed upon with those responsible for meeting them. Expense budgets must be agreed upon with the people who must live with them. Without mutual agreement on objectives and budgets, they will quickly be ignored and serve no useful purpose.

Finally, profit plans must be changed from time to time to meet changing conditions. There is no point in trying to operate a business according to a plan that is no longer realistic because conditions have changed".

(Sourse :Villagement, web office, small business 2011, 3)

2.1.4 **Cost –volume profit analysis as a tool of profit planning and control**

CVP analysis is an important tool of profit planning because it provides the information about the behavior of cost in relation to volume, volume of production or sales where the business will break-even sensitivity of profit due to variance of output, amount of profit for a projected sales volume and quantity of production and quality of production and sales for the target profit level etc. Therefore CVP analysis may be defined as a managerial tool showing the relationship between various ingredients of profit planning. CVP analysis is an important media through which the management can have an insight into effects on profit on account of variance 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 is the fundamental part of the overall management functions. Profit planning can be done only when the management has the information about the cost of the product and selling price of the product.

2.1.5 **Concept of cost-volume-profit Analysis**

In dictionary it can refound that cost is price paid to acquire, produce, accomplish or maintain anything volume in mass or quantity of something or amount, profit is the ratio of such pecuniary gain to the amount of capital invested and analysis is resolution, separation or breaking into parts. In facts, CVP analysis is an analytical tool for studying the relationship between volume, cost, price and profit. Basically CVP analysis is the technique involves finding the most favorable combination of different types of costs. CVP analysis provides the managers with a powerful for identifying those courses of action that will or not increase profitability. CVP analysis is the technique that explores the relationship, which exists, between cost revenue, output level and resulting profit. CVP analysis can be extended to cover the effects on profit of changes in the selling prices or service fees, cost, income tax rate, total cost, revenue, and profit at various sales volumes. CVP analysis provides the management with a comprehensive overview of the effects on revenue and costs of all kinds of short- run financial changes. It is related to profit, sales volume and cost. CVP analysis provides information regarding (Munankarni, 2003:4.01)

a. Minimum level of sales to avoid loses
b. Sales level to earn target profit
c. Effects of changes of price, cost and volume of profit
d. New break- even point for changes
e. Impact of expansion plan on CVP relationship
f. Products those are most profitable and least profitable
g. Whether to continue or discontinue the sales of product or operation of plan
h. Effects on operating profit with the increase in fixed costs.

CVP analysis can be extended to cover the effects on profits of changes in selling price service fees, cost, income tax rate, product mix etc. It estimate total cost, total revenue and profit at various sales volume. It provides only an overview of the profit planning process. CVPA provides management with comprehensive overview of the effects on revenue and costs of all kinds of short run financial changes. It is related to profit, sales volume and cost (Munankarmi, 2003:4.01).

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

Cost volume profit analysis is the analysis of three variables cost, volume and profit. Such an analysis explores the relationship existing among cost, revenue, activity levels and the resulting profit. It aims at measuring variance of cost with volume. On the profit planning of a business, cost volume profit(CVP) relationship is the most significant factor. The CVP analysis is an extension of marginal costing. It makes use of principle of marginal costing. It is important tool of planning. It is quite useful in making short run decisions, the institute of Chartered Accountants of India, Sep 2004:2.16.

"Cost volume profit analysis is a systematic method of examining the relationship between changes in activity (i.e output) and changes in total sales revenue, expenses and net profit". As a model of their relationship CVP analysis simplifies the real world conditions that a firm will face like most models, which are abstractions from reality. CVP analysis is a subject to number of underlying assumption and limitations. Never the it is powerful tool for decision making in certain situation (Drury, 2000:17)

2.1.5.1 **Use of CVP analysis in profit planning**

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

a. To determine the break- even point in terms of unit or sales value
b. To determine the margin of safety
c. To estimate profits profit or losses at various level of output
d. To assess the likely effects of management decisions such as an increase or decrease in selling price, adoption of new method of production to reduce direct labor and increase output.
e. To help management to find most profitable combination of costs and volume.
f. To determine the optimum selling price.

g. To determine the sales volume at which the profit goal of the firm will be achieved.
h. To determine the most profitable and least profitable product.
i. To determine new break-even point for changes in fixed or variable cost.

2.1.5.2 **Application of CVP analysis**

Business organization is a 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 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, fixed cost and sales mix. The most important factor that affects the planning for profit is cost (both fixed and variable) and volume of sales. The CVP relationship will be established by break- even analysis. CVP analysis is applied especially for (Munankarmi, 2003:4.02)

a. Contribution margin analysis
b. Break even analysis
c. Profit volume analysis

2.1.6 **Computation of CVP Analysis**

2.1.6.1 **Break – even Analysis**

Break –even analysis is the term used to study of the relationship between cost, volume and profit at various level of activity. It is the most widely known from of CVP analysis. Break –even analysis is a special case of CVP analysis.

"Break –even analysis uses the same concepts as contribution analysis. However, it emphasizes the level of output or production activity at which sales revenue exactly total costs that is there is no profit or loss". Break –even analysis rests upon the foundation of cost variability- separate identification and measurement of the fixed and variable components of cost. It is usually applied on a "total company" basis(Saksena, 1995:112-113).

The break-even point is that point where total revenue equals total costs incurred. Thus it is that point at which a company begins to earn a profit. There is neither a profit nor loss at the BEP. Although management typically plans for a profit each period, the break-even point is concern, if sales fall below the BEP, losses are incurred. Management must determine the break-even point in order to compute the margin of safety. When planning new venture or product lines, management can quickly measure the likelihood success finding the projects BEP.

2.1.6.2 **Determining the Break-even point**

The following three approaches can be used to compute the break-even point.

a. Contribution Margin Approach (Income statement)
b. Formula Approach (Equilibrium Method)
c. Graphic Approach

a. Contribution Margin Approach:

Contribution margin is the excess of revenue over all variable costs related to particular sales volume. A product lines contribution margin represents its net contribution to pay off fixed cost and to profit. Adding contribution margin CVP analysis changes the make up of the equations as well as the format of the income statement. The equation now becomes.

S–VC=CM–FC=NI (i .e Contribution)

Contribution margin may be expressed as total absolute amount, a unit absolute amount, a ratio and a percentage is defined as all variable costs divided by sales. Thus a contribution margin ratio of 20% means that the variable cost ratio is 80 percent (Hongen & Sundem,1995:49)

$$Contribution\ margin\ ratio = \frac{Sales - Variable\ Cost}{Sales}$$

$$= \frac{Sales}{Sales} - \frac{Variable\ Cost}{Sales}$$

$$= 1 - \frac{Variable\ Cost}{Sales}$$

The contribution ratio of 20% or 0.2 indicates that 20% of sales are available to cover fixed costs and generate profit. In the other words, 0.2 of Rs. 1 sales is available to cover fixed costs and earn a profit. Since profit at the BEP is zero, dividing fixed costs by the contribution margin ratio gives the sales volume that is necessary to cover total fixed costs.

b. Formula Approach:

The most popular practical approach to break-even point and cost volume profit analysis is the formula also known as the equation. The formula also known as the equation. The formula approach uses an algebraic equation to calculate the break-even point. The answer provided by solving the equation may sometimes need to be rounded to whole numbers of units or lot sizes. The rounding of break even unit is always done upward because this will provide a small profit rather than the small loss that would be shown from rounding downward (Rainborn, 1993:89)

The BEP can be computed in terms of unit or in terms of monetary value of sales volume or as a percentage of estimated capacity while formula approach is followed. The calculation in the equation approach is similar to that of the contribution margin statement approach. The equation is merely a restatement of the other. To develop the cost volume profit equation

Contribution Margin Approach	Symbol or Equation
Sales volume (units)	Q
Selling price per unit	P
Sales revenue(Rs)	Q*P
Less: Variable cost	Q*CCPU
Contribution margin	Q*P–Q*VCPU
Less: Fixed cost	FC
Net profit	Q*P-Q*VCPU-FC

The table helps to understand the computation of the net profit easily, in which the multiplication of the sales volume and selling price per unit has generated the total sales revenue. When we deduct variable cost from the sales revenue then the result comes as a contribution margin. Contribution margin measures the organization profitability and higher the contribution margin shows better position of a organization but it is not sufficient indicator at all where the fixed cost included in fixed assets are not included. Net profit is that profit which shows the proper profitability position of an organization and it is taken as a basic indicator to measure the financial position of an organization.

2.1.6.3 Application of Break-even Analysis

Break –even analysis concept can be used to different policies in a business enterprise. Some of these applications are (Maheshwsri, 2000:182)

a. Determination of profit at different level of sales and margin of safety.
b. To find level of output to get the desire profit.
c. Effect of price reduction on sales volume and changes in sales mix.
d. Effects of fixed cost or variable cost changed on sales volume.
e. Selection of most profitable alternative, make or buy decision and drop and or add decisions.

