COST-VOLUME-PROFIT ANALYSIS OF SALT TRADING CORPORATION LIMITED AND NATIONAL TRADING LIMITED.

A THESIS

Submitted by:

Ramesh Khadka

T.U. Registration No- 7-1-280-655-2000

Exam Roll No.: 250874/067

Campus Roll No.: 347/064

Nepal Commerce Campus

Submitted to:

Office of the Dean

Faculty of Management

Tribhuvan University

In the partial fulfillment of the requirements for the Degree of

Master of Business Studies (M.B.S.)

New Baneshwor, Kathmandu

May 2011

VIVA – VOCE SHEET

We have conducted the viva – voce examination of the Thesis

Submitted by:

Ramesh khadka

Entitled

COST-VOLUME-PROFIT ANALYSIS OF SALT TRADING CORPORATION LIMITED AND SALT TRADING LIMITED.

And found the Thesis to be the original work of the student written in accordance with the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirement for Master Degree of Business Studies (M.B.S.)

Viva – Voce Committee

Chairperson, Research Committee: ----------

Member (Thesis Supervisor): ----------

Member (Thesis Supervisor): ----------

Member (External Expert): ----------

Date: - …….

RECOMMENDATION

This is to certify that the thesis

Submitted by:

Ramesk Khadka

Entitled

COST-VOLUME-PROFIT ANALYSIS OF SALT TRADING CORPORATION LIMITED AND SALT TRADING LIMITED.

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

_____
(Mr. Diwakar Pokhrel)
Campus Chief &
Thesis Supervisor

_____
(Mr. Lok Bdr Rai)
Thesis Supervisor

_____
(Mr. Sushil Bhakta Mathama)
Head of Research Department

DECLARATION

I hereby declare that the work reported in this thesis entitled ***"Cost – Volume-Profit Analysis of Salt Trading Corporation Limited and National trading Limited"*** submitted to Nepal Commerce Campus, Faculty of Management, Tribhuwan University, is my original work done in the form of partial fulfillment of the requirement for the Master of Business Studies **(MBS)** under the guidance and supervision of **Mr. Diwaker Pokhrel and Mr. Lok Bdr Rai** of Nepal Commerce Campus, Tribhuwan University.

Date:-

.....

Ramesh Khadka
(Researcher)
Nepal Commerce Campus
T.U. Registration No- 7-1-280-655-2000
Exam Roll No.: 250874/067
Campus Roll No.: 347/064

ACKNOWLEDGEMENTS

I would like to extend my thanks to all my nears and dears specially who helped me and encouraged to continue my studies. My sincere thanks and gratitude to my respected supervisor Mr. Diwakar Pokharel and Mr. Lok Bdr Rai who has kindly guided me and give me their valuable time from their heavy schedule. I am equally thankful and grateful to Mr. Sushil Bhakta Mathama head of research department. Their guidance and help has been a great source of encouragement and inspiration to me. Without their valuable insight and time, I would not have been able to complete it.

This study is designed to highlight the importance of CVP analysis in planning the profit. The Salt Trading Corporation and National Trading Limited has been taken for this purpose. So I would like to express my heartily thanks to management of Salt Trading Corporation Limited and National Trading Limited for providing various information for the study.

I express my thanks to my wife Mrs. Lalita Bogati khadka for her credible help and co-operation.

Finally, I am very grateful to all of those who have helped me especially all the member of my family who provided regular inspiration and continuous contribution and support for my success.

Ramesh Khadka

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ABBREVIATIONS

A/C	:	Account
A.D.	:	Anno Domini
A.M.	:	Arithmetic Mean
ASC	:	Accounting Standard Committee
BEP	:	Break Even Point
B.S.	:	Bikram Sambat
CM	:	Contribution Margin
CMPU	:	Contribution Margin Per Unit
Co.	:	Company
C.V.	:	Coefficient of Variation
CVP	:	Cost Volume Profit
DOL	:	Degree of Operating Leverage
DPAT	:	Desired Profit after Tax
DPBT	:	Desired Profit before Tax
F.C.	:	Fixed Cost
F/Y	:	Fiscal Year
Ltd	:	Limited
MC	:	Marginal Contribution
MOS	:	Margin of Safety
NTL	:	National Trading Limited
STCL	;	Salt Trading Corporation limited
PPC	:	Profit Planning and Credit
P/V Ratio	:	Profit Volume Ratio
S.D.	:	Standard Deviation
SPPU	:	Selling Price Per Unit
TFC	:	Total Fixed Cost
T.S.	:	Total Sales
VC	:	Variable Cost
VCPU	:	Variable Cost Per Unit
Pg No	:	Page Number

CHAPTER-I
INTRODUCTION

1.1 Background of the Study

Nepal is the beautiful country in the world. Nature has given ample assets to Nepal, making it natural wonder in the world. It is situated between China and India which are largest country in the world. Nepalese trade business meanly depend upon china and India's foreign trade because Nepal is the least developed and also a land locked country. So, the economic condition of the nation is poor and day by day going to downward. Most of the organizations operating here are facing various problems directly and indirectly.

Nepalese economy is totally depended upon agriculture, private sector and foreign investments. These are not providing sufficient opportunities due to lack of proper infrastructure, skill manpower and the present conflict political situation of the country. Public sector is mostly related to import replacement and export encouragement. The history of public enterprises begins after the establishment of Biratnagar Jute mill in 1994 A.D. Before the democracy of 2007 there were limited public enterprises. Realizing the need of industrialization, the government of Nepal established many industries after the democracy to promote industries Udhyog Parisad was established to encourage industrializations. After some years it was converted into cottage and village industry development.

In least developing country like Nepal, Industrialization is the most essence for rapid economic growth. Industrialization increases the value of agricultural products and helps to shift the idle labor force from agriculture to industries.

Nepal has sufficient physical infrastructure and resources. Even those, from the view point of economic development, Still Nepal is an under developed situation due to lack of proper utilization of available resources. For the production and effective utilization of resources, there must be proper plan and control system. Profit planning and control is used as an important tool for the same purpose which helps to achieve desire goals and objectives according to its plan and control standard.

Profit Planning and control (PPC) is an important approach which is developed for providing effective performance of management system. Management means co-operation of human effort for the achievement of an organization objectives. Profit planning and control has broad application. It is used by both profit making and nonprofit making organization, manufacturing and non manufacturing organization, and government and private organization.

Business success depends on the performance of an organization which measures in terms of Profit. Profit is the primary measurement and blood of success in any economy. Usually, profit does not just happen. Profit is managed. When a management plans its profit performance is known as profit planning. Profit planning is a part of overall planning process of an organization. So, management most have clear concept about profit planning. There are several different views about the term of profit .According to an economist, profit is the reward for risk bearing for the organizations, leader of labor might say that profit is a measurement of labor efficiency and that is provided a base for negotiation a wages and through the view point of investors return of their investment is measure in term of profit.

Profit is the ultimate goal of every business organization. But profit cannot be achieved easily. It should be managed well through effective managerial plans. So profit is the plans and controlled by management. Planning is the essence of management and other functions are performed within the framework of planning, planning means forecasting what is to be done in future. Planning starts from forecasting and predetermination of future actions. Firm cannot achieve it pre determined objectives and goals in the absence of perfect planning. Control is the process of measuring and evaluation of budgeted and actual work of an organization. It is necessary to ensure efficient accomplishment of enterprise objective, goals, policies and standard, of an organization. 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 .It facilitates the managers to accomplish managerial goals in systematic way.

Out of various profit planning tools, cost volume profit analysis is the most important tools. It is highly essential for the management to have the complete knowledge about the interrelationship among the cost, volume and profit. A study concerning this interconnection is undertaken through cost volume profit analysis.

1.2 Introduction of National Trading Limited.

Trade is one of the major aspects of the national economy. The efficient administration of trade is one primary responsibility of the national government. As trade sector involves imports and exports, both aspects assume importance for the economic development of the country. Imports materials and consumers' goods, which cannot be produce within the country, or which are not available adequately within the country. On the production for the purpose of earning the much needed foreign exchange. Naturally a developing country like Nepal would need the presence of several agencies both in the public and private sector to coordinate the above activities and manage its trade efficiently.

National Trading Limited is under the Ministry of Commerce of Government of Nepal (GoN). It has a Board of Directors, which consists of five members, is responsible for formulating short and long-term policies on NTL's periodical plans, programmers and policies. The Chairman and the General Manager are responsible for the appropriate execution of the plans, programmers and policies formulated and decided by the Board. The chairman and the board member are all appointees of GoN.

The Board of NTL has representation in it's from the most relevant ministries and department of Government of Nepal. Since the Board Member has been drawn from the interrelated Ministries of GoN, this has resulted in easy coordination and efficient decision-making at the policy level.

NTL's organization structure has undergone continuous as per the increasing volume of trading activities, which are also guided by the growing development works under various plan periods as well as because of the ever increasing needs of the people in general for consumer goods. As a result, NTL has a diversified organization structure consisting of eight different departments at central office; it has five regional offices, ten branch offices, and one foreign based office in Calcutta, besides the NTL head office in Kathmandu.

National Trading Limited (NTL) was established as a public limited company in March 1962 A.D. under the Nepal Company Act, in public sector completely owned Government of Nepal. NTL was created in order to canalize commodity aids from the People's Republic of China and USSR with a view to meet the local cost of development projects initiated by these countries through the sale of aids goods in the domestic market. Previously, this function was handled by the Department of Commerce, GoN. Financial resources play very crucial role for the successful operation of an organization like NTL. NTL's authorized capital is Rs.100.00 million and paid up capital of Rs.50.00 million. At present NTL have many branch offices across the country. Its main office is situated in Teku, Kathmandu,Nepal.

The establishment of NTL regulated the distribution of qualitative trading goods at proper price to its customers all over the country. Main products of national Trading Limited's are construction material (cement, roda, etc) machineries and equipment, agro processing machineries; water pumps machine tools, power tools and hand tools, industrial raw material, textiles and fabrics etc.

1.3 Introduction of Salt Trading Corporation Limited.

The controllable transaction of salt in our country has resulted because of artificial shortage of salt from time to time. Moreover an unnecessary increase in price of salt, selling inedible salt to the people created need of an institution to eliminate such situation.

Salt Trading Corporation Ltd. (STCL) was in incorporated in the year 2020 B.S. to regulate supply of salt with the collaboration of government. It has a Board of Directors, which consists of nine members, is responsible for formulating short and long-term policies on STCL's periodical plans, programmers and policies. The Chairman and the General Manager are responsible for the appropriate execution of the plans, programmers and policies formulated and decided by the Board. The investment made by Government, NTL and common people, were rupees 202000; 100,000 and Rs. 1,000,000 respectively. It has authorized capital of Rs. 1,000,000,000, issued capital Rs.1,000,000,000 and paid up capital of Rs. 2,4777,700. At present STCL have many branch offices across the country. Its main office is situated in Kalimati of Kathmandu.

The establishment of STCL regulated the distribution of qualitative salt at proper price to its customers all over the country. Especially Salt Trading Corporation Limited is working for edible salt. It provides salt containing iodine, oil, ghee, sugar, flour, item, tyre, tube, fertilizer rice, cement, dal, tea, wheat, coal and other product throughout the country.

1.4 Statement of the Problem

Nepal is primarily an agrarian economy where more than 65 %(as per 2058B>S) of the economically active population is estimated of be involved in agriculture and this sector's contribution is still significant in GDP. Economic growth of the country has not improved substantially over time to overtaken population growth. The contribution of non-agricultural activities is gradually increasing GDP.

Industrialization is an effective means of achieving economic development. it is the major hope , which can raise the living standard and provide better qualities of life in the country. In the absence of industrialization, Nepal's problems like poverty, insecurity and overpopulation cannot be solved (Pradhan, 1984,14) . The center problem of economic development of the background countries is industrialization. It is one of the major tools with the aid of which the vicious circle of background and poverty can be broken

(cuker, 1974,9) . it is also a major instrument of progress, modernization and social change in developing countries (UNDP,1974,1)

The industrialization and trading process in Nepal is being developed very slowly in spite of various attractive policies of the government in respect of this sector. New investment made in trading sectors is not satisfactory. Most of the trading organizations are operating in losses and such condition of the established trading business discourages the new investment trading sectors. There may be various and different reason for the poor performance of trading organizations. Such reasons must be investigated and must be taken corrective measure for the improvement of their performance.

Salt Trading Corporation Limited and National Trading Limited are established under the joint public and private ownership and government as a service oriented trading business. A huge amount of investment was made but the performance of the company is not satisfactory.

Salt Trading Corporation Limited and National Trading Limited are facing various problems like labor strike, political instability, lack of perfect management, lack of perfect marketing information, So, this study is basically designed to solve the following problems by taking into account the budget's role in planning the profit..

1. What are the relationship between cost, volume and profit?
2. How will profit be affected when sales mix is change?
3. Whether or not the present accounting system furnish the necessary data required for CVP analysis?
4. Which part (i.e. CM, BEP and MOS etc) of CVP analysis is mostly practiced and which are not practiced till how?
5. What sales volume is required to meet break even?
6. What will be the sales volume to earn a target profit?
7. What are the major difficulties in the application of CVP analysis?
8. What are the major strengths & weaknesses and risks of the company?
9. What is the policy adopted by this company for achieving the target result?
10. Which product or operation of a plant should be discontinued?

1.5 Objectives of the Study

The main objective of this study is to observe the relationship between "Cost-Volume-Profit" of Salt Trading and National trading. The specific objectives of this study are following.

- To study the relationship among cost, volume and profit
- To analyze cost and profit and loss of STCL &NTL.
- To analyze the impact of cost-volume-profit on the company is productivity.
- To assess break-even point of overall firm.
- To calculate profit resulting from a budgeted sales volume.
- To provide suggestion and recommendations for improving the condition of Salt Trading Corporation Limited and National Trading Limited.

1.6 Significance of the Study

This study will be significant in the following way.

- ❖ It will find out difference in cost, volume and profit and its impact in the break-even point.
- ❖ It will provide literature to the researchers, who want to conduct further research in this field.
- ❖ It will provide information on the application of the tools under profit planning in different situations.
- ❖ It examines the application of cost –volume-profit analysis in the organization.
- ❖ It will useful to the manager, accountant, policymaker and planners.
- ❖ This study helps to identify the weakness and threats of the company.

1.7 Limitations of the Study

The study is suffered from the following limitations.

- ⁾ This study is confined only on Cost-Volume-Profit analysis of Salt Trading Corporation and National Trading.
- ⁾ The study covers a period of last five years data.
- ⁾ This study would base on primary and secondary data.
- ⁾ The accuracy of this study is based on true response and the data available from management of the company.
- ⁾ This study will only concerned with fulfillment of the partial requirement in Master of Business Studies.

1.8 Organization of the Study

This study has divided into five different chapters given as below:

Chapter 1 - Introduction.

This chapter is introduction framework that includes background of the study, brief introduction of the company, statement of the problem, objective of the study, significance of the study, limitations of the study and organization of the study.

Chapter 2- Review of Literature

This chapter is concerned with 'Review of Literature". Reading material in this chapter are conceptual review of theories and journal and review of previous related studies.

Chapter 3 - Research Methodology

This chapter consists of "Research Methodology" adopted for the study and include research design, data collection procedures and data analysis tools.