2.1.6.4 Assumptions of Break-even Analysis

Contribution analysis and break- even analysis are based on a specific set of a assumption that should be clearly understood. These underlying assumption are **(Maheswari, 2000:182-83)**

a. All cost can be classified into two parts, fixed cost and variable cost.
b. There is a relevant range of validity (activity) for using the result of the analysis and sales change.
c. There is only one product or in case of multi products, the sales mix among the products remains constant.
d. Basic management policy about operation will not change materially in short run.
e. The general price level (inflation/deflation) will remain essentially in the short run.
f. Sales and production levels are synchronized, that is inventory remains essentially constant or zero.
g. Effectively and productivity per person will remains essential unchanged in the short run.
h. If any of the above assumptions were changed, revised budget would be needed for a new analysis.

2.1.6.5 Limitation of Break –even Analysis

Break-even analysis in many business situations can be used effective decision making, but there are many short coming or limitations in its analysis and interpretations. Some of these con be listed as (Maheshori, 2000:183-184)

a. The assumptions of producer's market phenomenon not hold goods for all types.
b. The fixed cost may remain constant as well as the variable costs may not vary in fixed proportion at different level of output.
c. With variance in the prices of the items or services, which also depend on the factors, affecting the demand and supply will certainly affect the demand of the commodity. This phenomenon is not covered in break-even analysis.
d. Identification of fixed and variable costs involved in production process is very complicated. A shift in product mix may change the break-even point.
e. Customers may be given certain discount on purchase to promote sales. This revenue may not be perfectly variable with level of sales output.

2.1.6.6 Application of Break-even Analysis

The applications of Break-even analysis are as follows:

a. Sales volume required to produce desired operating profit/target net profit.
b. Sales volume required to produce the desired profit after tax.
c. Operating profit at a given level of sales volume.
d. Effect on operating profit at a given percentage increase in sales volume (in Rs).
e. Additional sales volume required offsetting a reduction in selling price or sales volume needed to maintain present profit level or a sales volume to offset reduced selling price.]
f. Effect of changes in fixed cost (Munankarmi, 2000:132)

2.1.7 Sensitive analysis on CVP analysis

Sensitive analysis is the measurement of elasticity of the changes in CVP factors on break-even point or given profit. The strategist should focus on the factor, which is more sensitive or responsive for profit. To measure the sensitive of CVP factors one can see the impact of certain percentage or amount change in volume price or cost factos on net profit. In other words, sensitive analysis is the measurement of responsiveness in outcomes with the changes in determinant variables. we know that the goal of business enterprises is to whom it may concern: maximizing profit. Profit is excess of revenue over the total cost

Profit=Total Sales revenue-Total Sales

Net Profit= Sales Unit*SPPU- Sales Unit*VCPU-Fixed costs- Taxes

So that, Profit =F(Sales, volume, selling price, VC, FC, tax etc)

Means profits are the function of volume, price, VC, FC, Taxes and so on. But none of the factors remain unchained. Sometimes the manager can intentionally change the price and the cost factors as a part of strategic decision. But the strategy focuses more on the factor, which is the more sensitive or responsive for profit. So to measure the sensitivity of CVP factors, we can see the impact of certain percentage or amount of change in volume, price or cost factors on profit (Bajracharaya, 2004:245)

2.1.8 Risk Measurement on CVP Analysis as Operating Leverage

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

Operating leverage can be measured in terms of the "Degree of operating leverage" (DOL). "DOL shows the times of percentage change in net operating income of the given percentage change in sales". DOL may be defined as the percentage change net operating income (NOI) or EBIT associated with a given percentage change in sales (Pandey, 4004:245)

$$DOL = \frac{Percentange\ Change\ in\ Net\ Operating\ Income}{Prcentage\ Change\ in\ Sales}$$

$$DOL = \frac{Contribution\ Margin}{Net\ Operating\ Income}$$

$$DOL = \frac{Q(SP - VCPU)}{Q(SP - VCPU) - Fixed\ costs}$$

Effect of price and volume change: A change in price in variable affects volumes. A price reduction may increase demand of the product and consequently, may result in increased volume. On the other hand, increase in price may adversely affect tile demands and thus reduce volume increase substantially. Similarly, a price rise may reduce profits if there is a material fall in volume.

Effect of changes in variable cost: the impact of the changes in variable cost on profit is straight forward if it dose not cause any changes in selling price and or volume. An increase in variable costs will lower P/V ratio will increase BEP will be increase and profits would rise.

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

Effect of changes in a combination of factors: The financial manager or the management accountant, evaluation the profit or budget, must realize that a change in one factor leads to a change in another factors. Therefore, all such their net impact on profit must be seen.

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

BE sales value = FC+VC ± profit

Therefore,BE sales value= FC+VC± profit

BE sales unit*SPPU=FC+(BE sales* VCPU) ± profit

The graphic approach to CVP analysis

A break-even chart is to graphically depict the relationship among revenues, variable costs, fixed costs and profit (losses). The no profit, no loss point (the break -even point) is located at the point where the total cost and revenue lines cross. Below this point, the firm losses, and above this point, the firm earns profit (Bajracharya, 2004:122)

In the graph given below the find cost remain constant within the relevant range, the fixed cost curve is parallel to 'OX' axis, variable cost slope downward from the origin to right but the slope depends on variable cost ratio. The total cost curve parallels the variables cost curve.

So, the angle 'O' equals the angle 'V'. it is because Total Cost= Total Fixed Cost+ Total Variable cost at volume 'Q'

Total costs= TFC+Q*VCPU

At volume 'Q+n'

Total costs =Tfc +(Q+n)*VCPU

Δ Total costs = Q= n* VCPU

Δ Total costs= Δ variable costs.

That's why the slope of the total cost curve equals the slope of variable cost curve.

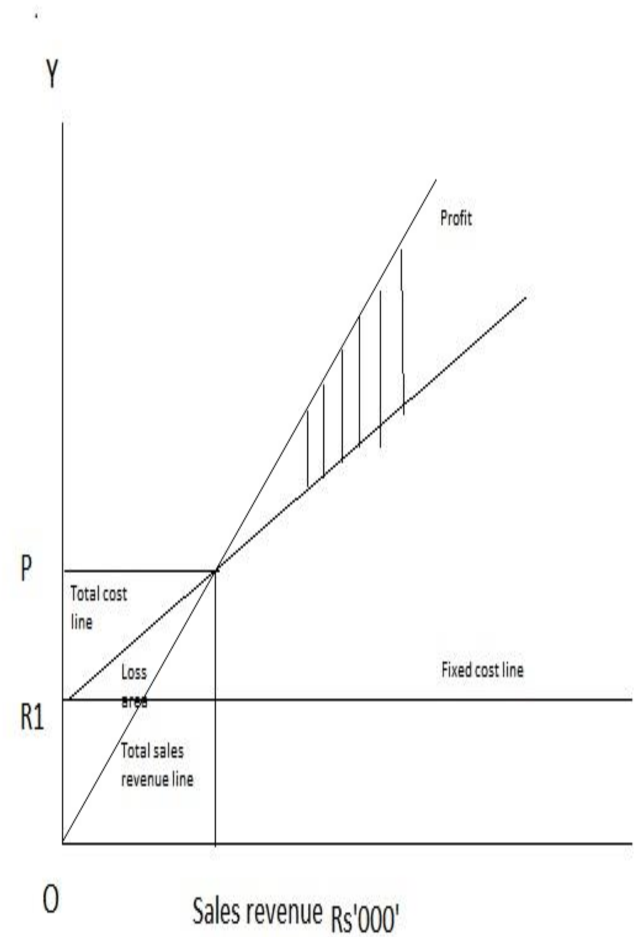

Figure 2.1 Graphical Approach to CVP

This above graph clearly shows that if the company can reach the point of BEP it can generate sufficient revenues to cover all its operating expenses. At this point, the total revenues equals the total cost. At this point, the revenues equal the total cost. Here, the revenue curve breaks up (intersects) the total cost curve, that's why this point is called break- even point. In short, break –even point is that point where,

Total sales revenue= Total costs

Leverage decision is meant to substitute variable cost by the fixed costs to create a degree of operating leverage means the employment of higher amount of fixed cost which eventually increases the break- even point also. No DOL is to be said when the DOL occur "1" and in this situation BEP comes to "0".

"Higher fixed cost increase the DOL also increase and also the BEP, so there is closed relationship between the degree of operating leverage and the break- even point". A higher DOL and high BEP both are indicators of higher risk (Bajracnarya 2004:249)

2.1.9 Measurement of profitability in CVP analysis

Profitability analysis helps in critically analyzing and interpreting the current and prospective earning capacity a business corporation within and outside the business. The indicates of profit are considered as reliable indicator of the operational efficiency and organization effectiveness of the firms in utilizing its resources to earn satisfactory earning. Profitability in relation to the sales indicates the profit margin on sales. The measure of return on the capital employed can be used to evaluate and to compare profitability of different division of an enterprises as well as the enterprise as a whole. It indicates how well the management has used the funds supplied by creditors and owners. It measures profitability as well as productivity (Chaudhari,2007:121-122).

Profitability analysis becomes all the more important when within the business there is an earning goal that helps to guide the behavior of the managers and other employees. Outsides the business to distribution of earning to stockholders, creditors, governmental bodies and other is the basis for social influence and pressure on the activities of the firm. Thus both within and out sides of business, the indices of profit are considered the reliable indicator of the operational efficiency and lower the operating ratio indicates the higher operating profit and higher the operating ratio shows the lower operating profit.

2.2 Review of Related Studies

"Organizational effectiveness of the firm in utilizing its resources to earn satisfactory earning". (Dass,2006:110)

Profitability is the end result of a number of corporate policies and decisions. It measures how effectively the firm is being operated and managed. Besides owners and managers, creditors are also interested to know the financial soundness of the firm. Owners are eager to know their returns whereas managers are interested in their operating efficiency. So they calculate profitability ratios because expectation of both owners and managers are evaluated in terms of profit earned by the firm. Following are the major ratios used to measure the profitability of a firm.(Gupta and Radhaswamy, 2000:FSA47)

Net profit Margin

Net profit margin is the ratio between net incomes and sales of the firm. It shows the firm's ability to generate net income per rupee of sales and is calculated as:

Net profit margin= Net incomes/Sales

Higher the net profit margin is preferred by the owners, management as well as creditors.

Gross profit Margin

It is the ratio between gross profit and sales of firms and is calculated as:

Gross profit margin= Gross profit/ Sales

Higher the gross profit margin is preferred as it allows greater cushion to absorb expenses.

Operating Ratio:

The operating ratio explains the change in the profit margin ratio. It is calculated by dividing operating expenses. Like as cost of good sold plus selling and administrative expenses (excluding interest) by sales. It is calculated as:

Operating ratio= Cost of goods sold +operating expenses/Sales

Lower the operating ratio indicates the higher operating profit and higher the operating ratio shows the lower operating profit.

2.2 Review of the previous thesis

The main purpose of the literature review is to find out the works that have been done in the area of research problem under the study. Moreover what has not been done in the field of the research study being undertaken can be known?

There are some research papers concerning CVP analysis in the area of the profit planning and control. Very few dissertations on CVP analysis made. Out of the previous research studies only three researcher have conducted under the CVP analysis. Therefore, the study is attempted to review the previous research work on profit planning and control as well as management accounting. The previous related studies to CVP analysis are as follows:

Neupane,Nur Nidhi (1995) has conducted the research work on the topic, **Profit planning and control in Manufacturing Public Enterprise in Nepal**: A case study of Hetauda Cement industry limited, an unpublished master level thesis submitted to Central Deparment of Management, Faculity of Management, T.U. The main objectives focused by him were to interpret the trend of profit planning of Hetauda Cement Industry Limited and to see how far the HCIL is participating in contributing in the national development. The nature of data used was primary as well as secondary.

Neupane has pointed out some major findings based on his analysis.

a. Power is unnecessarily centralized, so that decision making is only from top level.
b. No clear concept of forecasting and implementation is followed.
c. Inadequate planning of profits, due to lack of experts and planners.
d. Inadequate supply of raw materials and planning of materials.
e. Lack of entrepreneurship and commercial concept in the organization.
f. lack of expressed and well defined rules, responsibilities and authorities.

Ojha, Khagendra Prasad (1995) has done a research on **Profit Planning and Control in manufacturing public enterprises in Nepal.** An unpublished master level thesis, submitted to the Central Department of Management, Faculity of Management, Tribhuvan University. He has selected two public enterprises namely Royal Drugs Limited (RDL) and Herbs Production and Processing Company Limited (HPPCL). The study has covered a five-year period from FY2046/47 to 2050/51. His objectives of the study were:

Ojha has pointed out various findings and recommendations based on the analysis of data and information. Some of the major findings are as follows:

a. Inadequate planning of profit due to lack of skilled manpower.
b. Inadequate authority and responsibility to planning department.
c. Various costs are not diagnosed as controllable and non- controllable expenses.
d. Pricing system is not scientific.
e. Failure due to inadequate forecasting system.
f. Lack of entrepreneurship and commercial concepts in overall operations of enterprises.

Dumre, Kamal Prasad (1997) has conducted the research work on the topic, **Profit Planning Practice Nepalese Public Enterprise:** "A case study of Dairy Development Corporation", an unpublished master level thesis submitted to Central Department of Management, Faculty of Management, T.U. The study is mainly concerned with the appraisal of Dairy Development Corporation and examines that in what extend the company is applying profit- planning system. Mr. Dumre has covered the data of five years. In his research paper he has used both primary and secondary data by various sources. He has listed the following major findings:

a. To achieve the basic objective, DDC has not clearly defined its main objective in annual goal or target.
b. The production plan depends upon sales plan but in case of DDC the production plan is basic plan of sales plan because supply side is more important than demand.
c. The reason of failure to raise profit in Nepalese manufacturing PEs is lack of knowledge about the market situation and lack of systematic planning. It is the situation of DDC.
d. The commercial performance of DDC is poor, so the enterprise is not in the position to bear the financial into research and to increase plant capacity by internal fund.
e. There is not separate costing department in DDC. Costing is done by traditional method and there is no practice of the cost as variable and fixed or controllable and non controllable or direct and indirect etc.
f. There is no proper planning for cost control mechanism and performance reporting.

g. DDC has lack of budgeting experts, skilled planners and entrepreneurship. Planning department has no adequate authority to decide and create new ideas to formulate various plans.

Thapa, Sangita (2000) has tried to point out some features and problems of **Profit planning in the context of Nepalese manufacturing enterprise:** "A comparative study on profit planning of Dairy Development Corporation and Sita Ram Dairy Milk" an unpublished master level thesis submitted to the Central Development of Management faculity of Management, TU. Thapa has listed the following major findings.

a. DDC has concentrated its whole effort on the survival of the company.
b. Sales figure (both targeted and achievement) of SRD are more inconsistent variable than that of DDC.
c. Both companies have positive correlation between actual and target sales.
d. SDR's capacity utilization is poorer than of DDC's capacity utilization.
e. SRD has highly been successful to maintain so- ordination that DDC.
f. Overall responsibility of profit planning is under finance department in SRD whereas it is under account department in DDC.
g. Both companies have not proposed profit planning excepts sales and production plan.
h. DDC and SRD have been suffering from operating loss for many years. The main cause is low contribution margin ratio, high fixed cost and underutilization of capacity.

Bhusal, Chinta Mani (2000) has submitted an unpublished Master Level thesis on the topic **A Comparative study on Profit Planning in Manufacturing and non-manufacturing Public Enterprise of Nepal** to Central Department of Management, Faculty of Management, T.U. He had focused his study to highlight the current practice of profit planning and its effectiveness in Nepalese public enterprises. The study covers only 5 years 2051/052 to 2054/055. On his research paper he has used primary as well as secondary data.

Major findings of his study were as follows:

a. There is no adequate and clear-cut co- ordination among various units in the organization.

b. Objectives of the enterprise are controversial. There is conflict between profit and social goals.
c. There is inadequate planning of profit due to lack of planning experts.
d. There is lack of entrepreneurship and commercial concept in over all operation of the enterprises.
e. The plans are based on adhoc and unrealistic forecast.
f. There is red-tapism and delay in the implementation phase as shown by the achievement to below the targets.

Thapa, Sangita (2001) has conducted a research entitled **Profit Planning in Manufacturing Enterprises**. "A case study of Birganj Sugar Factory Limited" an unpublished Master Level Thesis submitted to Central Department of Management, Faculty of Management, T.U. She has focused her research in the application of profit planning in manufacturing companies.

Thapa's study is based on primary as well as secondary data. The study period has covered 5 years from FY2051/052 to 2055/056. In her research, she has pointed out the various findings and recommendation, which are as follows:

Findings of the study:

a. The management of the BSFL applied annual sales and production budget. There is substantial gap between sales target and achievement each year.
b. Objectives of BSFL are not clear and measurable and top- level management executives are only involved in planning and decision.
c. There is not intra and inter department co- ordination and lack of co-ordination with other concerned authorities.
d. There is a poor policy as to sales, production, inventory and material budgets. Attention toward cost structure and control program is not existed.
e. There is no system of systematic forecasting.
f. Expenses are not identified as fixed and variable and BSFL is unable to use contribution margin analysis approach.
g. There is no practice of preparing budge like raw materials, capital expenditure, direct labor budget, performance etc.

Adhikari, Bijaya(2004) has done the research on **Profit Planning in manufacturing enterprise**:, "A case study of DDC" an unpublished master level thesis submitted to Nepal Commerce Campus, Faculty of Management, T.U. with the objectives of the study are as follows:

a. To analyze the functional budget on sales and production sector of DDC.
b. To analyze various accounting ratios, major the profitability and efficiency of DDC, analyze the budget target and its achievement along with reason of deviation (if any), provide valuable recommendations and suggestions based on analysis.

Adhikari has summarized his remarkable findings are:

a. DDC has practice short term planning rather than long term planning; the time is covered by interim period any by product.
b. Production and sales of DDC is increasing annually although the growth rate is fluctuated, the correlation between actual and targeted sales is positive.
c. The corporation has no proper practice in suggestion cost into fixed and variables.
d. There is positive correlation between target actual production of milk.
e. Most of the budget figures are higher than actual figure.
f. DDC has applied stable inventory policy with opening stock of inventory but this policy is not applied in practices. It has 1% store losses and 0.5% distribution losses of milk.
g. DDC has prepared direct labor budget only based on technical and administration; it is not prepared according to the time and rate.
h. Capacity utilization is very high but production ratio is very low.
i. The CVP analysis shows that DDC is operating below the break-even point and flexible budget of DDC shows 90% variable cost of sales revenue.
j. DDC utilized corporate fund as long-term loan and from international agencies like US aid.
k. DDC has not clear attainable objectives, policies and strategies, timely accounting and auditing work are not maintained, financial statements accounting are out of the financial rules.

l. The present management doesn't have any program of perfect profit planning.