Chapter 4- Presentation & Analysis of Data.

This chapter comprises of data presentation & analysis of collected data and information. For this purpose various analytical tools will be used.

Chapter Five - Summary, Conclusion and Recommendations.

This chapter is concerned with the output of the study in the form of summary, conclusion and recommendations. Finally list of bibliography, appendix and viva-sheet have also been included at the end of this study.

CHAPTER-II

REVIEW OF LITERATURE

Introduction:

The purpose of review of literature is to develop some expertise in one's area to see what new contribution can be made and to receive some ideas for developing a research design. Their relevant finding issues, arguments logics and suggestion, which give a glimpses guide line to go further profundity of the study. This continuity in research is ensured by linking the present study with the post research studies.

2.1 Concept of Profit Planning and Control

"Comprehensive profit planning and control is a systematic and formalized approach for accomplishing the planning, co-ordination and control responsibilities of management" (Welsch 1984). "A profit planning or budget is the formal expression of the enterprises, plan and objective, stated in financial terms for a specified future period of time" (Pandey 1989).

Profit planning and control is an important approach, mainly in profit-oriented enterprises. Profit planning is merely a tool of management. it is not end of management of substitute of management. It facilitates the managers to accomplish managerial goals in a systematic way. Profit do not just happen, profits are managed. When an organization's management plans its profit, it is known as profit planning. It is an overall planning process of an organization.

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

Profit means excess of company's revenue over the expenses of producing revenue in a given fiscal period. It is a primary measure of success of a company. Groy, Jack and Johnston, Kenneth's, State that "Profit is the primary measure of business success in an economy. If a firm can not make profit, it can not obtain capital;

it can not secure and retain other resources, such as, manpower, materials and machines etc. In other words, the more profitable enterprises are more attractive to the holders of the available capital. Since, these enterprises can attract capital they have the money needed to buy other resources. The key here is that capital and other resources are scare, they are allocated to the profit makers in roughly descending order of their profit potential" (Groy, jack and Johnston, Kenneth's, 1973).

Planning is the first stapes of management and other functions are performed within the framework of planning. Planning means deciding in today what is to be done in future? or Planning means arrangement for doing or using something or considering in advance. It operates as the brain center of an organization. It includes establishing objectives, developing premises about the environment, selecting, and course of action, initiating necessary activities and re-planning. Planning constitute the main portion of a comprehensive profit planning system. Gary, Jack and Ohn Ston, Kenneths, state that "The primary purpose of planning in business it's to take of care the chances of making a profit. The budget is the operating planning, documents, committed performance budgets are called profit plan. Each manager and subordinate is responsible for the operation of profit plan. Since, each manager and subordinate has the authority, in varying degree to make decisions which will affect the profit of the firm, he has commensurate responsibility for making decision, the result of which will most nearly accomplish or better his budgeting target" (Groy, Jack and Johnston, Kenneths 1987).

Control can be defined as the process of measuring and evaluating performance of each organizational components of an enterprise and initiating corrective action when necessary to ensure to efficient accomplishment of enterprises goal, objectives, policies, and enterprises. Control is the one of the most important technique of management. Once the planning is determined, it must be carried out under control. Controlling share management activities and for this managers can compare actual performance against the planned budgeted activities and find out the deviations taking remedial steps to remove the deviations to make an improvement in the performance because promptness is the essence of an effective control.

Profit planning is a forward planning and involves the preparation in advance of quantitative as well as financial statement to indicate the intention of the management in respect of the various aspects of the business. Profit planning in fact is a managerial technique and it is a written plan in which all aspects of business operations with respect to definite future period are decided. It is a formal statement of policy objective and goal established by the management for some future period. Profit planning is a predetermined detail plan of action developed and distributed as a guide to current operation and as a partial basis for the subsequent evaluation of performance. Thus, it can be said that profit is a tool which may be used by the management in planning the future courses of action and controlling the actual performance.(Gupta 1987)

2.2 CVP Analysis

Cost Volume Profit (CVP) analysis is an analytical tool for analyzing the relationship among cost, price, profit, sales and production volume. It is one of the most important and powerful tools that managers have at their command in short term planning. There are three elements in CVP analysis. They are cost, sales or production volume, and profit. All these terms are interconnected and dependent on one another. Profit planning is the function of the selling price of product and units sold. The entire amount of profit planning is associated with CVP interrelationships. CVP analysis is the technique that explores the relationship which exists between costs, revenue and output by showing the effects on profit of changes in selling prize or services fees, costs, income tax rate and product mix CVP analysis provides the management with a comprehensive overview of the effect on revenue and cost of all kind of short-term financial changes.

C-V-P analysis is a systematic technique of summarizing the effective of changing in activity and change in total sales revenue, cost and net profit. As a model of this relationship, CVP is powerful and helpful tool for managerial decision making, cost control and profit planning in certain situation. Profit planning is the function of

selling price of product, demand, variable cost, fixed cost, taxes. Management plans future operation by using CVP analysis for estimation of selling price per unit, variable cost, fixed cost and sales volume. CVP analysis helps manager to see in advance to set different strategies and decision of business activities. The aim of CVP analysis is to have correct estimate of fixed cost, total revenue and profit.

C-V-P analysis applies marginal or variable costing approach while establishing the effect of the future course of activities on the financial results of the firm. Perfect knowledge of cost behaviors in responses to change in volume and how profit behave in response to change in cost and volume helps management to make numerous short term optimal decisions relating cost control and profit maximization.

2.3 Importance of CVP Analysis

Planning, controlling and decision making are the essential management functions. CVP analysis helps managers to prepare plan for profit, to control cost and to make decision. It helps (Munnakarmi, 2003)

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

2.4 Purpose of CVP Analysis

Cost volume profit analysis helps in a number of ways. The following purposes are served by it (Dangol 2004)

- To know the breakeven point (BEP) for changing in cost and selling price.
- Choosing the most profitable alternatives.
- Measurement of effect of changes in profit factors.
- Determining the optimum sales mix.
- Calculation of profit resulting from a budgeted sales volume.
- Effect of changes on price, cost and profits.
- Long term decisions on continuance of products.
- Make or buy decision on sub-assemble or part.

2.5 Assumptions of CVP Analysis

CVP analysis is a vital technique that provides supplementary information for profit planning. Every business starts with the target of break even and after that it aims to earn profit over its life. So break even analysis is the most useful technique of profit planning and control. it is a device to explain the relationship between cost volume and profit .The business firm passes through many ups and downs. CVP analysis helps to plan for every set of goal in short term. But CVP analysis encompasses the following assumptions. (Bajracharya & Ojha 2004,).

a. Classification of All Costs as Variable, Fixed and mix cost.

While developing and applying CVP analysis in BEP analysis it assumes that all cost can be classified into fixed, variable and mix costs. In fact, it is extremely difficult to identify each and every cost into fixed, mix and variable. Costs are recorded in traditional types in developing countries thus it makes very hard to segregate costs into fixed, mix and variable. Moreover flexible policy of company also makes it more difficult to exactly identify the costs as fixed, mix and variable. If one fails to identify the cost as fixed and variable, the application of CVP analysis become almost impossible.

Variable cost;

These costs tend to very in direct proportion to the volume of output. When volume of output increases, total variable cost also increase and when volume of output decreases, total variable cost also decreases but the per unit remain same. It includes direct material, direct wages, power, royalties, normal spoilage etc.

Fixed cost;

These costs remain fixed in total amount and not increase or decrease when the volume of production changes. But the fixed cost per unit increases when volume of production decreases and vice- versa. Fixed cost per unit decreases when the volume of production increases. It includes rent and leaser, tax manager's salaries, salaries etc.

Mixed cost:

There are partly fixed and partly semi variable costs has often a fixed element below which it will not fall at any level of output. The variable element in semi variable cost changes either at a constant rate or lumps. For example introduction of an additional shift in the factory will require additional supervision and certain cost will increases in lumps. It includes supervision expenses, lighting and power, telephone expenses, depreciation etc.

b. Linear Behaviors of Cost Within the Relevant Range

CVP analysis assumes that the total fixed costs do not change in short run within relevant range. Total variable costs are exactly proportionate to sales volume. But in reality cost behavior may not remain same with the change in the volume of output because of change in production set up. With more or less purchase, material cost per unit change due to quantity discount. Costs change over time due to inflation. BEP units and other variables of profit function do not remain constant over time.

c. Treatment of Step Fixed Cost

The relevant range for many costs is very short. In that case it becomes very difficult to compute the required volume, because it becomes difficult to identify the relevant range volume.

d. Constant Selling Price for any Volume in the Short run

The selling price per unit remains constant, it does not change with volume or because of other factor in need, and selling price per unit is affected by quantity discount for different lots of production. Thus makes it difficult to determine the CMPU and CM ratio.

e. No Effects of Size of Inventory on Net Income

The application of CVP analysis is possible only under variable costing because inventorial product cost on all production and sold volume remain the same. CVP analysis doe not work under full costing method where inventory changes affect inventory value because of allocation of fixed manufacturing overhead.

f. Single Product or Constant Sales Mix

CVP analysis assumes that either a single product is sold or, if more products are sold where the ratio of each product on total sale will be in accordance with a predetermined sales mix. But in real situation, sales mix does not remain constant. This makes the application of CVP analysis impossible in case of multi-product company.

g. Short-term Time Horizon

CVP analysis is a Short term planning tool because nothing remains stable in the long term. In the condition of changing conditions, the ratio of CVP variables may differ.

It is essential that anyone preparing or interpreting CVP results should be aware of the underlying assumptions. It these assumptions are not recognized, serious error may result and incorrect conclusions may be drawn from the analysis.

2.6 Application of CVP Analysis in Profit Planning and Control

Some people say that comprehensive profit planning and control is applicable only to large and complex organization. Usually it is commented that "comprehensive budgeting is fine idea for most businesses but ours is different" of 'it is impossible to project our revenues and expenses", and so on. Sometimes specific industries are view end as not amenable to profit planning and control. These views are common regarding non-manufacturing enterprises- service companies, financial instauration, hospitals, certain retail business, construction companies and real-estate enterprises. to the contrary, profit planning and control can be adapted to any organization (profit or non-profit, service or manufacturing, regardless of size, special circumstance, or conditions). The fact that a company has peculiar circumstances or critical problem is frequently a good reason for the adoption of certain profit planning and control procedures. In respect to size, when operations are extensive enough to require more than one or two supervisory personnel, there may be a need for profit planning and control applications. The smaller company certainly has different needs in this respect than a larger one. As with accounting single profit planning and control system that is appropriate for all enterprises cannot be designed. A profit planning and control system must be tailored to fit the particular enterprise, and it must be continually adapted as the enterprise and its environmental change.(khagendra P. Ojha and Gautam, 2008;9)

2.7 Special Problem in CVP Analysis

Cost-Volume-Profit analysis is applied to individual product or part of a business and all the products or activities combined. Although cost-volume-profit analysis is the important tool for planning and control there are some special situations which create problems in break even analysis, they are:

1. Multi-Product Break Even Analysis

Incase of multi Product Company, breakeven analysis creates problem because unit of measurement may be different. In this situation, for calculation of break-even point, a common activity base should be taken. For example, measurement unit of one of the products is in kgs, and another product is in liters. Then in this situation addition of these two products seems somewhat in realistic. To solve these types of problem in cost-volume-profit analysis one should take a common denominator as activity base. Generally amount in rupees considered appropriate base for CVP analysis in multi Product Company.

2. Inventory Change

Usually the budget charge in inventories (that is finished goods and work in process) are immaterial in amount and thus may be disregarded in cost volume profit analysis. On the other hand, when the change in budgeted inventory is significant it should be included in the analysis.

Including the effects of cost volume profit analysis required subjective judgment about the effect of change is,

a. What management might do (about to making inventory changes) at different volume level.

b. The conceptual precision that is desired.

We will consider two practical approaches other used:

a. Disregard the inventory change

b. Include the inventory change

3. Non-operating Expenses and Income;

Non-operating income and expenses are non-recurring items. Items except sales purchase and related income and expenses are non operating items. As these are casual items, these items create problem in cost volume profit analysis. In these items are immaterial in value then these should be excluded from CVP analysis but if they are material in value then these item should be included in CVP analysis. While

treating non-operating income and expenses, income should be deducted from operating cost. Another way of treating non-operating income and expenses is with fixed operating costs. If income is excess over expenditure, deduct net income from fixed operating costs. Similarly, if expenses are excess over income, add excess expenses to fixed operating costs. Adjusted fixed operating cost is to be taken for calculating cost volume profit analysis.

2.8 Approaches to Cost-Volume Profit Analysis

The CVP relationship can be analyzed through different approaches. Which are described as below.

I. Contribution Margin Approach.
II. Cost and Revenue Equation Approach.
III. The Graphic (break-Even Chart) Approach.

2.8.1 Contribution Margin Approach

The term contribution has a special meaning in account and can be said to be the difference between the sales value and variable cost. The definition applies equally to one unit as to a product line or service. Contribution is therefore a kind of profit before all the fixed costs are taken into account, and probably lies somewhere between gross profit and net profit in most organization. (Garaham, Moh 1995, P 119) An alternative approach to CVP analysis is based on the contribution margin as a function of volume. The contribution margin of a unit is the net donation each unit makes towards covering fixed cost. It is calculated as follows. (Fischer, Paw M and Frank, P.N. 110-111)

Contribution margin can be presented as;

a. Contribution margin= Sales – Variable Cost
b. Contribution Margin = Fixed Cost + profit
c. Profit = contribution margin –Fixed Cost
d. Contribution Margin Per Unit = Selling Price Per Unit –Variable Cost Per Unit

The contribution approach should be used only within the ultimate relevant range since it nets revenue against cost. Contribution margin is usually expressed as

percentage sales which are known as contribution margin ratio or profit volume ratios. That is:

$$\text{CM Ratio (PV Ratio)} = \frac{\text{Contribution margin}}{\text{selling price}}$$

$$\text{CM Ratio (PV Ratio)} = \frac{\text{Fixed Cost } \Gamma \text{ Profit}}{\text{Sales}}$$

$$\text{CM Ratio (PV Ratio)} = \frac{\text{Sales - Variable Cost}}{\text{Sales}}$$

$$\text{CM Ratio (PV Ratio)} = 1 - \frac{\text{Variable cost}}{\text{Sales}}$$

$$\text{CM Ratio (PV Ratio)} = \frac{\text{Different in profit of two periods}}{\text{Different in sales of two periods}}$$

Total contribution margin will change if any one of the following variables changes.

a. Volume (unit sold) b. Sales Price, or c. Variable cost ratio

2.8.2 Cost and Revenue Equation Approach

The cost and revenue equation approach is based on income statement concept. it represents the most convenient and accurate to cost-volume- profit analysis. The various formulations in CVP are deriving from the revenue and cost function .the relationship between cost, volume and profit can be expressed as;

Profit= Total Revenue- Total Cost

Total revenue and total cost are affected by sales volume. The additional of quality in above equation will provide useful information to find out the effect of revenue. so we can derive further equation

Profit= Total Revenue- Total Variable Cost- Fixed cost

Or, $P=(S \times Q) - (V \times Q) - FC$

Or, $P = Q(S - V) - FC$

Where, P =Profit

Q=Sales units

S= Unit selling Price

V= Unit Variable Cost

FC= Fixed Cost

2.9 Break-Even Analysis

Break-even analysis is the term used to study the relationship between cost, volume and profit at various level of activity. It is the most widely known form of the CVP analysis. Break-even analysis is a special case of CVP analysis (Dangol, R.M. 2058, P. 501)

Break-even analysis uses the same concepts as contribution analysis; however, it arises at the level of output or productive activity at which sales revenue exactly equal to 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. (Welsch, 1999,)

The break- even point used under break-even analysis. Break-even point is the level of activity where total cost is equal to total sales. it is specific level of activities or volume of sales , which breaks the revenue and costs evenly. it is point if the sales it of 'no profit, no loss' if the sales or production is higher than breakeven volume, there will be profit .in the same way if the sales is less than break even sales, there will be a loss.