Dhakal, Dipendra Raj (2005) has submitted an unpublished Master level thesis to Nepal Commerce Campus, Faculity of Management, T.U on the topic of **Cost-Volume-Profit analysis as a Tool to Measure the Effectiveness of Profit planning and Contro**l:, "A Case Study of Gorkhkali Rubber Industry Limited". He has focused his study to examine CVP as a tool to measure the effectiveness of profit planning and control by using both primary and secondary data. Dhakal had point out some remarkable findings of research and are:

a. Sales plan are not properly maintained by GRIL.
b. Appropriated cost classification technique are not practices in GRIL.
c. There is very low contribution margin of GRIL.
d. GRIL is in very high interest bracket.
e. GRIL does not have a detailed and systematic practice of planning.
f. Goals and objectives are not communicated to the lower level of management.
g. GRIL produces very high quality and exportable product but the production cost is high.
h. The profitability of the industry is very poor and suffering a high degree of losses.
i. GRIL is utilizing only 35% capacity.
j. The industry is in risk where operating leverage is high.

Rijal, Madav (2005) has conducted a research **Cost-volume-profit Analysis as a Tool to Measure Effectiveness of Profit Planning and Control**:, "A Case Study of Nebico Private Limited" an unpublished Master Level Thesis, submitted to Central Department of Management, Faculty of Management, T.U. He has centered his study to examine CVP analysis as a tool in manufacturing industry and to analyze the CVP and its impact in profit planning. Rijal had point out some remarkable findings of research and which are:

a. Nabiko's variable cost is high in portion than fixed cost, which contributes for lower contribution margin.
b. Lack of effective cost control and program or technique.

c. The profit proportion of the company is very low.
d. There is no effective inventory policy in the company.
e. The company has no detailed of any systematic plan.
f. The board of director is the main body of price determination and he interferes directly in the price decision.
g. Nebiko has not proper practice of segregation of cost.
h. There is not proper co- ordination among production, administration, distribution, inventory and sales department.

Katwal, S.B (2006) has submitted an unpublished master level thesis submitted to Central Department of Management, Faculty of Management, T.U. on the topic **Cost-Volume Profit Analysis of Bottlers Nepal Limited:,** with some remarkable objectives for measuring the applicability of CVP analysis on budgeting, for finding the profitability of Bottlers Nepal Pvt. Ltd as a tool of financial performance analysis, for the examination of the risk position, and then Mr. Katwal concluded some remarkable finding with respect to these objectives are as follows:

a. BNL does not practice the scientific and appropriate cost classification technique.
b. BNL has not maintain proper sales plan.
c. Out of total cost of BNL, variable cost is almost 60% in every year. Which causes the low contribution margin.
d. The company has moderate risk.
e. The actual sales of BNL have crossed the BEP for five years. So, the company is in profitable condition.
f. The financial position of the company is profitable.
g. The company has not maintained the broad and long- term objectives.
h. Only the top executives are involved in planning and decision- making and lower participation is not encouraged.
i. The fixed cost of BNL is fluctuated trend. It means the BNL is unable to manage the fixed cost.
j. There is no systematic purchasing of necessary equipment and fixed assets.
k. The company does not apply any appropriate and effective sales forecasting technique.

Sharma, Sagar (2002) had conducted a research entitled **Management Accounting Practices in the Listed Companies of Nepal**:, an unpublished master level thesis submitted to Central Deparment of Management, Faculity of Management, T.U. Mr. Sharma had concerned his study to examine and study the practice of management accounting tools in the listed companies in Nepal.

Mr. Sharma research is based on primary data only. Stratified random sampling with proportionate allocation of percentage is followed draw the sample. No secondary data used for his study. He selected 9 manufacturing companies for the purpose. In his research Mr. Sharma has pointed out various findings and recommendations. Some remarkable findings were as follows.

a. Lack of information and extra cost burden are the main reason behind not practicing such tools.
b. 100% of manufacturing companies were practicing the tools of cost segregation and 89% of companies work practicing break even analysis. Practicing of method is segregation into variable and fixed cost in manufacturing companies in Nepal are 44% practical analytical method, and average method.
c. Management accounting is to help managers in overall managerial activities by providing information and helping in planning controlling and decision making.
d. Practicing of regression method for segregating mixed cost into fixed and variable was nil. The reason behind this was regression method is statistical method which is difficult in application. Besides, it requires expert manpower in statistical methodology. Companies were not ready to hire statistical expert to segregated cost.
e. Different types of management accounting tools, which are taught in the colleges, are not found applied by the listed companies in Nepal.
f. Nepalese listed companies are in infant stage in practicing of management accounting tools. Such as capital budgeting annual budgeting, cash flow, ratio analysis, zero budgeting activity based costing, activity costing, target costing and value engineering.
g. As Nepal is processing towards globalizing and get membership of WTO, companies are recommended to apply management accounting tools to fit with the global environment.

Gautam, Yam Prasad (2006) has studied on the topes of **An Analytical and Comparative study on Cost Volume Profit Analysis of Unilever Nepal Ltd and Dabur Nepal Private Limited**:, An unpublished Master Level Thesis submitted to the Nepal Commerce Campus, Faculty of Management, T.U. His objective of the study was:

a. To calculate of profit resulting from a budgeted sales volume.
b. To calculate break even point, CM analysis, margin of safety analysis and profit volume analysis.
c. To calculate sales volume to product desire profit.
d. To contemplate the increase or decrease in profit due to the change in volume of production.
e. To suggest and recommendation with the help of major findings.
f. To encourage greater use of CVP approach to manufacturing enterprise in profit planning and control.

Mr. Gautam has pointed out various findings and recommendations based on the analysis of data and information.

Some of the major recommendations are as follows:

- Classification of expenses items as variable and fixed or controllable and non controllable must be made with- in specific framework of responsibility and time.
- Separate cost control department should be established for the effective management of cost.
- UNL and DNPL should be consider BEP analysis while preparing sales plan, production plan and selling price of its products.
- Both companies should consider about the product line to improve its profit. Market studies on demand, supply and pricing of product should be carried out and loss oriented cost should be identified and controlled.
- As UNL and DNPL is multi- product company, more emphasis should be provided the product having high contribution so as more have mare profit.
- Some portion of profit should be allocated to research and development program so that new technology could be found which provided more competitiveness in the market.

- UNL and DNPL should have proper manpower planning.
- System of periodical performance reports should be strictly followed to be consists about poor performance and take corrective action immediately and timely.
- New market areas should be identifying for the coverage of increased activities of companies.
- A systematic approach should be made towards comprehensive profit. This can considerably contributed to the increase in profitability to UNL and DNPL. Since separate on of cost in to their fixed and variable elements each and the heard of CVP analysis, all decision makers sought to be fully aware of, and understand the cost structure of their operation otherwise CVP analysis will provided meaning less information.

Dahal, Uday Kumar (2006) has studies on the topics of **Cost Volume Profit Analysis as a tool to measure the Effectiveness of Profit Planning with special reference to Dabur Nepal Ltd**:' an unpublished Master level Thesis submitted to Nepal Commerce Campus, Faculty of Management, TU.

The main objective of the research was;

a. Examine the variance between target and actual sales and production.
b. To show the capacity utilization of Dabur Nepal Ltd.
c. To forecast future production and sales.
d. To analyzed financial performance.
e. To analyze the CVP of company and its impact of profit planning.
f. To analyze the trend of profit over the time covered by the study.
g. To provide recommendations and suggestion for improving the profit planning systems of Dabur Nepal Pvt. Ltd.

To conclusion of the research regarding the present practice of profit planning of Dabur Nepal Pvt Ltd . has given below.

a. Dabur Nepal pvt. Ltd constitutes lack of adequate inventory policy.
b. No control over external factors i.e. it has poor SWOT analysis.
c. Dabur Nepal Pvt Ltd is not able to coordinate among various departments.

d. Dabur Nepal Pvt Ltd does not prepare strategic and policies for long term.
e. Dabur Nepal Pvt Ltd not prepare raw material requirement budget and raw material purchase budget syatematical.

The researcher also provides the following recommendations;

a. CVP analysis should be considered while formulating profit plan.
b. Profit planning manuals should be communicated from top level to lower level.
c. The company management should look carefully into the basis of setting target for sales and achieving these targets meaningfully.
d. Dabur Nepal Pvt Ltd should focus on the relationship between expenditure and benefit, expenses planning and controlling is necessary to obtains companies goals.
e. To get the idea of future cash requirement and application of the form, it should make cash budget systematically.
f. The company should prepare raw material budget and production budget scievtifically.

Budhathoki (2010) has conducted rechearch on the topic **CVP analysis of information technology magazine publication House Special Reference with PC- Info private limited** an unpublished Master level Thesis submitted to Nepal Commerce Campus, Faculty of Management, TU**.** His objectives were:

- To analysis of break -even point.
- To analysis the fixed cost utilization at the optimum level.
- To reduce cost by increasing the span of control since fewer supervisors are needed.
- To help the management for considering expected future trends and conditions.
- To suggest the management to give time and adequate attention to the effect of the expected trend of general business condition and recommended with the help of major findings.