(A) Computation of Break-even Point (BEP)

The break-even point is that point where total revenue equals total costs incurred. Thus it is the point after which a company begins to earn a profit. There is neither a profit nor a loss at the BEP. Management must determine the break-even point in order to compute the margin of safety. When planning new venture or product lines, management finding the projects BEP. Break- even point can be determined by following method.

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

a. Income Statement Method

Contribution margin is the excess of sales over the variable costs related to a particular sales volume. A product line's contribution margin represents its net contribution to paying off fixed costs and to profit. At break- even sales, the company just break even i.e. recovers all of its costs. Break even analysis helps the management to know which sales volume will only recover its cost and after which it starts giving profit.

Actually C.M. is the excess amount of sales over all variable costs related to a particular sales volume. And contribution is the remaining amount, when variable costs and fixed costs are subtracted from sales revenue. The following equation shows the difference between two terms.

Contribution Margin = Sales – Variable Costs.

Contribution = Sales-Variable Costs – Fixed Cost

Income statement for calculation breakeven point

Sales revenue	xxx
Less: Variable cost	xxx
Contribution margin	xxx
Less: Fixed cost	xxx
Profit	Nill

b. Formula Approach:

The BEP can be computed in term of units, or in terms of monetary value (i.e. rupees, dollars, or pounds) of sales volume or as a percentage of estimated capacity.

So that BEP can be determined by the use of formula. According to the definition of break-even point, it is such a level of sale or activities, where there is neither can be determined by the use of formula. According to the definition of break- even point, it is such a level of sale or activities, where there is neither profit, nor loss. It is that level of sales, where total cost is equal to total sales revenue. It can be shown in equation form in the following way.

Sales Revenue = Total Cost

Sales Revenue= Fixed Cost+ Variable Cost

Where

Sales revenue = Selling price per unit sales units

Total cost = fixed cost + (variable cost per unit x sales unit)

Now

Sales Revenue =total cost

i.e. S x Q =FC +(V x C)

OR, (S x Q) –(V x Q) =FC

OR, Q(S –V) =FC

Q = FC/ (S- V)

Where, Q = Break – even point in units

FC = Fixed cost

S = selling price per unit

V = Variable cost per unit

The breakeven point may be calculated for a single product firm in tw0 terms.

a. units break- even point

b. Rupee break- even point

The break-even point will occur when enough units have been sold so that the contribution is just equal to total fixed costs. At the break-even point, profit is zero. The contribution margin per unit is the difference between selling price per unit and variable cost per unit, total contribution margin is equal to unit contribution margin multiplied by units sold and profit is derived when fixed costs are subtracted from total contribution. Thus,

Unit Contribution Margin = Unit Selling Price- Unit Variable Cost

Total Contribution Margin = Unit Contribution Margin x Units Sold

Total Contribution Margin = Total Fixed Cost + Profit

At BEP, profit will be zero and therefore, total contribution margin will equal to total fixed costs. The BEP in terms of units can be computed by

$$\text{BEP (in Units)} = \frac{\text{Total Fixed Cost}}{\text{Selling Price Per Unit - Variable Cost Per Unit}}$$

The break-even point for a single product firm can also be calculated in terms of rupee, value of sales volume, which is as follows:

$$\text{BEP in Rs.} = \frac{\text{Total Fixed Cost}}{1 - \frac{\text{VCPU}}{\text{SPPU}}}$$

Where,

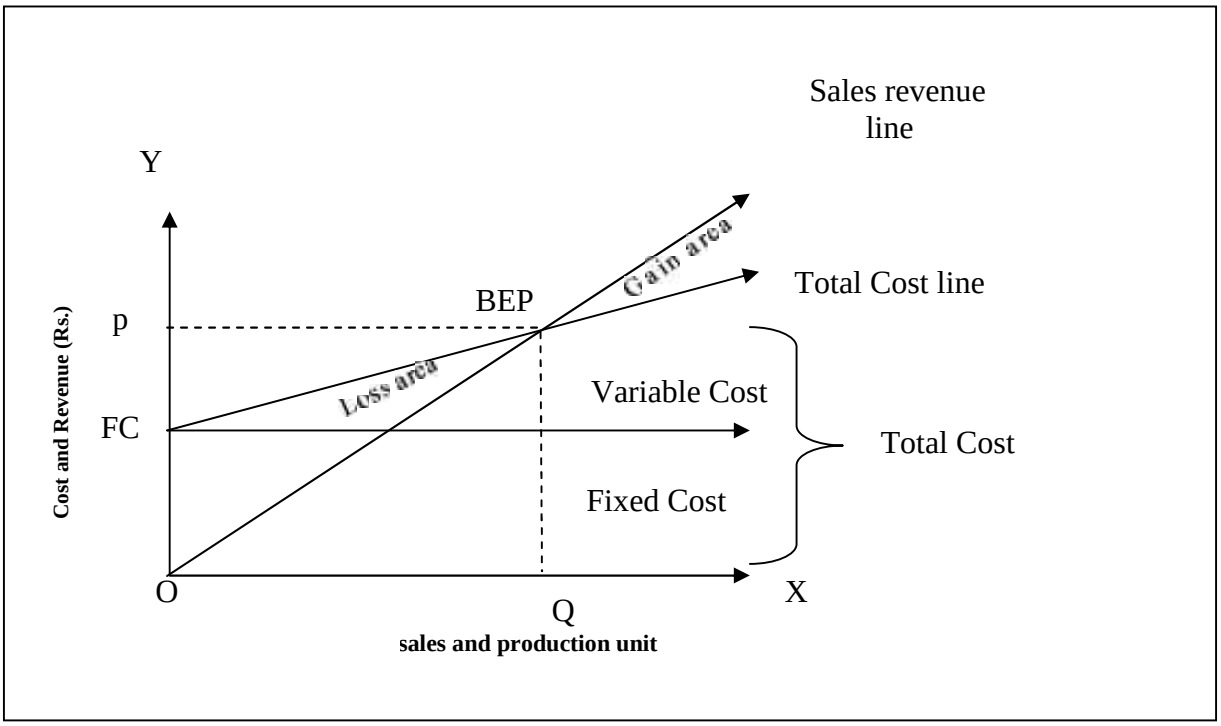
VCPU = Variable Cost per Unit

SPPU = Selling Price per Unit

c. The Graphic Approach:

A break-even chart is used to graphically depict the relationship among revenues, variable cost, fixed costs and profit or losses. The no profit, on loss (the break-even point) is located at the point where the total revenue lines cross. Below this point, the firm losses and above this point, the firm earns profit. (Bajaracharya, ojha,goet and Sharma,2004,231&232).

Figure No. 2.1Graphic Approach to CVP



In the graph given above the fixed cost remain constant without the relevant range; the fixed cost curve is parallel to 'ox' axis. Variable cost slope downward from the origin but the slope depends on variable cost ratio. The fixed cost curve parallels the variable cost curve. So the angle 'o' equals the angle 'v' it is because total cost =total fixed cost plus total variable costs at volume 'Q'.

The following steps are involved in constructing the BE chart.

1. **Sales Line:** Sales volume is plotted a horizontal axis. Sales volume may be expressed in terms of rupees, units or as a percentage of capacity, equal distances are cut along the horizontal line to show sales volume at different activity levels.
2. **Cost and Revenue Lines:** Vertical axis is used to represent revenue and fixed and variable cost. The vertical line is also spaced in equal parts. A similar vertical line may be drawn on the right hand side of the chart to complete the square.
3. **Fixed Cost Line:** The FC line, parallel to the horizontal axis, can be drawn through the fixed cost point.
4. **Sales and Cost Line:** OX represents sales revenue in Rs. OY represents total cost as well as revenue. OF denotes the amount of fixed Costs. As the increase or decrease in sales does not have any effect on the amount of fixed cost, the fixed cost curve is parallel to X-axis.
5. **Angle of 45:** If the vertical and horizontal lines are spaced equally with the same distances, sales line will connect the opposite corners of the graph at angle of 45 degree.

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

(B) BEP as a Percentage of Capacity

Many organizations are concerned to compute the break even point as a percentage of the estimated sales or capacity. This can be taken out by dividing the break-even sales by the estimated sales or capacity. For this following formula can be Appling:

$$\text{BEP (\% Capacity)} = \frac{\text{BEP in Units}}{\text{Estimated Sales or Capacity in Units}} \times 100$$

(C) Cash Break-Even Point

The BEP tells what volume of sales which necessary to cover all operating expenses. If sales are maintained at the BEP then the company will neither earn profit nor will suffer from losses. While computing cash break- even point the company can exclude depreciation and other non cash expenses in the short run. Only cash items are included in fixed costs to calculate cash BEP.

$$\text{Cash BEP} = \frac{\text{FC - Non Cash Expenses}}{\text{SPPU - VCPU}}$$

OR,

$$\text{Cash Break Even Point} = \frac{\text{Cash Fixed Cost}}{\text{Cotribution Margin or P/V Ratio}}$$

2.9.1 Margin of Safety

Margin of safety is the actual or budgeted sales over the break-even sales volume. In other words, it is the difference between the budgeted or actual sales revenue and break even sales revenue. The margin of safety (MOS) can be expressed as

Margin of Safety =Actual sales value –break-even sales value

$$= \frac{\text{profit}}{\text{profit vol ume ratio}} \text{ in amount}$$

$$= \frac{\text{profit}}{\text{unit contributi on margin}} \text{ in amount}$$

The relation between of safety and actual sales is known as margin of safety ratio. This is determined as follows.

$$\text{Margin of Safety Ratio} = \frac{\text{Budgeted Sales - BE Sales}}{\text{Budgeted Sales}}$$

Managers often consider the size of the company's margin of safety when making decisions about various business opportunities. The larger is the safety margin, the greater is the chance for the company to earn profit. A high margin of safety is particularly significant in times of depression when the demand if the company's or firm's product is falling. a low margin of safety Company's or firms which has a low contribution ratio. when both the margin of safety PV ratio are low, management should think of the possibilities of increasing the dealing price, provided it does not adversely affect the sales volume or reducing variable costs by bringing improvement in the manufacturing process. (Munakarmi, 2003)

2.10 Cost Volume Profit Analysis for a Multi-Product Firm

The relative proportion of sales of product is called the sales mix or product mix. In the case of multi-product firm, the contribution for each product can be found out by deducting its variable costs from sales revenue. The break-even point for each product can be calculated only if the total fixed costs of the firm are distributed and fixed cost for each product is known. The firm's overall breakeven point can be calculated by dividing the total fixed costs by the contribution ratio for the firm. The multi-production firm's p/v ratio's for all the product sales. The P/V ratio for the multi-product firm can also be calculated by dividing the total contribution from all products by total sales.

A change in the product mix will not affect the firm's break-even point if each product has the same PV ratio. However a change in the product mix will change the break- even point and profit when products have unequal P.V ratio (Maheshor, 2000)

2.11 BEP For Sales Mix/ Multi-Product

In multi-product firm, we have to calculate BEP in aggregate. The sales mix is used to compute a weighted average unit contribution. This is the average of the several products unit contribution margin weighted by the relative sales proportion of each product. The following procedures are followed to calculate BEP for sales mix/multi- product.

Calculate PV ratio for each product.

Calculate proportion of sales mix in units and values as follows:

$$\text{Sales mix} = \frac{\text{Individual product's sales unit or value}}{\text{Total of all products sales units or value}}$$

Calculate weighted average for all products as follows;

= Sales mix (units) | Units contribution margin

or

Sales mix (units) | PV Ratio

$$\text{Calculate BEP} = \frac{\text{FC}}{\text{Weighted average CM/PV rartio}}$$

2.12 Method of segregating Mixed or Semi-variable Cost.

CVP analysis requires the segregation of all cost into fixed and variables. The division of cost in to fixed and variable cost is known as segregation of cost. There are many method of segregation of the semi-variable cost in to fixed and variable cost. The main methods are as follows; (Maheshwor, 200; 162-165)

a. <u>Level of output compared to level of expenses method.</u>

According to this method, the output at two different levels is compared with corresponding level of expenses. Since fixed cost remains constant, the variable overhead is arrived at by the ratio of change in expenses to change in output.

$$\text{Variable element} = \frac{\text{Change in amount of expenses}}{\text{Change in activity or quantity}}$$

b. Range Method

This method is similar to level of output compared to level of expenses. Expect are considered out of various levels. This method is also called "High-low Method".

Procedures

- Select the highest pair and the lowest pair.
- Compute the variable ratio "b" using the formula.

$$\text{Variable rate (VCPU)} = \frac{\text{Different in cost 'y'}}{\text{Different in activity 'x'}}$$

- Compute the fixed cost as:

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

c. Degree of Variability Method (DUV)

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

d. Scatter Group Method

In this method, the given are plotted on graph paper and line of best fit is drawn , where as semi-variable expenses is plotted on the vertical axis (y axis) and activity measure is plotted on the horizontal axis (x-axis).

Procedures

- The volume of production is plotted on the horizontal axis and the cost is plotted on the vertical axis.
- Corresponding to each volume of production costs is then plotted on the paper thus; several points are shown on it.
- A straight line of best fit is then drawn through the points plotted. This is the total cost line. The point where this line intersects the vertical axis of taken to be the amount of fixed elements.

- A line parallel to the horizontal axis is drawn from the point where the line of best fit intersects the vertical axis. This is the fixed cost line.
- The variable cost of any level can be known by nothing difference between fixed cost and total cost line.

e. Least Squares Method

One of the popular methods of CVP analysis is least square method. it is a statistical procedures for estimating mathematically, the average relationship between the dependent variable (Y) and the independent variable (X). This method dopes include all the observed data and attempts to find a line of best fit. To find the line of best fit, a technique called least square method is used.

It is based on the mathematical technique of fitting and equation with the help of a number of observations. The linear equation can be assumed as:

Y = a+bx and the various sub-equation shall be

$\sum Y = na+b\sum x^2$

$\sum XY = a\sum x + b\sum x^2$

Similarly, the equation can be fitted for any number of order or degree depending upon the number of observations available and the accuracy desired.