2.3 Research Gap

Research is a continuous process having no ending. Every researcher tries his/her efforts to fulfill the gap, which has not been covered by the previous research work. So, the researcher has attempted to fulfill the following matters:

a. Most of the studies were done in respect of comprehensive profit planning and control of manufacturing public enterprises but this study examines the current practice of CVP analysis as a tool of PPC in SD as a private dairy sector.

b. Previous studies compared private dairy with DDC but this research has been contributed sole study on private dairy with reference to SD.

c. This study gives a high degree of value as the process and the data used in a systematic way studies of CVP analysis.

So this study will be fruitful to those interested person, scholars, Students, Teachers, Government, Businessman, Civil society and other stakeholders for academic and policy prospective.

CHAPTER- 3

Research Methodology

3.1 Research design

This study used both the analytical and descriptive research design for the purpose of CVP analysis. Descriptive design were used for the conceptual development and scientific and systematic framework of the research and the analytical design were used for the systematic interpretation of the numerical data used in this study.

3.2 Sources of Data

There are vital role of the data in research to clear and complete research objectives. Without the data, methodology cannot be utilized to bring the conclusion. Proper and required data should be collected from needed sources.

The secondary data has been used in this study. Basically, secondary data has been collected from the annual reports of SD, company's publications, books and journals/magazines, booklets and internet etc. Thus, secondary is the main source of data and other necessary information has been obtained throughout the research form authorized staff of SD,Kamalbinayak, Bhaktapur. Some of these data were published while other was unpublished.

3.3 Population and Sample

There are 34 Dairy companies in Nepal. In this study, all the Dairy companies are population of the study. Among them Sainju Dairy has been selected as samples for the present study. Sainju Dairy is taken as sample study because it is one of the biggest Dairy Industry Operating in Bhaktapur valley. Which produce wide range of Dairy goods used in daily life and has huge sales turnover.

3.4 Process of Data collection

The research has been done within three months. The first one month has taken for the data collection, next month for analyzing the collected data and last one month for the preparing of the research report more prescribed and systematically.

3.5 Period Covered

This research study covers the last three years i:e fiscal year 2064 to 2066 and Sainju Dairy's strength and weaknesses of managerial planning and other related things are identified.

3.6 Data processing Procedures and Tools Used

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

3.6.1 Accounting and Financial Tools

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

a. Contribution Margin Ratio
b. Break- Even Analysis
c. Gross Profit Margin Ratio
d. Net profit Margin Ratio
e. Operating Ratio
f. Degree of Operating Leverage

3.6.2 Mathematical and Statistical Tools

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

a. Arithmetic mean ($\overline{X}$)

Arithmetic mean is a set of observation in their sum divided by the number of observation. For e.g. the arithmetic mean of n observation $x_1, x_2 \ldots\ldots\ldots x_n$ is given by

$\overline{x}= \frac{1}{n} \sum_{i=0}^{n} X$

b. Standard deviation (σ)

Standard deviation, usually denoted by the Greek letter small sigma (σ), is the positive square root of the deviations of the given values from their arithmetic mean. For the frequency distribution of the given values from their arithmetic mean for the frequency distribution xi/fi, i=1,2,3…….,n

σ= $\sqrt{1/n} \sum_{i} fi$ (Xi-$\overline{X}$)

Where,

$\overline{X}$=Arithmetic mean of distribution

$\sum_{i} fi$=N

c. Coefficient of variance (C.V)

Hundred times the coefficient of dispersion based upon standard deviation is called coefficient of variance.

CV= 100×$\frac{\sigma}{\overline{X}}$

d. Karl Person's Coefficient of Correlation (r)

Among the several mathematical methods of measuring correlation, the Karl Person's method has been 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 tor 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 Sainju Dairy.

r= $\frac{N\in xy-(\in X)(\in Y)}{\sqrt{N\epsilon X2-(\in X)2\sqrt{N}\in Y2-(\in Y)2}}$

Here,

N= Number of pairs of x and y observed

X= Budgeted sales

Y=Actual sales

r= Person 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.

e. probable Error [P.E. (r)]

The probable error of the coefficient helps in interpreting its value. With the help of probable error, it is possible to determine the reliability of the value of the coefficient in so far as it depends on the condition of random sampling (Gupta, 1999: E-10.25). The probable error of the coefficient of correlation is obtained by using the following formula:

P.E= $0.6745\frac{(1-r2)}{\sqrt{N}}$

Here,

0.6745 is the constant value

r=Coefficient of correlation

N=No. of pairs of observation

If the value of 'r' is less than probable error [i.e if r<P.E.(r)] there is no significant relation between X and Y.

If the value of r is more than 6 times the probable error [i.e if r>6 P.E.(r)] there is a very significant relation between X and Y.

CHAPTER-4

PRESENTATION AND ANALYSIS OF DATA

4.1 Cost plannig of SD

Cost planning and controlling are necessary to maintain reasonable costs level to support objective and planned programs of every organization. The organization should not focus itself on decreasing the costs only rather it should be for better utilization of limited resources. It should focus on and establish the relationship between expenditure and the benefits derived from such expenditures. The organization can reduce costs temporarily but it may bring many difficulties like inefficiency in works, entries of new workers, on any organization, etc.

Cost of goods sold is also called production cost. Raw materials, Productive salary and wages, fuel and lubricant costs, electricity cost, water cost, lab chemical cost etc. are the example of cost of goods sold.

Administrative costs are salary allowances and incentives, donation, depreciation, interest etc.

Similarly, selling and distribution costs are those costs, which occur in selling activities of any organization such as transportation costs, promotional cost, advertisement etc.

4.2 Sales of different products of Sainju Dairy PVT LTD

Below The sales data of Sainju Dairy are presented below.

Table-1

Sales

(Rs)

Particular	**2062/63**	**2063/64**	**2064/65**	**2065/66**	**20666/67**
Milk sales	7,799,756	6,323,438	7,712,518	14,352,163	18,497,981
Butter sales	607,473	165,750	146,775	304,200	339,350
Ghee sales	11,550	-	-	7,000	-
Scrap Sales	-	-	-	8,370	-
Powder Milk	-	-	-	-	105,000
Miscellaneous	4,250	-	-	-	-
Total Sales	8,423,029	6,489,188	7,859,293	14,671,733	18,942,331

Source: Audited Report of SD

Ghee did not sale for three years because in problem of sales and SD did not consider about collecting fat. Scrape means wastage thing like plastic bag and plastic roll destroyed by mouse in large quantity which sales only year 2065/66 and remaining year it did not so happen . Powder milk started sales only last year i:e 2066/67. Miscellaneous means old milk which sales year 2062/63.

Table -2

Cost of goods solds

Cost of goods sold are those types of cost which is direct related with product thus it is also called variable costs or product costs. Variable costs based on activity.

YEARS	2062/63	2063/64	2064/65	2065/66	2066/67

The variable costs should be zero activity. They change directly with change in activity level in a responsibility center. Therefore, if output is doubled, variable expenses is to be doubled, if output increases by 15% the variable expenses also increase by 15% , if output is zero, the variable cost also is zero. But variable cost per unit might be changed due to increase in price of material, labor, and inventory costs etc. Here, the list of the product of Sainju Sairy private limited.

Particulars	Amount	Amount	Amount	Amount	Amount
A) **Raw material**					
Opening stock	2,30,863	2,82,828.30	8,58,170	13,97,727.4	63,27,485.04
Purchase of Milk	56,13,609	38,38,757	40,29,179	82,41,026	1,10,05,306
Milk Powder	4,95,186.62	13,38,598.65	19,69,816.35	63,95,000	27,27,988.90
Plastic Roll	5,31,196	-	4,08,210	9,54,416.47	10,04,990
Ghee bottle	7,023.5	-	-	-	-
Plastic Bag	5,247	2,355	2,715.00	3,744	5,423
Closing stock	2,82,828.30	8,58,170	13,97,727.40	62,37,485.04	1,40,99,667.14
Total Consumption	66,00,296.82	46,04,368.95	58,70,562.95	1,07,54,328.83	1,40,99,667.14
B. Direct expenses					
Fuel	1,60,074	2,97,725	3,20,435.50	8,97,611	12,8,9467
Water and Electricity	5,27,937	66,47,179	5,75,841	4,80,869	6,49,246.94
Chemical/laboratory	62,469.37	70,986	1,03,974	2,31,965	2,76,542
Packing	-	4,89,756.04	-	-	-
Repair and maintenance	1,07,195.74	-	55,675	1,13,187	1,64,698.54
Total Expenses	8,57,676.11	15,05,646.04	10,55,925.5	17,23,632	23,79,954.48
Cost of Sales (A+B)	74,57,972.93	61,10,014.99	69,26,288.45	1,24,77,960.83	1,64,79,621.62
Increase decrease	-	-13,47,957.94	-5,31,684.48	50,19,987.9	90,21,648.69
Increase or decrease in percent	-	(0.181)	(0.071)	.673	1.21

(Rs)

Source: Audited Report of SD

In table 2 reveals all variable costs, which were used to product Diary products in terms of cost of sales. It also depicts the trend of costs. The cost of sales was decreasing for 2 fiscal years ie:2063/64 and 2064/65 then after it was in increasing trend. The highest cost was the in FY 2066/67 and highest incremental is in FY 2066/67 by 1.21. The reason of increase in cost may be attributed to high increase in purchase of milk, milk powder etc. To reduce the cost of sales, SD should try to control in wastage of materials, milk powder expenses.