Unit variable cost and fixed cost can be computed by using the following formula:

$$b = \frac{N \quad XY - \quad X. \quad Y}{N \quad X^2 - (\quad X)^2}$$

$$a = \frac{Y - b \quad X}{N}$$

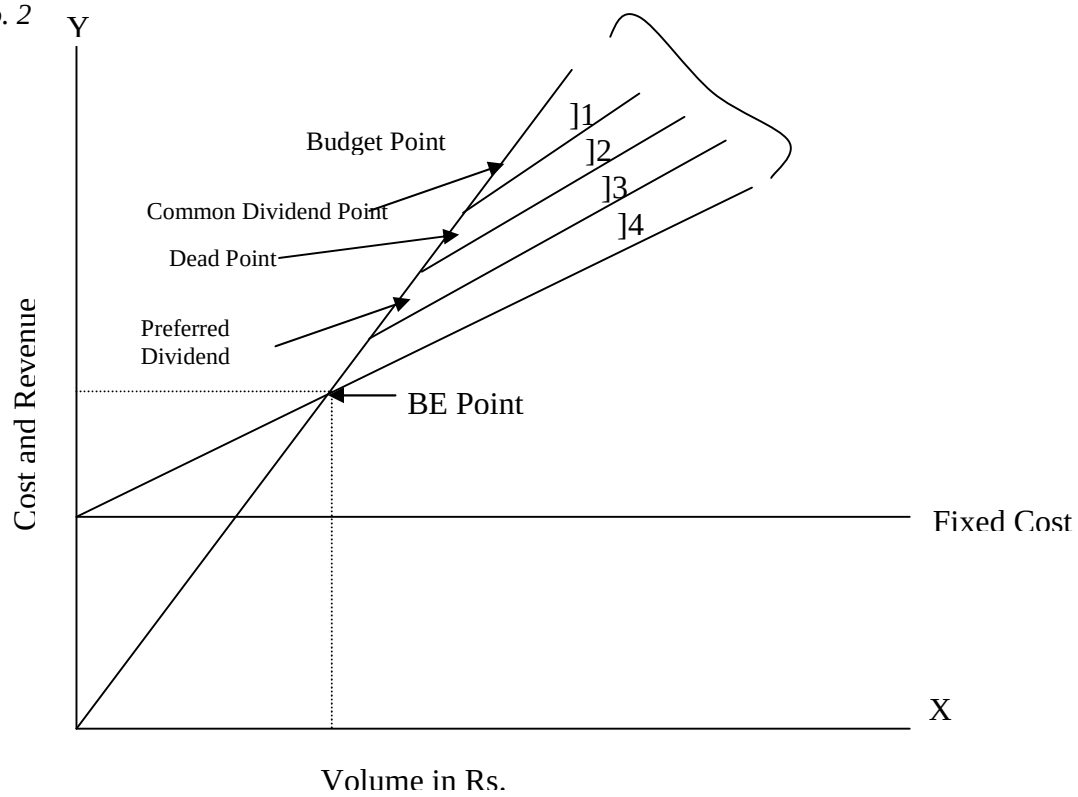
Where,

b =Unit variable cost
a =Fixed cost
N = No. of series
Y= Production Unit
$\sum$ = Sum of variables

2.13 Economic Characteristics of CVP Analysis

"Where cost volume profit analyses are reasonably accurate, they can help management decision making. Essentially, cost-volume profit analysis offers greater insight into the economic characteristics of a company and may be used to determine the approximate effect of various alternatives. CVP analysis is based on estimates, however and the arithmetical manipulations generally involved average. Hence the result should never be interpreted as precise. Rather, analysis maybe used to developed and test with a minimum of effort, the approximate effect on costs and profits of servable types of management decision". (*Welsh, 1979:467-468)*

Figure No. 2



Key:

1.	To retained earnings	3.	Preferred dividend
2.	Common dividends	4.	Income tax (estimated)

The above chart indicates a few of the economic characteristics of business, (Welsch, 1979)

- Fixed costs, variable costs and total costs at varying volumes.
- The profit and loss potential, before and after income taxes, at varying volumes.
- The margin of safety the relationship of budget volume to break even volume.
- The break even point.
- The preferred dividend or danger point, the point below which preferred dividends are not earned.
- The dead point is the point where management earns only the "going" rate on the investment.
- The common dividend or unhealthy point the below which earnings are insufficient to pay the preferred dividends and the expected dividend on the common stock.

CVP Analysis under Constraint or Limited Factors

CVP analysis is helpful in profit planning and a company will be able to produce any number of outputs of its choices (desire). But in real world it is not possible, because of some critical factors like finishing machine or raw material or labor. These critical factors in the CVP analysis are known as constraints.

a. CVP Analysis With A Single Production Constraint

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

In the presence of single production constrain whatever if may be, the correct criterion for judging product profitability is contribution margin per unit of critical factor or scarce resource, not contribution margin per unit. (Wagle, . & Dahal, 2006)

$$\text{Contribution Margin per Unit of Critical Fact r} = \frac{\text{Contribution Margin Per Unit}}{\text{Consumption of Critical Factor (Per Unit)}}$$

b. CVP Analysis with a Multiple Production Constraints

Multiple production constraints exist when more than one resource limits the quantity than can be produced. In the situation of multiple production constraints, contribution margin per unit of scare resource approach used in single production constraints does not work, as ranking of products across different constraining resources will general differ. Instead, linear programming helps us to make an optima allocation or to determine an optimal product mix. Linear programming is a mathematical technique for finding the best uses of a firm's limited resource.

(Wagle & Dahal, 2006)

2.14 CVP Analysis under Condition of Uncertainty

CVP analysis can be used for various proposes. Such as choosing between machine and products, planning of profit and most significantly fixing up of selling price. Management has used this as a convenient tool of profit planning without giving consideration of risk and uncertainty involved in it. Although, margin of safety ratio explains the degree of sensitivity of the product and product in general but it fails to explain the extent of certainty in the product and also between the alternatives. To overcome such a difficulty, risk and uncertainty analysis can also be used in CVP analysis.

Probability distribution approach is a simple statistical tool which may be used to measure the risk and uncertainty involved in CVP analysis. A probability distribution of happening of the event in consideration is used. This may be done either taking into consideration of the experience in the past or may be done by considering the personal intuition of the persons doing so. In business, references of past experience are hardly available therefore a person is likely to behave in the same manner in the similar situation in different time. Personal judgment plays significant role in the management decision making. The condition thus, postulated are assigned probability (i.e. ones judgment towards likeliness of happening of the condition forecasted). It must be understood here that probability assigned here is a subjective probability based in personal judgment of the man making such a analysis (Pandey, 2003).

2.15 Sensitivity Analysis

Sensitivity analysis is the measurement of elasticity if the change in cost, volume and profit factors or break even point or given profit. The strategist should focus more on the factors, which is more sensitivity or responsive for profit. To measure the sensitivity of cost volume profit factor one can see the impact of certain percentage or amount of change in volume, price or cost factors on net profit. In other words, sensitivity analysis is the measurement of responsiveness in outcome with the changes in determinate variables. The goal of business enterprise is to maximize profit which occurs on account of excess of revenue over the total costs.

Net Profit = Total Sales Revenue – Total Cost

= Sales units x SPPU-Sales Units x VCPU – Fixed cost-Taxes

so that, profit =F(sales volume, selling prices, VC,FC, taxes etc) means profit is the function of price, VC,FC, taxes and so on.

But one of the factors remain unchanged, sometimes the manager can intentionally change the price and cost factors as a part of strategic decisions. But the strategy should focus more on the factor, which is more sensitive or responsive for profit. Therefore, to measure the sensitivity of cost volume profit factors, we can see the impact of certain percentage or amount change in volume, price or cost factors on net profit (Bajracharya, Ojha, Goet & Sharma , 2004)

2.16 A Brief Review of Book

"The study of the interrelationship of sales costs and income is usually called cost-volume –profit analysis. CVP analysis examinees the response of profit changes in volume. It relies on linear cost analysis and on linear revenue assumptions. To gain understanding of CVP analysis, the common example of firm which produces only single product will be used. The analysis will be expanded to cover firms with several products by multiple divisions" .(Fish& Frank,2000)

"Cost-Volume- Profit analysis includes the related concepts of contribution analysis and break-even analysis. These concepts entered the mainstream of management accounting starting in the 1930's with major emphasis in the 1950's. Both concepts rest the concept of cost variability many researchers have been made in the (i.e. flexible or variable expenses budgets), contribution analysis involves a series of analytical techniques to determine and evaluate the effects on profit of changes in sales volume, sales prices, fixed expenses and variable expenses. Basically, it applies the concept of a contribution margin income statement. Revenue minus variable expenses equals contribution margin, and contribution margin minus fixed expenses equal profit. Break-even analysis focuses on the breakeven point: fixed expenses divided by the contribution margin equals breakeven sales volume. (At the point profit is zero because revenue equal total cost). The result of breakeven analysis is usually graphed to show the relationships between revenue (i.e. sales), fixed expenses, and variable expenses, within a relevant range of sales volume" (Welsh,Hilton &Gordon,1992;531)

Review of the Related Studies

There are few, research paper concerning in cost volume profit analysis. Many researchers have been made in the area of profit planning and control and management accounting in Nepalese Context. As profit planning and control and management accounting cover major of the aspects of cost volume profit analysis, researchers made on these areas are taken into consideration for the sake of review to examine profit planning and control and management accounting practices in Nepalese Companies. An attempt is made here to review some of the researches, which have been submitted on profit planning and control and management accounting in the context of Nepal.

Mr. Madav Rijal(2005)

A study done by Mr. Madav Rijal had studied on the topic "Cost Volume Profit analysis to measure the effectiveness of profit planning and control (a case study of Nebiko Pvt. ltd) . The study was based on both primary as well as secondary data and analysis was based on only five year data.

The main objectives of that research analysis are as follows.

- To study stud relationship of cost volume and profit as an applicable tools of budgeting.
- To evaluate the stability, financial and sensitivity of Nebico;s activities.
- To analysis the cost volume and profit of the company and its impact in profit planning.
- To provide suggestions and recommendation for improving Nebico's condition.

Mr.Rijal had pointed out some major finding in his research.

- The company's sales trend has fluctuation but not satisfactory trend of increasing.
- The company’s variable cost is in high proportion than fixed cost in comparison with total cost.
- NEBICO has no many plans to reduce cost.
- The profit trend of the company was not satisfactory.
- The company had no effective inventory policy.
- There were not effective sales forecasting techniques.
- Net profit margin profitability ration and other things were not satisfactory.
- The company has not utilized its full capacity.
- CVP relation is not considering whale developing sales plan production plan and pricing strategy.

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

- ✓ NEBICO should consider BEP analysis while preparing sales plan, production plan and setting the price of its product.
- ✓ Classification of expenses as variable and fixed or controllable or uncontrollable must be made within a specific framework of responsibility and time.
- ✓ Cost control department separately established which is divided the cost by production and control the cost.
- ✓ CVP analysis and PPC manuals should be communicated from tope to lower levels.
- ✓ As company as unable to generate more profit as per investment made in fixed cost, company should put address on effective utilization of fixed cost.
- ✓ All personnel should be participated on decision making and planning process.

Mr. Namdak, Tenzi (2005)

Mr. Tenzi Namdak has submitted the thesis on the topic "CVP analysis of Dairy Development Corporation". The main objective of this thesis is to determine the relationship between cost, volume and profit and profitability of the DDC. His sub-objectives to achieve the main objectives are as follow:

-) To study the relationship between cost, volume and profit as a tool of budgeting.
-) To evaluate the profitability and sensitivity of DDC in relationship to sales.
-) To analyze the corporation and its impact on its profit planning.
-) To analyze the productivity of the labor by using different productivity ratios.
-) To provide necessary suggestions and recommendations, whatever necessary base on findings.

His major findings are as follows:

-) DDC has been planning only on short terms basis.
-) The practice of CVP analysis has not been used yet.

- There is not practice of segregating cost into fixed and variable.
- DDC has low contribution margin with high variable cost.
- The profitability of the DDC is also very poor.
- All the levels of management are not involved in profit planning and decision making of the corporation.

Mr. Chaturbhuj Aryal (2006)

Mr. Aryal has conducted a research entitled "CVP analysis as a tool of measures effectiveness of PPC". (A case study of Herbs Production and Processing Co. Ltd.)

He had conducted the research with the following objectives.

- To analyze the variance between target and actual sales of HPPCL.
- To evaluate the profitability financial position of HPPCL.
- To provide suitable suggestions and recommendations based on the analysis for improving of HPPCL's condition etc.

He used primary and secondary sources for the collection of seven years data from FY 2054/55 to FY 2060/61 for analysis.

His major findings are as follows:

- Budgets were prepared on traditional method.
- HPPCL has burden of management and administration influencing the profitability.
- HPPCL adopted traditional pricing method to determine price, which may not-be appropriate in today's competitive market.
- There were not practices to separating cost into fixed and variable. The costs are roughly classified and that classification is not an appropriate. Thus, it is difficult to use financial tools, like as flexible budget, CVP, cost of goods sold and degree of operating leverage and profit margin ratio.
- HPPCL is suffering from huge losses; so in every year has negative net profit margin ratio.
- Profit volume ratio of the company is in fluctuated trend, which effects on BEP of the company.

- Margin of safety of the company is negative trend. So company could not sold property and suffering from losses.
- BEP of the company is analysis higher than actual sales. So the company should not maintain its expenses.

Mr.Udya Kumar Dahal (2006)

Mr. Udya Kumar Dahal studied on the topic of "Cost Volume Profit Analysis as a tool to measure the effectiveness of profit planning with special reference to Dabur Nepal Ltd." This was submitted to Nepal Commerce Campus, TU in partial fulfillment of Master's Degree in the year 2006.

The main objective of the research was:

- Examine the variance between target and actual sales and production.
- To show the capacity utilization of Dabur Nepal Ltd.
- To forecast future production and sales.
- To analyze financial performance.
- To analyze the CVP of company and its impact of profit planning.
- To analyze the trend of profit over the time covered by the study.
- To provide recommendations and suggestions 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 been given as below:

- Dabur Nepal Pvt. Ltd. constitutes lack of adequate inventory policy.
- No control over external factor i.e. it has poor SWOT analysis.
- Dabur Nepal Pvt. Ltd. does not prepare strategic and policies for long term.
- Dabur Nepal Pvt. Ltd. is not able to coordinate among various departments.
- Dabur Nepal Pvt. Ltd. not prepares raw material requirement budget and raw material purchase budget systematical.

The researcher also provides the following recommendations:

- CVP analysis should be considered while formulating profit plan.
- Profit planning manuals should be communicated from top level to lower level.
- The company management should look carefully into the basis of setting target for sales and achieving those targets meaningfully.
- Dabur Nepal Pvt. Ltd. should focus on the relationship between expenditure and benefit, expenses planning and controlling in necessary to obtain companies goals.
- The company should prepare raw material budget and production budget scientifically.

Dilip Kumar Jha(2008)

Mr. **Dilip Kumar Jha** has conducted a research entitled "CVP analysis as a tool of measures effectiveness of PPC". (A case study of Salt Trading Corporation. Ltd.) The main objective of this study is examining "Cost-Volume-Profit relationship" of Salt Trading Corporation. Objectives of these studies are

- To analyze cost and profit and loss of STCL.
- To study the relationship among cost, volume and profit
- To analyze the impact of cost-volume-profit on the company is productivity.
- To calculate profit resulting from a budgeted sales volume.
- To provide suggestion and recommendations for improving the condition of Salt Trading Corporation Limited. (STCL).