Table -3

Administrative costs

Administrative costs are those types of costs which is not directly related with product i:e it is only related with time or period thus it is called fixed costs or period costs. Fixed costs are the cost associated with those inputs, which do not vary with the change in volume of output or activity within a specified range of activity or output (relevant range). Fixed costs, thus, remain constant whether activity increase or decrease within a relevant range. Here are the list of the product or administrative cost.

(Rs)

Years	2062/63	2063/64	2064/65	2065/66	2066/67
Particulars	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**
Salary	7,41,000	5,83,500	5,58,000	6,78,000	8,13,600
Telephone	19,446.50	19,756	48,200	41,425	47,283.93
Transportation	2,31,000	-	2,050	15,000	18,536
Audit fee	5,000	4,000	4,000	4,000	5,000
Stationary	9,207	16,318	9,689	9,908	5,005
Miscellaneous	14,421.48	1,536	7,670	41,114.92	16,490
Dashain expenses	-	--	46,500	56,500	67,800
Charity and Donation	-	10,000	75,050	10,803	26,850
Tiffin	21,941	-	700	29,200	53,590
Tax & Fine	-	-	9,000	38,000	1,11,300.50
Bank interest	-	-	18,998.32	2,15,955.37	2,4,3843.43
Repair & Maintanance	-	93,092.20	-	-	-
Advertisement	-	-	-	-	20,155
Insurance	-	-	-	-	32,590.33
Membership fee	-	-	-	-	9,700
Total	10,42,015.98	7,28,202.20	7,79,857.32	11,39,906.29	14,71,744.19

Source: Audited Report of SD

The above table 3 reveals all fixed costs, in the above schedule, FY 2063 is taken as a base year. The total fixed costs of SD in the FY 2063 to 2067 are 1042015098, 728202.20, 779857.32, 1139906.29 & 1471744.19.

4.3 Profitability Ratio Analysis

Table – 4

Income statement

(Rs)

Source: Audited Report of SD

Particular	2062/63	2063/64	2064/65	2065/66	2066/67
Sales income	84,23,029	64,89,188	78,59,293	1,46,71,733	1,89,42,331
Sales cost	74,57,972.93	61,10,014.99	69,26,288.45	1,24,77,960.83	1,64,79,621.62
Gross profit or C/M	9,65,056.07	3,79,173.01	9,33,004.55	21,93,772.17	24,62,709.38
Administration cost	10,42,015.98	7,28,202.2	7,79,857.32	11,39,906.29	14,71,744.19
Depreciation	2,73,593.81	3,07,038.35	3,01,962.73	5,41,885.42	6,61,855.4
Profit before tax	(3,50,553.72)	(6,56,067.54)	(1,48,815.5)	5,11,980.46	3,29,109.8
Income tax provision	-	-	-	1,02,396.09	65,822
VAT Expenses	37,641.49	2,34,742	3,03,783.80	11,97,054.26	5,09,572
SEF	-	-	-	-	1,949
Income tax & VAT	68,750	56,169.19	51,415.81	97,390	11,750.91
Accumulated loss of previous yrs	8,19,166.29	12,76,111.5	22,23,090.23	28,80,252.56	37,65,112.45
p/l transfer to balance sheet	(12,76,111.5)	(22,23,090.23)	(28,80,252.56)	(37,65,112.45)	(40,25,096.56)

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

The word 'profitability' ratio measures the operating efficiency of the company. Besides management of the company, creditors and owners are also interested in the profitability in relation to investment.

4.3.1 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 calculated by dividing gross profit by sales.

Table 5: Gross Profit margin of the Years

(Rs)

Particular	2062/63	2063/64	2064/65	2065/66	2066/67
Sales income	84,23,029	64,89,188	78,59,293	1,46,71,733	1,89,42,331
Sales cost	74,57,972.93	61,10,014.99	69,26,288.45	1,24,77,960.83	1,64,79,621.62
Gross profit or C/M	9,65,056.07	3,79,173.01	9,33,004.55	21,93,772.17	24,62,709.38
Gross profit margin	11.46%	5.84%	11.87%	14.95%	13.00%

Source: Audited Report of SD

The above table 5 shows that the gross of SD is fluctuating. Maximum ratio over the study period is 13% in the FY 2067 and minimum ratio is 5.84% in the FY 2064. The mean gross profit margin is $\frac{(11.46+5.84+11.87+14.95+13)\%}{5} = 11.424$ which is not favorable condition for the company. It can be concluded that gross profit is very poor in every fiscal years.

4.3.2 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

Profit before tax	-	(3,50,553.72)	(6,56,067.54)	(1,48,815.5)	5,11,980.46	3,29,109.80

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 diving net profit by sales. We have, $Net\ Profit\ Margin = \frac{Net\ profit\ after\ tax}{sales}$

Income tax provision	-	-	-	-	1,02,396.09	65,822
VAT Expenses	-	37,641.49	2,34,742	3,03,783.80	11,97,054.26	5,09,572
SEF	-	-	-	-	-	1,949
Income tax & VAT	_	68,750	56,169.19	51,415.81	97,390	11,750.91
Accumulated loss of previous yrs	-	8,19,166.29	-	22,23,090.23	(27,27,105.34)	(36,11,965.23)
p/l transfer to balance sheet	-	(12,76,111.5)	(9,46,978.73)	(27,27,105.34)	(36,11,965.23)	(38,71,949.5)
Net loss margin	-	15.15	14.59	*34.699*	24.62	20.44

Table – 6 : Net Profit Margin

(Rs)

Source: Audited Report of SD

The above table no 6 shows that the net profit of SD nil but the net loss of SD is fluctuating over the study period. The highest net loss margin 34.699% in the FY 2065 and lowest is 14.59% in the FY 2064. The mean net loss margin of SD is

$$Net\ loss\ margin = \frac{15.15 + 14.59 + 34.699 + 24.62 + 50.44}{5} = 21.899$$

It proves that the firm's net profit situation is in negative.

4.3.3 Operating Ratio

The operating expenses ratio explains the change in the profit margin ratio. It calculated by dividing operating expenses like as cost of goods 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 & distribution expenses.

Table:7

Operating ratio of Years

(Rs)

Source: Audited Report of SD

The above table 7 shows that the operating ratio of SD is high over the study period. It is more than 1 in the FY 2063,2064 and 2065. The operating ratio is less than 1 in the FY 2066 and 2067 respectively. But still it is not in good position for the company as it indicates the high cost of goods sold and operating expenses of

FY	Sales (Rs)	COGS (Rs)	Operating ratio		Operating ratio
			Adm Exp	Depn	
2062/63	84,23,029	74,57,972.93	10,42,015.98	2,73,593.81	1.042
2063/64	64,89,188	61,10,014.99	7,28,202.2	3,07,038.35	1.10
2064/65	78,59,293	69,26,288.45	7,79,857.32	3,01,962.73	1.0189
2065/66	1,46,71,733	1,24,77,960.83	11,39,906.29	5,41,885.42	0.9651
2066/67	1,89,42,331	1,64,79,621.62	14,71,744.19	6,61,855.4	0.9826
Mean	1,12,77,114.8	98,90,371.76	10,32,345.20	4,17,267.14	1.0216
Average	1,35,32,537.76	1,18,68,446.11	12,38,814.24	5,00720.57	1.23

SD resulting low operating profit. The mean operating ratio is slightly more than 1 so, it indicates that the firm is poor to minimize and control the cost of goods sold and operating expenses.

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 at a firm. Higher 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,

$$Degree\ of\ operating\ leverage = \frac{Contribution\ margin(CM)}{Earning\ before\ interest\ and\ tax(EBIT)}$$

Table:8

Degree of operating leverage of the years

(Rs)

Source: Audited report of SD

The above table 8 shows that operating leverage of SD is -2.753, -0.5779,-2.583,-4. and 7.483 in FY 2062/63, 2063/64, 2064/65, 2065/66 and 2066/67 respectively. It indicates that if sales increased by 1%then operating loss decrease by -2.753, -0.5779,-6.26,-4. and 7.483 in FY 2062/63, 2063/64, 2064/65, 2065/66 and 2066/67

FY	**2062/63**	**2063/64**	**2064/65**	**2065/66**	**2066/67**
Sales	84,23,029	64,89,188	78,59,293	1,46,71,733	1,89,42,331
Less :VC	74,57,972.93	61,10,014.99	69,26,288.45	1,24,77,960.83	1,64,79,621.62
CM	9,65,056.07	3,79,173.01	9,33,004.55	21,93,772.17	24,62,709.38
Less: FC,AC	10,42,015.98	7,28,202.2	7,79,857.32	11,39,906.29	14,71,744.19
Depn	2,7,3593.81	3,07,038.35	3,01,962.73	5,41,885.42	6,61,855.4
EBIT	(350553.72)	(656067.54)	(1,48,815.5)	511980.46	329109.79
DOL	-2.753	-0.5779	-6.26	4.2849	7.383

respectively and final year .i.e. 2067 DOL of SD is 7.483 that indicates if sales increase by 1% then operating profit will increase by 7.483 %.