On the basis of the analysis, observation and information discussion, the following major findings have been drawn.

- Total Sales of the corporation were unstable.
- Out of the different products raw by the corporation agricultural material and machine equipment were found nominal. But other products made highest contribution on total sales.
- Expenses of Salt Trading Corporation Limited were fluctuating. Variable cost as well as fixed cost increased or decreased during the study period.

- There is no any effective plan, programmed and technique for the cost reduction and control.
- The corporation has no detailed and systematic expenses plan. The fixed, variable and mixed expenses plan are the necessary elements for profit planning and control.
- Variable cost volume ratio of salt trading corporation limited is nearly 85 percent on an average. It means that the contribution margin of the company is about 15 percent of total sales.
- Margin of safety ratio of the STCL is higher percentage which indicates that the company is in strong profitability position.
- Record keeping system relating CVP is not scientific.
- There are no proper criteria's for performance evaluation for the use of financial tools.

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

- In Nepal Most public and private enterprises have not practiced CVP analysis in systematic manner. So, it is suggested that every public and private enterprises should apply CVP analysis. CVP analysis shows the relationship between cost, revenue and profit. So, this tool is very much useful to every organization in formulating profit plan for future.
- Though, there are many experts and skilled manpower in the corporate, CVP analysis is not used in systematic manner. Semi-variable costs are also not segregated systematically into fixed or variable cost. It is necessary to segregate the cost for controlling purpose also.
- Salt Trading Corporation should increase the proportion of fixed cost and should reduce the proportion of variable cost on its cost structure to be a leveraged organization.
- BEP ratio of the corporation is not at a satisfactory level. To make it favorably it should be maintained at a minimum level. Lower the BEP ratio; lower the risk and vice-versa.

- Like other trading company in Nepal, Salt Trading Corporation Limited lacks profit planning and control tools for import substitution and increase in profit. Better planning tools are needed to be utilized like CVP analysis and budgeting.
- Price of Salt plays a vital role in actual sales. Selling price should be maximum possible. The administrative expenses are too high, the direct selling expenses are also too high, and STCL should minimize these costs.
- As Salt Trading Corporation Limited is a multi-product organization more emphasis should be provided for the product of consumable materials having high contribution margin to generate more profit.
- As STCL spend huge amount on the head of salaries and wages, it should focus on proper manpower planning to reduce the cost.
- Lowest on cost bid reliable supplier as well as means of transportation agencies should be selected and STCL should be initiate appropriate action if they work against the terms and conditions mutually agreed upon.
- New market areas should be identified for the wide coverage of corporation action.
- Sales revenue of the corporation is fluctuating trend, it is not sufficient to cover the cost and earn desire profit. Sales plan of the enterprises should clear maintain and improve.
- Margin of safety ratio of the corporation is at satisfactory level but not sufficient. Higher the percentage of MOS ratio indicates, higher the possibility of good position of the corporation. Since, the management should ready to keep this position.
- Although there is approximately 6000 private and institutional, dealer/trader to distribute salt, they are not receiving the sufficient quantity of salt, as they need. So the distribution should be made according to their demand.
- Government should open itself to inspire private sector to import salt in Nepal. Government should concentrate on development of infrastructure, research and extension marketing; advertisement should be in hence to growth the use of salt in remote area of the country.

2.17 Research Gap:

There is the gap between the present and the previous researches. Previous researches were mainly conducted on profit planning and control and budgeting practices in the manufacturing companies especially in public enterprises.

The previous researchers did not disclose which of the profit planning and control tools are in practices, which are not and why. But few of the researches were conducted on simple cost volume profit analysis of public and private limited companies. Thus to fill up these gap, the current research has been conducted. Mainly this research focuses on operating position of the organization. Therefore, Profit and Loss Account was the focus point of the study of this research. Profit and Loss Account fully provides the information of revenue and cost. Clear picture of CVP and its impact on productivity are made in this research.

CHAPTER-III
RESEARCH METHODOLOGY

3.1 Introduction

Research is the process of a systematic and in-depth study or search of any particular topic, subject or area of investigation backed by collection, complication, presentation and interpretation of relevant data. So Research methodology is systematic and scientific procedure adopted for the study. It is a way to solve systematically about the research problem. It helps to analyze, examine and interpret various aspects of research problem.

Research methodology is the process of arriving at the solution of the problems through a planned and systematic dealing with the collection analysis and interpretation of the facts and figures. The objective of this study will be to analyze the CVP relationship of Salt Trading Corporation Limited and National Trading Limited. The major contents of research methodology followed in the course of this study are:

3.2 Research Design

The research design is an organized approach and not a collection of loose unrelated parts. It is an integrated system that guides the researcher in formatting, implementing and controlling the study. A study design is the arrangement of conditions for collection and analysis of data in the manner that aims to combine relevance to the study with economy in procedure. This study is based on the analysis of past financial performance, based on relevant data.

Accordingly, this study has adopted the descriptive and analytical type of research design. It describes and analyses all the aspects that have been collected for the purpose of the study.

3.3 Population and Sample

The large group about which the generalization is made is called the population. The universe and small portion on which the study is made is called the sample of the study. There are many trading companies which are actively operation there business in Nepalese market. Regarding the research topic it is not possible to study all of them. So among them Salt Trading Corporation Limited and National Trading Limited are taken as a sample. These are basis on Publics Company and Government Company. This study is based on revenue planning and cost-volume-profit analysis of Salt Trading Corporation Ltd and National Trading Ltd. Therefore, no specific production or branch was taken for analysis but the whole has been considered for analysis through financial data available. However, this is comparative study and the finding couldn't be exactly generalized to all other trading companies.

Table No.3.3.1 Reputed Trading Company in Nepal

SN.	Companies' Name	Sample	%
1	Nepal Food Corporation	-	-
2	Salt Trading Company Limited	1	
3	National Trading Limited	1	
4	Nepal Oil Corporation Limited	-	
5	National Seed Company Limited	-	
6	Agriculture Co. Limited	-	
7	The Timber Corporation of Nepal Limited.	-	
	Total	2	28.57%

A sample has taken for this study cover 28.57% on populations.

3.4 Nature and Sources of Data

Data were collected from several sources; it is not easy to list them in detail. Data can be categories into two groups primary and secondary. In this study only secondary data are used. Personal visit in Salt Trading Corporation and National Trading was made to know the situation. Besides this, the secondary levels of data were collected through publication books, booklets, magazine, newspaper, financial statement etc.

3.5 Data Processing Technique & Tools

Only secondary data were used in this study. Secondary data has taken mainly from annual reports, auditors report, balance sheet, profit and loss account; cost detail sheet and all the relevant publication relatively to company's performance are reviewed for achieving the desired goals.

3.6 Tools for Analysis

3.6.1 Accounting Tools:

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

- Contribution Margin Analysis
- Cost-Volume Profit Analysis
- Contribution Margin Ratio
- Break even analysis
- Margin of Safety

1. Contribution Margin (CM) = Sales – Variable Cost
2. Contribution Margin Ratio = $1 - \frac{\text{Variable Cost}}{\text{Sales}}$
3. Break-Even-Point (BEP) in Rs = $\frac{\text{Total Fixed Cost}}{\text{CM Ratio}}$
4. Break-Even-Point (BEP) in Unit = $\frac{\text{Total Fixed Cost}}{\text{CMPU}}$

Where, CMPU = SPPU - VCPU

5. Break-Even-Point (% of Capacity) = $\frac{\text{BEP in Unit}}{\text{Total Capacity in Unit}}$

or, $= \frac{\text{BEP in Rs.}}{\text{Total Capacity in Rs.}}$

6. Cash BEP (in Rs) $= \frac{\text{Fixed cost} - \text{Non Cash Outlays}}{1 - \frac{\text{Variable Cost}}{\text{Sales - Non Cash Outlay}}}$
7. Required Sales for Desired Profit in Units = $\frac{\text{Fixed cost} + \text{Desired Profit}}{CMPU}$

8. Required Sales for Desired Profit in Rs = $\frac{\text{Fixed cost} + \text{Desired Profit}}{\text{CM Ratio}}$

9. Required Sales in Unit for DPAT = $\frac{\text{FC} + \frac{\text{DPAT}}{1-t}}{\text{CMPU}}$

10. Required Sales in Rs. for DPAT = $\frac{\text{FC} + \frac{\text{DPAT}}{1-t}}{\text{CM Ratio}}$

11. Safety Margin (in units) = Actual Sales Units-BEP in Units

12. Safety Margin (in Rs.) = Actual Sales Rs. - BEP in Rs.

Or, $\frac{\text{Profit}}{\text{P/V Ratio}}$

13. Margin of Safety Ratio = $\frac{\text{MOS}}{\text{Total Sales}} \times 100$

Where, MOS = Margin of Safety

14. BEP Ratio = $\frac{\text{BEP Sales (Rs.)}}{\text{Actual Sales (Rs.)}}$

For Multi-Products

1. Overall BEP in Units = $\frac{\text{Total Fixed Cost}}{\text{Weighted CMPU}}$

2. Overall BEP in Rs. = $\frac{\text{Total Fixed Cost}}{\text{Weighted CM Ratio}}$

3. Required Sales Volume for DP in Units = $\frac{\text{Total Fixed Cost} + \text{DP}}{\text{Weighted CMPU}}$

4. Required Sales Volume for DP in Rs. = $\frac{\text{Total Fixed Cost} + \text{DP}}{\text{Weighted CM Ratio}}$

5. Required Sales Volume for DP After Tax in Rs. = $\frac{\text{Total Fixed Cost} + \frac{DPAT}{1-t}}{\text{Weighted CM Ratio}}$

6. Required Sales Volume for DP After Tax in Units = $\frac{\text{Total Fixed Cost} + \frac{\text{DPAT}}{1-t}}{\text{Weighted CMPU}}$

3.6.2 Statistical Tools

The relationship between two or more variables can be measured by using statistical tools like, bar diagram, mean, standard deviation, coefficient of variation, correlation analysis, coefficient of determination (r_2) etc. have been used.

a. Bar Diagram

Bar diagram one of the easiest and the most commonly used methods of presently the numerical data. They present the data by means of basis represents the given figures and the width may be of any size.

b. Mean

The sum of all the observations divided by the number of observations is called mean. In such cases all the items are equally important. It is usually denoted by $'\bar{X}'$. It is defined by the following formula:

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

Where, X = the sum of observation

N = no. of observation

c. Standard Deviation (S.D)

The standard deviation is defined as the positive root of the mean of the squared deviations from their mean of a set of values. It is also known as root mean square deviation. It is usually devoted by the Greek letter σ (small sigma).

The SD is calculated by the following formula.

$$\pm \text{ X}\sqrt{\frac{(x \text{ Z}\bar{x})^2}{n}}$$

$$= \sqrt{\frac{x^2}{n} \text{ Z } \frac{x}{n}^{2}}$$

Where, n = no. of Observations.

d. Coefficient of Variation (C.V.)

The relative measure of dispersion based on SD is called coefficient of SD. Thus,

Coefficient of SD. = $\frac{S.D}{Mean} \times \frac{\pm}{\bar{X}}$

The coefficient of dispersion based on standard deviation multiplied by 100 is known as the coefficient of variation (C.V). If $\bar{X}$ be the arithmetic mean and σ, the standard deviation of the distribution, then the C.V is defined by

$C.V \times \frac{\pm}{\bar{X}} \mid 100$

e. Correlation Analysis

The degree of relationship between two variables at a time is called correlation. In other words, two variables are correlated in such way if one variable changes then other variables also change subsequently. It can be calculated by using following formula.

Co-efficient of Correlation (r) = $\frac{N \quad XY \, Z \quad X. \quad Y}{\sqrt{N \quad X^2 \, Z(\quad X)^2}\sqrt{N \quad Y^2 \, Z(\quad Y)^2}}$

It must be [-1 to +1]

Coefficient of Determination $(r^2) \times \left[\frac{N \quad XY \, Z \quad X. \quad Y}{\sqrt{N \quad X^2 \, Z(\quad X)^2}\sqrt{N \quad Y^2 \, Z(\quad Y)^2}}\right]^2$

Probable Error of r (P.E) = $0.6745 \mid \frac{1 Z r^2}{\sqrt{n}}$

3.7 Research Variables

The research variables of the present study are sales, cost, profit, break-even-point, P/V ratio, profit margin of the corporation.

CHAPTER-IV

DATA PRESENTATION AND ANALYSIS OF DATA

4.1 Introduction

Profit planning is used for development and acceptance of proper objectives and goals for an organization .it is also used to move the organization efficiently to achieve pre-set objectives and goals. In profit planning, cost-volume –profit analysis can be the most important device to utilize the cost with effective and efficient way.
Data presentation and analysis is the important part of the research work. It is known as heart of research. Major finding of the research depends on the data presentation and analysis. Here, the researcher has tried to present and interpret the collected data in a systematic manner and meaningful ways. Mainly, to fulfill the objectives of the study, required factors about C-V-P analysis are presented and analyzed.

The main purpose of this research is to examine C-V-P analysis as a tool to measure the effectiveness of profit planning and evaluate the present practice of CVP analysis and identify the area where C-V-P analysis could be applied to strengthen Salt Trading Corporation and National Trading.

The secondary data were used for sales trend analysis and cost-volume-profit analysis etc. which were collected from annual report of the company. Similarly, the primary data were used for segregation of cost into variable and fixed and other required queries.

This study has tried to cover the activities of the Salt Trading Corporation and national Trading from different perspective for the last five years (i.e. from the fiscal year 2061/62 to fiscal year 2065/66).

4.2 Sales Trend Analysis

4.2.1 Overall Sales

Table No. 4.1 Salt Trading Corporation Ltd *(NRs. In Lakhs)*

Years / Details	2061/62	2062/63	2063/64	2064/65	2065/66
Total Sales	21939	18505	19162	21389	31904
% Change is Sales		-15.65	3.55	11.62	49.16

Source: Annual Report of STCL.

Table No. 4.2 National Trading Corporation Ltd *(NRs. In Lakhs)*

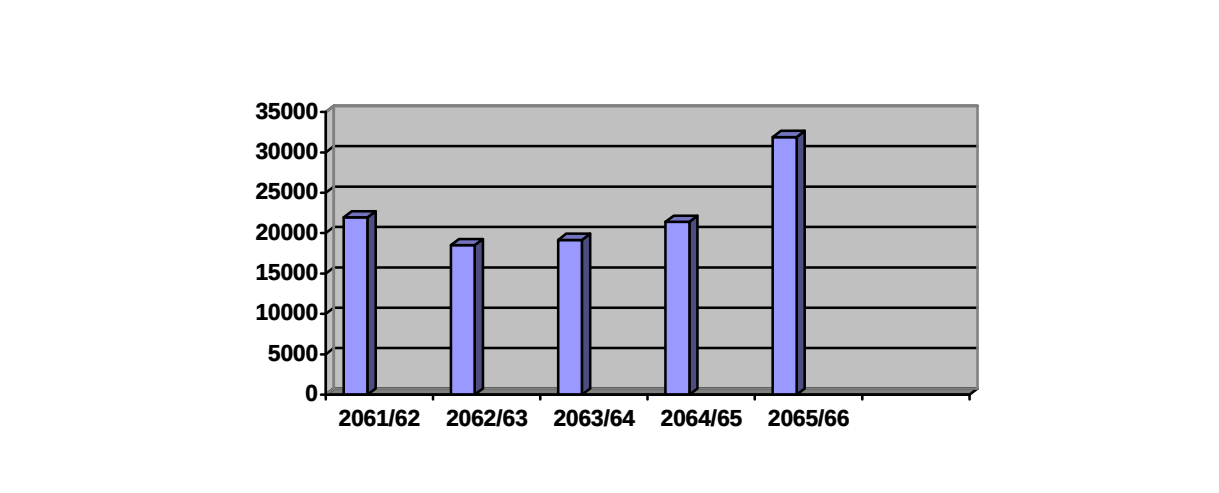
Years / Details	2061/62	2062/63	2063/64	2064/65	2065/66
Total Sales	8091	4075	9686	10353	7320
% Change is Sales		-49.62	137.69	6.89	-29.29

Source: Annual Report of NTL

The Table No. 4.1 and 4.2 shows that total sales of STCL & NTL from the FY 2061/62 to 2065/66 were not stable. The total sales of STCL and NTL decrease by 15.65% & 49.62 % in 2062/63 respectively. In FY 2063/64 SCTL's sales increased by 3.55% but NTL's sales also increased 137.69%. In FC 2064/65and 2065/66 total sales of STCL's increased by 11.62% and 49.16 % respectively. But NTL's total sales was increased 6.89% in FY 2064/65 and decrease in FY2065/66 by 29.29% respectively. There are various reasons, which cause the variation on sales revenue. the significant factors responsible for the variation in sales revenue are demand condition, political conflict, government policy, social- cultural condition of country, top competition with imported products etc So many times corporation faced strike and pressure of peace opposite group. Those cause as well as the quality of the product of the corporation was also the plus point to decrease the quantity of sales units. The incremental percentage of total sales showed satisfactory position in the FY 2063/64 to 2065/66 by up to 49.16% of STCL but incremental percentage of total sales of NTL was irregular, highly increment in FC 2063/64,137.69% but decrease in FC2065/66

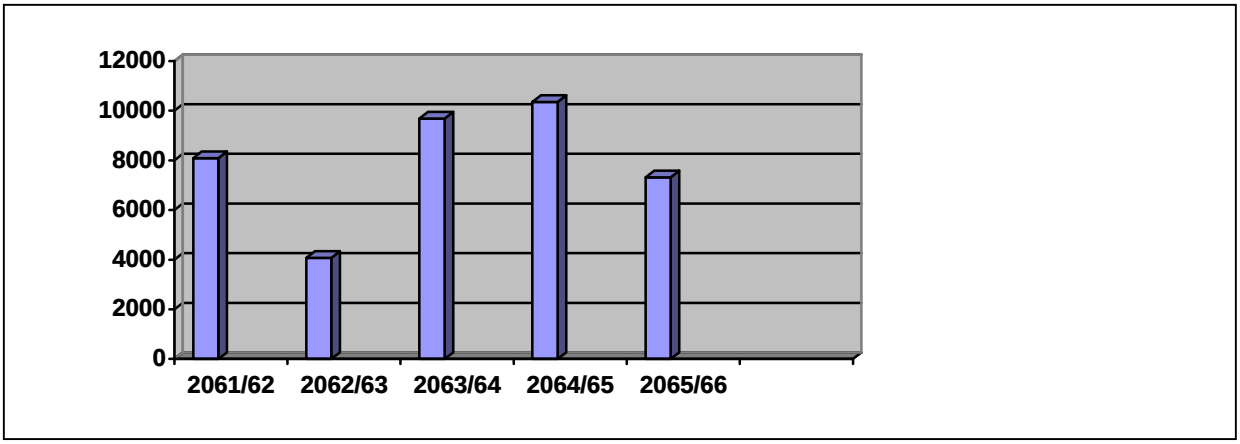
by 29.29% .The amount of total sales value can be clearly presented with the help of simple bar-diagram as below:

Figure No. 4.3 Position of Total Sales of STCL



Source: Annual Report of STCL.

Figure No. 4.4 Position of Total Sales of NTL



Source: Annual Report of NTL

The figure no.4.3 shows the different year's sales value of STCL with different bar diagram. Among them the highest bar is in the year 2065/66. In that year the sales is more than the other year .The figure no.4.4 shows the different year's sales values of NTL with different bar diagram. Among them the highest bar is in the year 2064/65. And the sales of other years are in similar position. It reveals that the sales trend is not constant. It is fluctuating in different year with different causes as mentioned above.

4.3 Variable Cost Analysis

Variable costs are those cost which are direct proportion to change in output or activities level, but per unit is constant. While the unit costs remain constant, variable cost appear on a graph as a straight line with a positive slope, the line rise as the production volume increases. Variable cost per unit may vary for different financial years on account of internal and external environment of the company. According to the company's annual reports, variable cost is costs covering cost of sales and are as follows:

Table No. 4.5

Variable Cost analysis with sales value *(NRs. In Lakhs)*

Years / Particular	**2061/62**	**2062/63**	**2063/64**	**2064/65**	**2065/66**
Total variable cost of STCL	19372	**15920**	**16445**	**18376**	**28135**
% change	**-**	**-17.81**	**3.19**	**11.74**	**51.1**
Total variable cost of NTL	7580	3266	9218	8939	6470
% change		-56.91	182.24	-3.03	-27.62

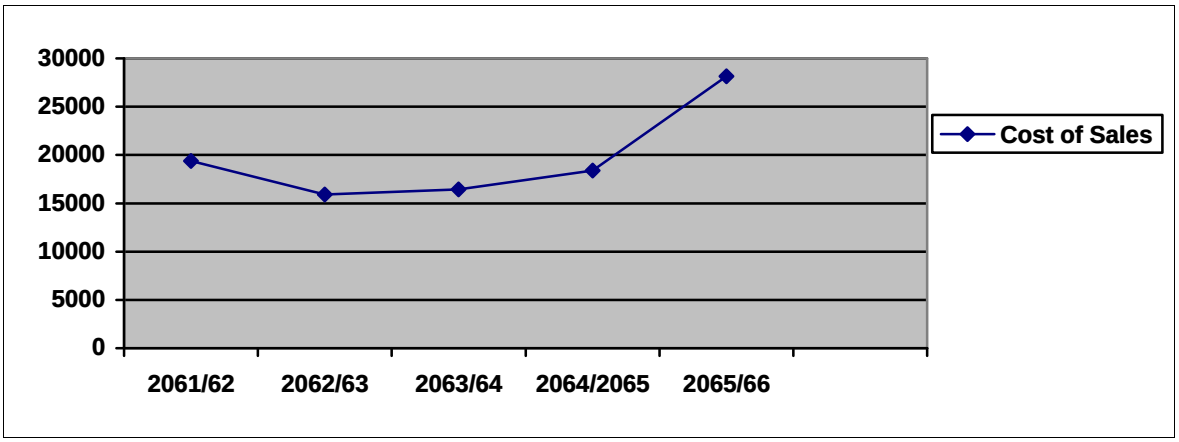
Source: Annual Report of STCL & NTL

The table 4.5 shows the fluctuating trend of the variable cost. Variations of variable cost of sales because of opening inventory, purchase and business expenses for different year. Because external and internal factors. Purchase and business expenses had greater contribution for the increase in the amount of cost of sales every year. In these corporations all of the variable costs are cost of sales. Because these types of corporation are not manufactures, rather are trading companies. Accordingly they have no specific manufacturing cost.

The amount of variable cost can be clearly presented with the help of histograms as below:

Figure No. 4.6

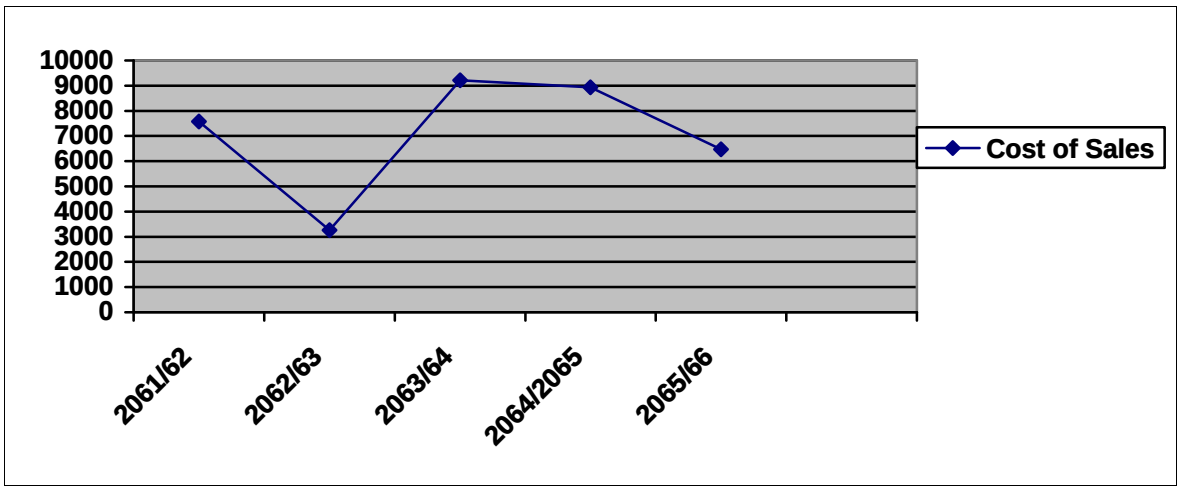
Trend of Variable Cost of STCL



Source: Annual Report of STCL

Figure No. 4.7

Trend of Variable Cost of NTL



Source: Annual Report of NTL

The figure No. 4.6 and 4.7 shows that the variable cost moved upward and downward haphazardly. Here, in histogram, independent variable and variable cost as independent variable.

4.4 Fixed Cost Analysis

Fixed cost remains constant in total amount despite the changes in the level of activity. That is fixed cost remains unchanged in total as the output level varies but fixed cost per unit decrease as the level of activity increase and vice-versa. Fixed cost in total varies for different fiscal year; it may not remain stable because of internal and external factors of the company. According to the STCL & NTL annual report, fixed cost has been classified into the following patterns.

Table No. 4.8

Fixed Cost Details

Salt Trading Corporation Ltd *(NRs. In Lakhs)*

Years / Details	2061/62	2062/63	2063/64	2064/65	2065/66
Administrative cost	822.9	883.6	904.78	1143.5	1424.64
Interest Expenses	1199.9	1540.1	1611.88	1529.56	1971.95
Depreciation expenses	38.7	47.3	42.75	51.69	70.64
Total	2061.5	2471.0	2559.42	2724.75	3467.23
Increase/ Decrease %	-	17.86	3.47	6.45	24.24

Source: Annual Report of STCL

Table No. 4.9

Fixed Cost Details

National Trading Ltd *(NRs. In Lakhs)*

Years / Details	2061/62	2062/63	2063/64	2064/65	2065/66
Administrative cost	1020	1152.34	1025.71	1217.87	1177.45
Interest Expenses	222.78	300.72	297.82	260.47	372.34
Depreciation expenses	22.49	20.82	19.14 \	22.45	26.22
Total	1265.27	1473.88	1342.67	1547.32	1576.01
Increase/ Decrease %	-	16.48	-8.4	14.24	1.85

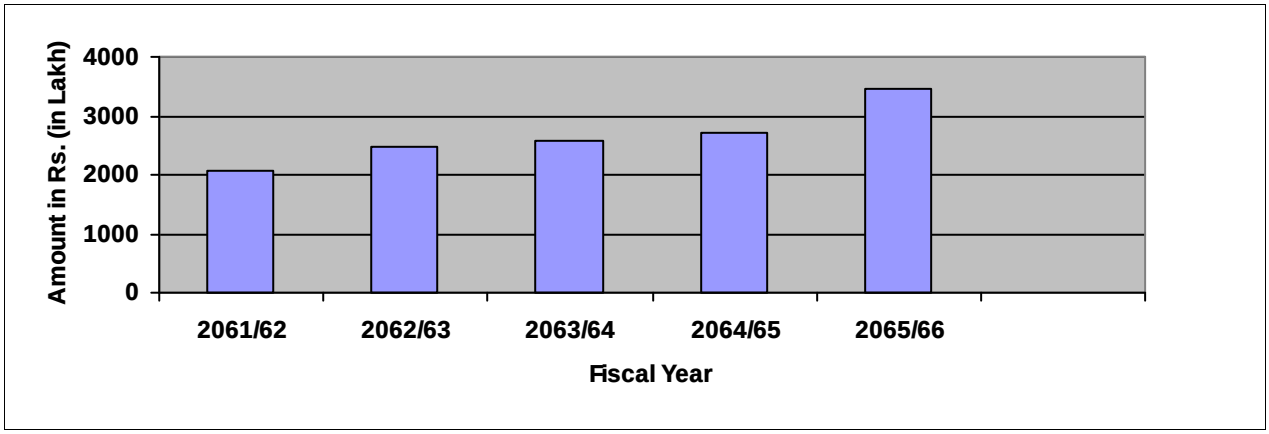
Source: Annual Report of NTL

The table No. 4.8 and 4.9 shows that administrative expenses, interest and depreciation expenses for different fiscal years. In the F.Y. 2061/62 to 2065/66 the cost is in increasing trend of STCL. But NTL's fixed cost was decreased in FC 2063/64 .The nature of fixed cost is it remains constant in total amount despite the change in the level of activity with in a fiscal year. But in this corporation the trend of fixed cost did not remain constant.

The amount of total fixed cost can be clearly presented with the help of simple bar-diagram as below:

Figure No. 4.10

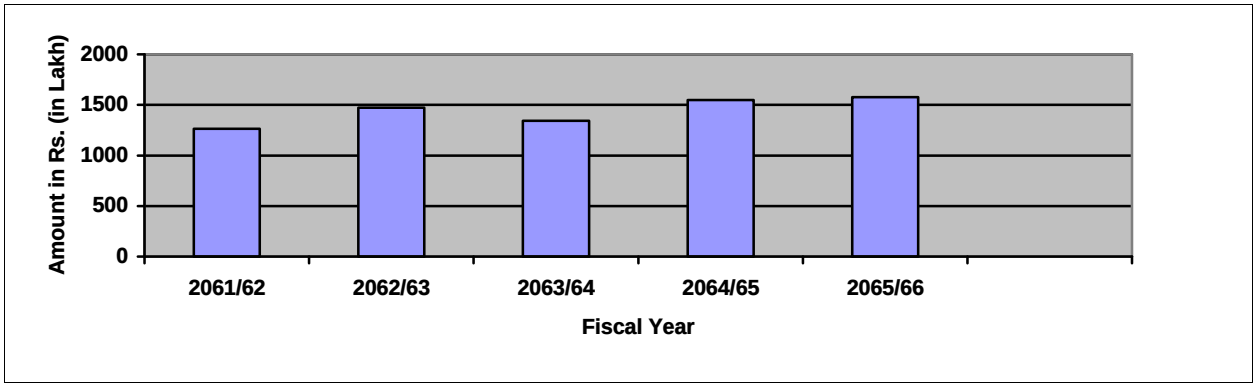
Position of Fixed Cost of STCL



Source: Annual Report of STCL

Figure No. 4.11

Position of Fixed Cost of NTL



Source: Annual Report of NTL

The figure no.4.10 shows the different year's position of fixed cost of STCL with different bar diagram. Among them the highest bar is in the year 2065/66. In this year

the fixed cost is more than the other year .The figure no.4.11 shows the different year's position of fixed cost of NTL with different bar diagram. Among them the highest bar is in the year 2065/66. In this year the fixed cost is more than the other year. It reveals that the fixed cost trend is not constant. It is fluctuating in different year with different causes.