4.5 Cost Volume Profit Analysis

Analysis of various elements, which are used in Cost-Volume-Profit(CVP) analysis, are:

4.5.1 Contribution Margin

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

Contribution Margin=Sales –Variable Cost

Or, Contribution Margin= Fixed Cost +Profit

Table : 9

Income statement for the year ended from 2063to 2067

Particular	2062/63	2063/64	2064/65	2065/66	2066/67
Sales income	84,23,029	64,89,188	78,59,293	1,46,71,733	1,89,42,331
Sales cost	74,57,972.93	61,10,014.99	69,26,288.45	1,24,77,960.83	1,64,79,621.62
Contribution margin (CM)	9,65,056.07	3,79,173.01	9,33,004.55	21,93,772.17	24,62,709.38
Administration cost	10,42,015.98	7,28,202.2	7,79,857.32	11,39,906.29	14,71,744.19
Depreciation	2,73,593.81	3,07,038.35	3,01,962.73	5,41,885.42	6,61,855.4
Net profit	(3,50,553.72)	(6,56,067.54)	(1,48,815.5)	511980.46	3,29,109.79

Source: Audited Report of SD

The schedule 8 shows that the contribution of SD was fluctuation trend over the study period. Among 5 fiscal years, the maximum contribution margin is Rs2462709.38 in FY2066/67 and minimum is Rs379173.01 in FY 2063/64.

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 the volume of production. It is calculated by dividing contribution margin by sales.

We have, profit volume ratio= $\frac{\textit{Contrinuton Margin}}{\textit{Sakes}}$

Table : 10 P/V Ratio of the Years

Particular	2062/63	2063/64	2064/65	2065/66	2066/67
Sales Amt	84,23,029	64,89,188	78,59,293	1,46,71,733	1,89,42,331
Contribution margin	9,65,056.07	3,79,173.01	7,79,857.32	21,93,772.17	24,62,709.38
P/VRatio	**11.46%**	**5.84%**	**9.92%**	**14.95%**	**13.00%**

Source: Audited report of SD

The above table 10 shows the profit volume ratio of SD over the study period, which is in fluctuation trend. The highest P/V Ratio is 0.1495 in the FY 2065/66 and lowest is .0584 in the F/Y 2063/64.

4.5.3 Break- Even- Analysis

Break even analysis is the most widely known form of the cost volume profit analysis. Therefore, cost volume profit analysis is also called break-even-analysis. The break-even point is identified 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 or production is less than BEP sales, there will be loss. Break-even point can be determined by using these methods.

a. Algebraic or Formula Method

b. Graphic or Chart Method

a. Algebraic or Formula Method

BEP= $\frac{\textit{Total Fixed Cost}}{\textit{Profit Volume Ratio}}$

Table 11:

Break- even point of the Year

Particular	**2062/63**	**2063/64**	**2064/65**	**2065/66**	**2066/67**
Administration cost	10,42,015.98	7,28,202.2	7,79,857.32	11,39,906.29	14,71,744.19
Depreciation	2,73,593.81	3,07,038.35	3,01,962.73	5,41,885.42	6,61,855.4
P/VRatio	**11.46%**	**5.84%**	**11.87%**	**14.95%**	**13.00%**
BEP(Rs)	90,92,635.08	1,24,69,215.75	65,69,985.85	76,24,791.237	1,13,21,109.15
EEP(Rs)	1,14,80,015.62	1,77,26,721.74	91,13,901.01	1,12,49,442.88	1,64,12,304.54

Source: Audited Report of SD

The BEP of SD is shown in the schedule no 10 and it is also fluctuating trend over the study period of 5 years. Here 2 types of BEP excluding and including depn are presented. In both cases, the highest BEP of SD is Rs 11321109.15 and 16412304.54 in the FY 2067 and lowest BEP is Rs 7861464.919 and 10905444.05 in the FY 2065.

b.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 for determining the break-even point. The break even indicated in the chart is one at which total cost line and total sales line intersect with each other.

4.6 Change effect and relationship of CVP analysis factors

4.6.1 Change in Sales Value

The impact of changes in sales value will affect to P/V ratio and BE sales. Increase in sales value increase the profit and decrease in BE sales. So, there is positive correlation with profit and negative correlation with BE sales. If sales decrease, the effect will be vice-versa. If it is assumed that sales increase and decrease by 10 percent and other things remaining constant and then following results are obtained for year 2066/67.

Table 12

Income statement with change of sales value by 10% for the FY 2066/67

(Rs)

Detail	Change in Sales volume		
	Original	10% Increase	10% Decrease
Sales	1,89,42,331	20836564.1	17048097.9
Less: Variable cost	1,64,79,621.62	1,64,79,621.62	1,64,79,621.62
Contribution Margin	24,62,709.38	43,56,942.48	5,68,476.28
Less : FC excluding dep^{n}	14,71,744.19	14,71,744.19	14,71,744.19
Profit (loss)	9,90,965.19	28,85,198.29	(9,03,267.91)
P/V ratio (CM/Sales)	13.00%	20.91%	3.33%
BEP(FC/PV ratio)	1,13,21,109.15	91,38,470.54	4,41,94,522.22

Sourse : Audited report of SD

The above table no 12 showed that with the increase in sales value by 10% the profit increase by 18,94,233.1 and P/V ration increased from 13% to 20.91% but BEP decreases to 91,38,470.54, loss is occurred when sales value is decreased by 10%. P/V ratio were decrease to 3.3% and BEP increased to Rs 4,41,94,522.22. It showed that there is positive relationship between sales revenue and P/V ratio and negative relationship between sales revenue and BEP.

4.6.2 Change in Fixed cost

In general sense, fixed costs do not change within the relevant range but fixed cost may change due to different conditions. Firstly, the fixed cost may be higher than variable cost due to more amounts spent for administrative improvements and acquiring assets. It may happen for a new corporation, will developed and still in the process of establishment. Secondly, the fixed cost may increase from the previous level but the rate of increase may or may not coincide with variable cost. The fixed costs may increase/decrease due to under estimation and over estimation of fixed costs in the previous year. When there is rise in administrative improvement making the best utilization of assets and from the given amount of variable costs. If it is assumed that the fixed cost increases and decreases by 10 persent other things remaining constant, then following result is obtained from the income statement of FY 2066/67.

Table 13

Income statement with change of Fixed costs by 10% for the F/Y 2066/67

Details	Change of Fixed Value		
	original	10% increase	10% decrease
Sales	1,89,42,331	1,89,42,331	1,89,42,331
Less : Variable costs	1,64,79,621.62	1,64,79,621.62	1,64,79,621.62
Contribution margin	24,62,709.38	24,62,709.38	24,62,709.38
Less : fixed cost excluding dep^{n}	14,71,744.19	16,18,918.609	13,24,569.771
Profit	9,90,965.19	8,43,790.771	11,38,139.61
P/V ratio (CM/Sales)	13.00%	13.00%	13.00%
BEP(FC/PV ratio)	1,13,21,109.15	1,24,53,220.06	1,01,88,998.23

In above table no 13 showed that there were no change in contribution margin and P/V ratio whether there is increase or decrease in fixed costs. P/V ratio were 13% and contribution margin were Rs 24,62,709.38 in both cases. Only BEP is affected by change in fixed cost. If fixed cost were increase by 10%, the BEP were also increase to Rs 1,24,53,220.06, similarly when fixed cost is decreased by 10% the BEP also decreased to 1,01,88,998.23.

4.6.3 Change in variable cost

Change in variable cost mainly concerns with the operating efficiency of the corporation. The variable cost may increase due to wastage caused by both controllable and uncontrollable factors. Wastage due to lack of skilled workers and leaders of workers being not responsible for increase in production overhead. Wastage in raw materials and other inputs are directly related to reduce production. The following income statement of 2066/67 shows the result outcomes from the changes in variable cost by 10 percent increases and decreases.

Table 14

Income statement with change of Variable cost by 10% for the FY 2066/67

(Rs)

Detail	Change of variable value		
	Original	10% increase	10% decrese
Sales	1,89,42,331	1,89,42,331	1,89,42,331
Less : Variable cost	1,64,79,621.62	1,81,27,583.78	1,48,31,659.46
Contribution margin	24,62,709.38	8,14,747.22	41,10,671.54

Less : Fixed cost excluding dep^{n}	14,71,744.19	14,71,744.19	14,71,744.19
Profit/Loss	9,90,965.19	(6,56,996.97)	26,38,927.35
P/V ratio(cm/sales)	13.00%	4.30%	21.70%
BEP(FC/P/V ratio)	1,13,21,109.15	3,42,26,609.06	67,82,231.29

Source : Audited report of SD

The above table 14 showed that there are two conditions, first one, increase the variable cost by 10% showed inefficiency or occurrence of more wastage on material and labor, then it undoubtedly, leads to loss of Rs 6,56,996.97 and increase in BEP to Rs 3,42,26,609.06 . second decreased in variable cost by 10% helps to increase profit to Rs 67,82,231.29 and reduce BEP to Rs 67,82,231.29. The table also clears that when variable cost is increased, P/V ratio is decreased and vice versa.

4.7 Major findings of the study

The major findings of this study have been presented corresponding to the objectives of the study.

- There were not actually sales plan made. That might cause suffering from loss.
- The company has not practiced to apply appropriate and effective sales forecasting techniques like, survey method and statistical method. It used market studied and experimentation method for sales forcasting.
- Sainju Dairy private limited has not practiced cost volume profit analysis tools for profit planning and the company has not any policy for using CVP tools in coming fiscal years.
- Proper planning aspect is virtually ignored in the Sainju dairy. The planning is not based upon some scientific base but its surface planning.

- For profit achievement, the company should be adjusted fixed cost, variable cost, sales and profit by PV ratio analysis.
- The Sainju dairy private limited has not applied any special technique for segregation of costs into fixed and variable costs.
- There is no separate costing system for allocation of expenses to each product.
- The highest BEP of Sainju dairy private limited has been found Rs1.79,51,365.81,1,86,13,221.21 in FY 2066/67 and lowest Rs 68,38,217.19,71,45,255.54 in FY2063/64. there is increasing trend in BEP, which increases the more challenges to increase the sales in the company.
- The Sainju dairy private limited did not seem applying the effective managerial tools "Profit Planning and Controlled" for it's activity.
- Sainju dairy has low margin of safety, which is not satisfactory level.

CHAPTRE-5

SUMMARY, CONCLUSITION AND RECOMMENDATIONS

.5.1 Summary

Cost volume profit analysis, a most important tool of profit planning means of predicting the effect of changes in costs and sales level on the income of business. In its simplest form it involves the determination of sales level at which a company neither earns a profit nor incurs a loss or in other word the point at which it break even. Often break even analysis is known as CVP analysis. Break even analysis is a special case of CVP. However, CVP analysis technique included to find out sales volume to earn a zero profit or desired profit, to affect income of by changes in selling price, to examine operating profit it fixed cost as well as unit variable cost will be changes etc. solving such alternatives CVP analysis more appropriate than break even analysis.

In this way Sainju Dairy private limited may use CVP analysis as planning tools when sales, variable cost and fixed cost are known, to find out profit, as target at certain sales and sales volume. By using CVP analysis tools, the management of the dairy can control the costs also.

CVP is a greater helpful in managerial decision making, especially cost control and profit planning. It provides attention decision making and problem solving backgrounds for important planning decisions, such as selecting distribution channels, pricing, special promotion and personal hiring. “know your cost” is an essential theme for any managers and CVP analysis helps to direct managerial attention to important problems and paves.

The study is completely related with the CVP analysis of the Sainju dairy as a tool of PPC. It has been successfully introducing varieties of dairy products harmonizing with the changing taste of upcoming generation. It is firmly committed to high quality production of world class standard at most reasonable price and giving consumer’s services of high satisfaction although the dairy private limited has failed to achieve BEP sales in many or most of the year during the study period. The dairy’s financial position (profitability) position is in loss and its BEP position is also not satisfactory. So, the dairy couldn’t run in a remarkable sales and profit.

4.2 Conclusion

The following conclusion based on the finding of research study are made

- Sainju dairy has no clear cut boundaries to separate cost into fixed and variable. The classification of cost is not scientific and systematic. So, the dairy has not been able to use CVP analysis and make the realistic and smart budget.
- For the achievement of the above advantages, the dairy has not applied CVP tools on profit planning and control. Profit planning has been found unsystematic .
- Different types of profit planning tools, which are used in the academic field, are not found applied by the dairy as no segregation of cost into fixed and variable, which is the hardcore of CVP.
- There were no plan and policies like production plan, sales plan and other operating plan. Sainju dairy private limited has not utilized its full capacity because of the lack of sales market, inefficiency of management and lack of skilled production specialist.
- SD private limited not used BEP tools for planning. So it were in loss many years. There is not perfect sales policy or sales planner as a result it were not able to meet the largest sales.
- The major faced by the dairy were increase in the variable cost as well as fixed cost because it adopted neither the cost control system nor the systematic and scientific plan for classification of cost.
- Hence, avoiding CVP analysis tool the dairy were bearing loss as well as not attaining satisfactory profit.

4.3 Recommendations

The following recommendations based on the finding of research study made;

- Sainju dairy private limited should consider BEP analysis which preparing sales plan, production plan and selling price of its product.
- Separate cost control dependent should be establishes for the effective management and reduction cost
- It is suggested to Sainju dairy private limited for practicing the CVP analysis as a tool of PPC for improving performance through acquiring the valuable information about cost, revenue and profit.

- Some portion of fund should be allocated to research and development program so that new technology could be found which provide more competitiveness in the market.

- Cost plan in SD private limited has not been maintained systematically. SD must establish a cost control program for maintaining a remarkable discipline on cost control by controlling wastages of raw material, milk powder etc.

- System of periodical performance reports should be strictly followed to be conscious about poor performance and take corrective action immediately and timely

- The profit margin of SD is most in negative, where as the operating ratio is too high. The management should follow regular supervision, inspection, evaluation and monitoring.

- SD should follow new business strategies for exploring the economics, effective and efficient resources and improving quality work of life of its employees.

- SD should develop a culture for reviewing its activities to control worthless task and developing the valuable strategies.

- SD has not depended proper segregation method of cost into variable and fixed cost. It is very important for applying analysis. So it is recommended to follow the segregation method either high low point or least square method for finding correct variable cost and fixed cost.

- A systematic approach should be toward comprehensive profit planning. This con considerably contribute to the increase in profitability to company. Since separate on costs into their fixed and variable elements is at the heart of CVP analysis.

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Website

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APPENDIX-1

Sainju Dairy Private Limited, Bageswori, Bhaktapur

Income Statement

Details	**2062/63**	**6063/64**	**6064/65**	**2065/66**	**2066/67**
Sales Income	84,23,029	64,89,188	78,59,293	1,46,71,733	1,89,42,331
Sales Cost	74,57,972.93	61,10,014.99	69,26,288.45	1,24,77,960.83	1,64,79,621.62
Gross profit	9,65,056.07	3,79,173.01	9,33,004.55	21,93,772.17	24,62,709.38
Administrative cost	10,42,015.98	7,28,202.2	7,79857.32	11,39,906.29	14,71,744.19
Depreciation	2,73,593.81	3,07,038.35	3,01,962.73	5,41,885.42	6,61,855.4
Protit before tax	-3,50,553.72	-6,56,067.54	-1,48,815.5	5,11980.46	3,29,109.79
VAT Expenses	-37,641.49	-2,34,272.00	-3,03,783.8	-11,97,054.26	-5,09,572.00
Tax Assesment 061/062	68,750	-	-	-	-
Income tax Provisition	-	-	-	-1,02,396.09	-65,822.00
VAT & IT	-	-56,169.19	-51,415.81	-97,390	-11,750.91
SEF					-1949
Accumulated Loss of Previous year	8,19,166.29	-12,76,111.5	-22,23,090.23	-27,27,105.34	-36,11,965.23
Profit/Loss Transfer to Balance Sheet	(12,76,111.5)	(22,23,090.23)	(27,27,105.34)	(36,11,965.23)	(38,71,949.35)

APPENDIX-2

Sainju Dairy Private Limited, Bageswori, Bhaktapur

Balance Sheet

Particular	2062/63	2063/64	2064/65	2065/66	2066/67
Capital & liabilities					
Share Capital	40,00,000	40,00,000	40,00,000	1,04,00000	1,04,00000
Profit/ Loss from Income Statement	-12,76,111.5	-12,76,111.5	-2727105.34	-36,11,965.23	-38,71,949.35
Current Year loss		-946978.73			
Secured loan from promoter & MD		-	21,65,240	21,65,240	36,95,676
Total	27,23,888.5	17,76,909.77	34,38,134.66	67,88,034.77	1,52,23,726.65
A) Fixed Assets	39,27,531.67	36,29,093.32	34,38,134.66	75,75,136.47	76,04,441.07
B) Raw Material Stock	2,82,828.30	8,58,170	13,97,727.4	62,37,485.04	78,71,525.80
C) Cash & Bank Balance	52,862.06	1,71,716.42	1,70,060.15	1,05,692.14	3,33,079.34
D) Sundry Debtors	3,49,546.74	1,47,613.,74	14,05,917	3,51,034	8,82,745
E)Pre tax	72,550	51,415.81	91,107	85,000	1,67,393
F) Pre Insurance	-	-	-	35,668.45	35,668.45

F) Sundry Creditors		-18,52,183.55	-30,53,050,48	-76,01,981.33	16,67,126.01
G) Net Current Assets	5,000	-18,52,183.55	11,761.07	7,88,959.7	76,19,285.58
I)Current liabilitie	-18,94,473.52	-	-	-	
J) Telephone Bill Payable	-4,529.5	-	-	-	
K) VAT payable	-3,759.25	-	-	-	
L) Audit Fee Payable	-5,000	-	-	-	
Total	27,23,888.5	17,76,909.77	34,38,134.66	67,88,034.77	1,52,23,726.65