4.5 Income Statement Analysis

Income is computed by deducting all expenditure from turnover. It is the surplus of sales over expenditure. Income measures the real performance of the company. High income indicates excellent performance whereas low income threatens the company. Value of income is received by deducting fixed and variable cost from sales. Contribution margin is obtained by deducting variable cost from sales out of which fixed cost is deducted to get net profit. Much information can be presented with the help of the following details of income statement. Here, net income represents operating income only. Non-operating income and non-operating expenses were not incorporated in this analysis

Table No. 4.12

Income Statement Details of STCL for the year 2061/6 2 to 2065/66 *(NRs. In Lakhs)*

Years / Product	2061/2062	2062/63	2063/64	2064/65	2065/66
Sales Value	21939	17905	19162	21389	31904
Variable Cost	19372.4	15320.6	16445.45	**18376**	**28135**
C. M(S-V)	2566.6	2584.4	2716.6	3013	3769
Fixed Cost	2061.5	2471	2559.41	2724.75	3467.23
Net income(loss) (CM-FC)	505.1	113.4	157.19	288.25	301.77
Net Profit Margin on sales	2.30	0.61	0.82	1.34	0.945
P/V Ratio=CM/sales	11.69	14.43	14.18	14.15	11.81
% of VC ratio	88.30	85.57	85.82	85.85	88.19
% of FC on sales	9.4	13.80	13.36	12.74	10.87
BEP=FC/PV ratio	17635	17124	18049	19256	29358
MOS=(sales-BEP)	1737.4	781	1113	2133	2546
% of VC on total cost (2÷2+4)	90.38	86.1	86.53	87.07	89.03
% of FC on total cost (4÷2+4)	9.62	13.9	13.47	12.93	10.97
Operating Leverage (3÷5)	5.08	22.79	17.28	10.45	12.49

Source: Annual Report of STCL

Table No. 4.13

Income Statement Details of NTL for the year 2061/6 2 to 2065/66 *(NRs. In Lakhs)*

Years / Product	2061/2062	2062/63	2063/64	2064/65	2065/66
Sales Value	8091	4075	9686	10353	7320
Variable Cost	7580	3266	9218	8939	6470
Contribution Margin (S-V)	511	809	468	1415	850
Fixed Cost	1265.27	1473.88	1342.67	1547.32	1576.01
Net income (loss) (CM-FC)	(754.27)	(664.88)	(874.67)	(132.32)	(726.01)
Net Profit Margin on sales	-	-	-	-	
P/V Ratio=CM/sales	6.31	19.85	4.83	13.68	11.61
% of VC ratio	93.68	80.15	95.16	86.34	88.38
% of FC on sales	15.64	36.16	13.86	14.94	21.53
BEP=FC/PV ratio	20051	7425	27798	11310	13574
MOS=(sales- BEP)	(11960)	(3350)	(18112)	(957)	(6254)
% of VC on total cost (2÷2+4)	85.70	80.15	95.17	85.24	80.41
% of FC on total cost (4÷2+4)	14.30	19.85	4.83	14.75	19.58
Operating Leverage (3÷5)	5.08	22.79	17.28	10.45	12.49

Source: Annual Report of NTL

4.6 Contribution Margin and P/V ratio Analysis

Contribution margin is the different between sales revenue over variable cost. Contribution margin is the balance available to recover fixed expenses after which it contributes towards profit. Profit volume ratio established a relationship between the contribution and sales volume. The two factors profit and volume are interconnected and dependent with each other. To full the objectives of the study, BEP and other related computation are necessary to complete. Contribution margin expressed as percentage on sales revenue is called contribution margin (CM) ratio or profit volume (P/V) ratio. Total contribution margin and contribution margin ratio are presented in the following table.

Contribution Margin (CM) = Sales value –Variable cost

or, Contribution margin (CM)= Profit + Fixed cost

Profit Volume (P/V) ratio = Contribution margin/sales

Table No. 4.14

Contribution Margin Details of STCL for the year 2061/6 2 to 2065/66 *NRs. In Lakhs)*

Years / Product	2061/62	2062/63	2063/64	2064/65	2065/66
Sales Value	21939	17905	19162	21389	31904
Variable Cost	19372.4	15320.6	16445.45	18376	28135
Contribution Margin (S-V)	2566.6	2584.4	2716.6	3013	3769
P/V Ratio=CM/sales	11.69	14.43	14.18	14.15	11.81

Source: Annual Report of STCL

Table No. 4.15

Contribution margin Details of NTL for the year 2061/6 2 to 2065/66 (*NR s. In Lakhs)*

Years / Product	2061/2062	2062/63	2063/64	2064/65	2065/66
Sales Value	8091	4075	9686	10353	7320
Variable Cost	7580	3266	9218	8939	6470
Contribution Margin (S-V)	511	809	468	1415	850
P/V Ratio=CM/sales	6.31	19.85	4.83	13.68	11.61

Source: Annual Report of NTL

The above no 4.14 &4.15shows the calculation of contribution margin and P/V of STCL&NTL for five fiscal years 2061/62 to 2065/66 respectively .where CM and CM ratio were in fluctuating trend. High CM &CM ratio is the single of high profit and vice-versa. Above table clearly shows that STCL &NTL has highest CM in FC2065/66 and 2064/65 and the P/V ratio of the STCL and NTL in2062/63 for both companies. The P/V ratios of the company's were not satisfactory. It is very low due to the huge amount of variable cost.

4.7 Break-Even Analysis

The point ,which breaks the total cost and the sales evenly to show the level of output or sales at which there shall be neither profit nor loss, is regarded as breaker even point. BEP analysis is most widely known form of CVP analysis.. It is concerned with the study of revenues and costs in relation to sales volume and determination of that volume of sales at which the firm's revenues and total cost will exactly be equal. BEP is that point at which loss ceases and profit begins. The BEP of the company is Rs. is expressed as;

Break- even- point in rupee = fixed cost / PV ratio

Which are calculating in the above table 4.12 and 4.13

The above table no. 4.12&4.13 shows the BEP in Rs. were in fluctuating trend. The main reasons of fluctuating BEP were the change in fixed cost and change in variable cost. The change in contribution margin or profit volume ratio was also the main cause of reduction and deduction in BEP.BEP of STCL's company was presented.

BEP of STCL's company was below.

NRs. in lakhs

2061/2062	2062/63	2063/64	2064/65	2065/66
Rs.17635	Rs.17124	Rs.18049	Rs.19256	Rs. 29358

BEP of NTL's company was below

NRs. in lakhs

2061/2062	2062/63	2063/64	2064/65	2065/66
Rs. 20051	Rs. 7425	Rs. 27798	Rs.11310	Rs. 13574

From the above calculation, the BEP of STCL's was decreasing and increasing trends. Every fiscal year total sales of the company was able to meet its BEP sales. But BEP of NTL's company was in unstable trend and their sale was unable to meet it BEP sales volume.

4.8 Margin of Safety Analysis

Margin of safety (MOS) can be defined as the excess of actual sales over the break-even sales volume. Thus it provides a certain amount of cushion to the company to avoid loss. The larger the margin of safety, better the profitability. A low margin of safety is the result of high operating cost. The margin of safety can be expressed as

Margin of safety (MOS) = Total sales – Break even sales

Table No. 4.16

MOS Details of STCL for the year 2061/6 2 to 2065/66*(NRs. In Lakhs)*

Years / Product	2061/2062	2062/63	2063/64	2064/65	2065/66
Sales Value	21939	17905	19162	21389	31904
BEP=FC/PV ratio	17635	17124	18049	19256	29358
MOS=(sales-BEP)	1737.4	781	1113	2133	2546

Source: Annual Report of STCL

Table No. 4.17

MOS Details of NTL for the year 2061/6 2 to 2065/66 *(NRs. In Lakhs)*

Years / Product	2061/2062	2062/63	2063/64	2064/65	2065/66
Sales Value	8091	4075	9686	10353	7320
BEP= FC/PV ratio	20051	7425	27798	11310	13574
MOS=(sales-BEP)	(11960)	(3350)	(18112)	(957)	(6254)

Source: Annual Report of NTL

The table 1.14 &1.15 shows the margin of safety for five fiscal years. That is in fluctuating trend. The MOS of STCL is maximum in FC 2065/66 and minimum in FC 2062/63 but whereas the MOS of NTL was totally negative; it means sales doesn't reach the capacity or can't touch the BEP line. The low MOS ratio is the result of low CM ratio. Since actual sales lower comparatively than BEP, there are not raising condition of suffering loss regarding sales fall; because actual sales were in fluctuation trend. To exist from such condition company must have budgeted plane about it sales.

MOS can be expressed in percentage by using following formula;

%of MOS = MOS/sales*100

Or; (actual sales – BEP sales)/actual sales*100

4.9 Analysis of Correlation between Sales and Net Profit

Correlation analysis is the statistical tool that we can use to describe the degree to which one variable is linearly related to other variables. Two or more variable are said to be correlated if change in the value of one variable appeared to be related or linked with change in another variables. In CVP analysis correlation meanly use to show the relationship between sales and net profit, correlation between sales and net profit (loss) are presented in the following table.

Table No. 4.18

Analysis of Correlation between Sales and Net Profit of salt Trading Corporation

(NRs. In Lakhs)

Fiscal Year	Sales(X)	Profit (Y)	XY	X^2	Y^2
2061/62	21939	505	11079195	481319721	255025
2062/63	18505	113	2091065	342435025	12769
2063/64	19162	157	3008434	367182244	24649
2064/65	21389	288.25	6165379	457489321	52098
2065/66	31904	301.77	9627670	1017865216	91065
Total	X X	Y X1	XY X319717	X^2 X266629	Y^2 X43

Let,

Sales = X

Profit = Y

$$\text{Correlation Coefficient (r)} = \frac{N \quad XY - X \cdot Y}{\sqrt{N \quad X^2 - (X)^2}\sqrt{N \quad Y^2 - (Y)^2}}$$

$$= \frac{75002315 - 154107135}{\sqrt{1163650002 - 1343385201}\sqrt{2157380 - 1863225}}$$

$$= \frac{5751580}{24192.43 \mid 561.07}$$

$$= 0.423$$

Probable Error (PE)

$$PE = 0.6745 \mid \frac{(1 - r^2)}{\sqrt{n}}$$

$$= 0.6745 \mid \frac{0.821}{2.236}$$

$$= 0.247$$

The value of correlation coefficient is 0.423. This indicates that there is low degree of positive correlation between sales and net profit. The value of correlation coefficient suggests that if sales increases, net profit also increases but not in same manner.

Since coefficient of correlation (r) is less than PE, there is not significant relationship between the net profit and sales and it reflects uncertain future of Salt Trading Corporation Limited. But in this comparatives study about CVP of STCL & NTL, researcher unable to compare company's correlation because national trading was facing loss so.

4.10 **Sales Mix and Break-Even-Analysis**

Sales mix can be defined as the relative combination of product represented in the total sales. In other words the relative proportion of each type of product sold is called the sales mix. All products are not equally profitable in multi-products business. Because of this changes in the sales mix from low margin items to high margin items can cause total profit to increases even though the total sales may decreases and vice versa. Break-even analysis is some what more complex if a company sells more than one product. If the sales mix changes the break-even point will also change. Thus, to enhance the profit the firm may introduce required changes in the ratio with the help of break-even analysis. Here, Salt Trading Corporation Limited and National trading Limited has six different products. So the company is defined as multi-product organization. Through it is very different sales price and cost price of the product. The following procedure is used to calculate product wise BEP.

A. Sales Mix (Rs.) = $\frac{IndividualSales(Rs.)}{TotalSales(Rs.)}$

B. Weighted P/V Ratio = Sales Mix (Rs.) x Ratio of each Product

Or,

Weighted Contribution Margin = Sales Mix (Unit) x Contribution Margin of each Products

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

D. Product Wise BEP (Rs.) = Overall BEP (Rs.) x Sales Mix (Rs.) of each product.

In this research process to calculate the product wise BEP of STCL and NTL companies and comparison is impossible for researcher because researcher didn't get product wise sales information from NTL Company.

4.11 Sensitivity of CVP Analysis

The analysis of cost behavior facilitates the use of CVP technique to know the degree of impact and financial result which is known as "Sensitivity Analysis". CVP analysis helps to measure the extent of the impact of changes in key factors such as price, volume, variable cost, fixed cost and combination of factors which shows proportionate relationship. The management teams may not only be able to obtain a numerical expression of their business orientation, but in addition may be able to assess a range of issues in relation to product and services profitability, profit improvement and effectiveness. The following table provides the insights into the "Sensitivity Analysis".

Table No. 4.19

Different Factors Affecting CVP Analysis

Factors	Effect in P/V Ratio	Effects in BEP	Effect in Profit
Sales Revenue			
Increase	No Effects	No Effects	Increase
Decrease	No Effects	No Effects	Decrease
Variable Cost			
Increase	Decrease	Increase	Decrease
Decrease	Increase	Decrease	Increase
Fixed Cost			
Increase	No Effects	Increase	Decrease
Decrease	No Effects	Decrease	Increase

4.11.1 Effects of Changes in Sales Value

Any increase or decrease in the sales value will have effect in profit. There will be changes in profitability as the changes occur in operating leverage. An analysis of increase and decrease of sales value by 10 percentage for this case researcher take an example of STCL's data of the fiscal years 2063/3645 when the other factors assumed remain constant are presented below:

Table No. 4.20

Income Statement with Changes in Sales Value for the Fiscal Year 2065/066

(NRs. in Lakhs)

Details	Original	Changes on Sales Value	
		10% Increase	**10% Decrease**
Sales Revenue	31904	35094.4	28713.6
Less: Variable Cost	**28135**	30948.5	25321.5
Contribution Margin	3769	4145.9	3392.1
Less: Fixed Cost	3467.23	3467.23	3467.23
Profit	301.77	678.67	(75.13)
CM Ratio	0.118	0.118	0.118
BEP	29383	29383	29383

The table no. 4.20 showed that with the increase in sales value by 10 percentages the profit of the company will increase by 124.89 percentages. Similarly, with the decrease in sales value by 10 percentages the profit of the company will decrease by 124.89 percentages. The sales value is changed by the same percentage when changes are made in variable cost by 10 percent. But the BEP are equal in each case.

4.11.2 Effects of Changes in Variable Cost

The impact of change in variable cost on profit is straight forward if it does not cause any change in sales revenue and fixed cost. An increase in variables cost will lower P/V ratio, push up the BEP and reduce profit. On the other hand, if the variable cost decline, P/V ratio will increase. BEP will be lowered and profit will rise. If the increase and decrease of variable to remain same, for this case researcher take an example of STCL's data of the fiscal years 2063/3645 when the other factors assumed remain constant are presented below:

Table No. 4.21

Income Statement with Changes in Variable Cost for the Fiscal Year 2063/064

(NRs. In Lakhs)

Details	**Original**	**Changes in variable cost**	
		10% Increase	**10% Decrease**
Sales Revenue	31904	31904	31904
Less: Variable Cost	**28135**	30948.5	25321.5
Contribution Margin	3769	955.5	6582.5
Less: Fixed Cost	3467.23	3467.23	3467.23
Profit	301.77	(2511.73)	3115.27
CM Ratio	0.118	0.029	0.206
BEP	29383	119559	15860

Above table 4.21 showed that, with 10 percent increase in variable cost, break-even-point increase by 103.90 percent which indicated that variable cost and break-even-point have positive and proportionate relationship. Similarly, with the decrease in variable cost by 10 percent, the break even point has been decreased by 46.02 percentages.

4.11.3 Effect of Changes in Fixed Cost

A change in fixed cost does not influence P/V ratio. Other factors remaining unchanged, a fall in fixed cost will however lower the BEP and raise profit. An increase in fixed cost will push up BEP but reduce profit. With increase and decreased of fixed cost by 10 percent and for this case researcher take an example of STCL's data of the fiscal years 2063/3645 when the other factors assumed remain constant are presented below:

Table No. 4.22

Income Statement with Change in Fixed Cost for the Fiscal Year 2063/64

(NRs. in Lakhs)

Details	**Original**	**Changes in fixed cost**	
		10% Increase	**10% Decrease**
Sales Revenue	31904	31904	31904
Less: Variable Cost	**28135**	**28135**	**28135**
Contribution Margin	3769	3769	3769
Less: Fixed Cost	3467.23	3813.95	2490.5
Profit	301.77	(44.95)	1305.5
CM Ratio	0.118	0.118	0.118
BEP	29383	32321	23648

Above table no. 4.22 showed that with 10 percentage increase in fixed cost, break-even amount is increased by same percentage i.e. 10 percentage and with 10 percentage decrease in fixed cost, BEP amount is decreased by same 10 percent. If indicates that the break-even point and fixed cost have direct and proportionate relationship.

4.12 Major Findings

On the basis of the analysis, observation and information discussion, the following major findings have been drawn.

1. Sales plan of both companies are not maintained.
2. Sales trend of STCL is increasing yearly so profit should be increase but a sale of NTL is not stable so it showed company suffering from loss.
3. Expenses of Salt Trading Corporation Limited and National Trading Limited were fluctuating. Variable cost as well as fixed cost increased or decreased during the study period.
4. The cost of both companies is classified into fixed and variable. There is no practice of identifying semi- variable and there segregation into variable and fixed by using scientific techniques.
5. There is no any effective plan, programmed and technique for the cost reduction and control.
6. The corporation has no detailed and systematic planning for expenses. Planning for fixed, variable and mixed expenses are necessary elements for profit planning and control.
7. Variable cost volume ratio of Salt Trading Corporation Limited and National Trading Limited are nearly 85 & 88 percent on an average. It means that the contribution margins of the company are about 15 & 12 percent of total sales respectively.
8. The CM ratio of both companies is very much low to cover it fixed cost.
9. For profit achievement, the company should be adjusted fixed cost, variable cost, sales and profit by PV ratio analysis.
10. Record keeping system relating CVP is not scientific.
11. There are no proper criteria's for performance evaluation for the use of financial tools.

CHAPTER-V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

1.1 Summary

Management effectively achieves organizational objectives through the efferent use of scarce resources in a changing environment. Future is uncertain which creates risk and to reduce risk, the only reliable weapon is good management. C-V-P analysis is an analytical technique for studying the relationship between cost, volume and profit which helps to manage future cost and profit. Break even analysis is a special case of C-V-P analysis. However, it is analysis techniques is included to find out sales volume to earn a zero profit or decrease profit, to affect income by changes in selling prices, to check income if new equipment will be installed, to examine operating profit if fixed cost as well as unit variable cost will changes etc.

Nepalese trading sectors covering largest section of economic activity which needs diversification and commercialization to raise the economic level of Nepalese trades. Currently this sector contributes more than 45% of GDP and provides employment to more than 50% of country population. The main source of income of Nepal is from agriculture. Industrialization is essential for the socio-economic development of the nation. Science and technological improvement play vital role in industrialization of the nation. Management of this entire sector is very essential. Without brilliant management organization can not achieve its goal and objectives. The government of Nepal has established so many public enterprises to facilitate the services towards the people. Most of the public enterprises are suffering from loss. Available resources and capacity are not utilized properly.

The C-V-P analysis tool is applied in the STCL and NTL to find out whether the tool is practicing or not. STCL is provided quality os salt and other trading goods meanly and NTL is provided trading goods in reasonable priceat better quality.

The objectives behind the research study is to examine the effectiveness of profit planning and control with the help of cost, volume and profit tool in Salt Trading Corporation Limited and national trading Limited. Focus of this study is to evaluate cost, volume, profit relationship of STCL and NTL. The primary and secondary data are descriptive and analytical approaches were used for cost analysis, sales analysis, contribution margin analysis, P/V ratio analysis and break-even analysis.

NTL &STCL has low contribution margin, low p/v ratio, high break-even-point and low margin of safety. The sensitivity test of CVP analysis proves that if variable and fixed cost increase, the break even point will also increase and if were decreased then, the break even point also decreases. But at the time of increases in sales price the break even point will decrease. It indicates that cost and break even point has positive correlation where as sales price and break even point has negative correlation. The company's requires effective improvement in situation.

5.2 Conclusion

Different types of profit planning tools, which are used in the accounting filed, are not found applied by both companies. It shows that gap between the theory and practice. C-V-P analysis is not applied by both companies as any segregation of cost into fixed and variable, which is the hardcore of C-V-P analysis. The company has not planned to separate cost into fixed and variable.

National trading limited and Salt Trading Corporation Limited could not achieve the goal. Various popular profit planning tools like, JIT, C-V-P analysis, zero based budgeting was not practical by both corporations. The operating and maintenance cost were in rising trend. No specific technique was used till now to control cost or reduce them. National Trading Limited and Salt Trading Corporation Limited still remained behind for the realistic budget and were not been able to practice CVP analysis as a tool of profit planning and control.

National Trading Limited and Salt Trading Corporation Limited should control fixed cost and try to minimize the variable cost. The company's management needs to take remedial action as soon as possible for controlling cost and their behaviors through effective techniques. High fluctuation in inventory level will decrease or increase in high volume, which makes inventory handling more difficult. The inventory level also increases the cost of NTL & STCL.

In this C-V-P Analysis of National Trading Limited and Salt Trading Corporation Ltd. Research person came to this conclusion at the end of this study. Those are listed below.

- ✓ The corporation has low and fluctuating contribution margin affecting the profit.
- ✓ The corporation's contribution margin has increased because of increase in sales revenue but the increase in fixed cost has increased BEP to higher level.

- ✓ The sensitivity of CVP analysis in response to change in fixed cost is proportionate where as it is very high in response to change in sales revenue and variable cost.
- ✓ C-V-P relationship was not used in NTL & STCL while developing sales plan and production plan.
- ✓ Avoiding CVP analysis tool and not utilizing full capacity, the corporations are bearing loss as well as not satisfactory profit.
- ✓ Promoter and director and staffs of the corporation are enjoying by achieving allowance and salary.
- ✓ Other part, general shareholders are not achieving dividend and government could not claim for income tax since loss and loss recovery situation.

5.3 Recommendations

Nepal is proceeding towards globalization with membership of WTO. Nepalese companies now have to prepare themselves to complete with international market through effective use of limited resources and best-fit managerial strategies. On the beside of the study of CVP analysis as a tool to measure effectiveness of profit planning and control of both corporations, it seems necessary to develop, implementation and improve the process of CVP analysis from beginning to end with PPC. From the study some findings are extracted. Beside on those findings it may be appropriate to make some suggestions and recommendations. Although these suggestions may not be enough as well as could very easily provide negative reflection, they certainly suggest the areas that can be improved and required attention to bring some improvement in CVP analysis of STCL & NTL.

- ➢ Most public and private enterprises have not classification of expenses as variable and fixed or controllable and non controllable must be made within specific framework of responsibility and time.

- In Nepal Most public and private enterprises have not practiced CVP analysis in systematic manner. So, it is suggested that every public and private enterprises should apply CVP analysis. This is very much useful to every organization in formulating profit plan for future.
- Though, there are many experts and skilled manpower in the corporate, CVP analysis is not used in systematic manner. Semi-variable costs are also not segregated systematically into fixed or variable cost. It is necessary to segregate the cost for controlling purpose also.
- Separate cost control department should be established for the reducing cost.
- BEP ratio of the corporation is not at a satisfactory level. To make it favorably it should be maintained at a minimum level. Lower the BEP ratio; lower the risk and vice-versa.
- Both corporations must be preparing budget sales plane.
- Both Corporations has lacks of profit planning and control tools for import substitution and increase in profit. Better planning tools are needed to be utilized like CVP analysis and budgeting.
- Both organizations are multi-product organization more emphasis should be given for the product of consumable materials having high contribution margin to generate more profit.
- Both organizations are spending huge amount on the head of salaries and wages, it should focus on proper manpower planning to reduce the cost.
- Organizations must be allocated budget to research and development program so the new technology could be found which provide more competitiveness in the market.
- System of periodical performance report should be strictly followed to be conscious about poor performance and take corrective action immediately and timely.
- New market areas should be identified for the wide coverage of corporation action.

- Sales revenue of the corporation is fluctuating trend, it is not sufficient to cover the cost and earn desire profit. Sales plan of the enterprises should clear maintain and improve.
- Margin of safety ratio of the corporation is at satisfactory level but not sufficient. Higher the percentage of MOS ratio indicates, higher the possibility of good position of the corporation. Since, the management should ready to keep this position.

APPENDIX-1

Table No. 4.1

Overall Sales Salt Trading Corporation Ltd*(NRs. In Lakhs)*

Years / Details	2061/62	2062/63	2063/64	2064/65	2065/66
Total Sales	21939	18505	19162	21389	31904
% Change is Sales		-15.65	3.55	11.62	49.16

Source: Annual Report of STCL.

Table No. 4.2

Overall SalesNational Trading Corporation Ltd *(NRs. In Lakhs)*

Years / Details	2061/62	2062/63	2063/64	2064/65	2065/66
Total Sales	8091	4075	9686	10353	7320
% Change is Sales		-49.62	137.69	6.89	-29.29

Source: Annual Report of NT

Table No. 4.5

Variable Cost analysis with sales value

(NRs. In Lakhs)

Years / Particular	**2061/62**	**2062/63**	**2063/64**	**2064/65**	**2065/66**
Total variable cost of STCL	19372	**15920**	**16445**	**18376**	**28135**
% change	**-**	**-17.81**	**3.19**	**11.74**	**51.1**
Total variable cost of NTL	7580	3266	9218	8939	6470
		-56.91	182.24	-3.03	-27.62

Source: Annual Report of STCL & NTL

APPENDIX-2

Fixed Cost Details

Salt Trading Corporation Ltd *(NRs. In Lakhs)*

Years / Details	2061/62	2062/63	2063/64	2064/65	2065/66
Administrative cost	822.9	883.6	904.78	1143.5	1424.64
Interest Expenses	1199.9	1540.1	1611.88	1529.56	1971.95
Depreciation expenses	38.7	47.3	42.75	51.69	70.64
Total	2061.5	2471.0	2559.42	2724.75	3467.23
Increase/ Decrease %	-	17.86	3.47	6.45	24.24

Source: Annual Report of STCL

Table No. 4.9

Fixed Cost Details

National Trading Corporation Ltd *(NRs. In Lakhs)*

Years / Details	2061/62	2062/63	2063/64	2064/65	2065/66
Administrative cost	1020	1152.34	1025.71	1217.87	1177.45
Interest Expenses	222.78	300.72	297.82	260.47	372.34
Depreciation expenses	22.49	20.82	19.14 \	22.45	26.22
Total	1265.27	1473.88	1342.67	1547.32	1576.01
Increase/ Decrease %	-	16.48	-8.4	14.24	1.85

Source: Annual Report of NTL

APPENDIX-3

Table No. 4.12

Income Statement Details of STCL for the year 2061/6 2 to 2065/66

(NRs. In Lakhs)

Years / Product	2061/2062	2062/63	2063/64	2064/65	2065/66
Sales Value	21939	17905	19162	21389	31904
Variable Cost	19372.4	15320.6	16445.45	**18376**	**28135**
Contribution Margin (S-V)	2566.6	2584.4	2716.6	3013	3769
Fixed Cost	2061.5	2471	2559.41	2724.75	3467.23
Net Income(loss) (CM-FC)	505.1	113.4	157.19	288.25	301.77
Net Profit Margin on sales	2.30	0.61	0.82	1.34	0.945
P/V Ratio=CM/sales	11.69	14.43	14.18	14.15	11.81
% of VC ratio	88.30	85.57	85.82	85.85	88.19
% of FC on sales	9.4	13.80	13.36	12.74	10.87
BEP= FC/PV ratio	17635	17124	18049	19256	29358
MOS=(sales- BEP)	1737.4	781	1113	2133	2546
% of VC on total cost (2÷2+4)	90.38	86.1	86.53	87.07	89.03
% of FC on total cost (4÷2+4)	9.62	13.9	13.47	12.93	10.97
Operating Leverage (3÷5)	5.08	22.79	17.28	10.45	12.49

Source: Annual Report of STCL

APPENDIX-4

Table No. 4.13

Income Statement Details of NTL for the year 2061/6 2 to 2065/66

(NRs. In Lakhs)

Years / Product	2061/2062	2062/63	2063/64	2064/65	2065/66
Sales Value	8091	4075	9686	10353	7320
Variable Cost	7580	3266	9218	8939	6470
Contribution Margin (S-V)	511	809	468	1415	850
Fixed Cost	1265.27	1473.88	1342.67	1547.32	1576.01
Net Income(loss) (CM-FC)	(754.27)	(664.88)	(874.67)	(132.32)	(726.01)
Net Profit Margin on sales	-	-	-	-	
P/V Ratio=CM/sales	6.31	19.85	4.83	13.68	11.61
% of VC ratio	93.68	80.15	95.16	86.34	88.38
% of FC on sales	15.64	36.16	13.86	14.94	21.53
BEP= FC/PV ratio	20051	7425	27798	11310	13574
MOS=(sales- BEP)	(11960)	(3350)	(18112)	(957)	(6254)
% of VC on total cost (2÷2+4)	85.70	80.15	95.17	85.24	80.41
% of FC on total cost (4÷2+4)	14.30	19.85	4.83	14.75	19.58
Operating Leverage (3÷5)	5.08	22.79	17.28	10.45	12.49

Source: Annual Report of NTL

APPENDIX-5

Table No. 4.18

Analysis of Correlation between Sales and Net Profit of salt Trading Corporation

(NRs. In Lakhs)

Fiscal Year	**Sales(X)**	**Profit(Y)**	**XY**	**X^2**	**Y^2**
2061/62	21939	505	11079195	481319721	255025
2062/63	18505	113	2091065	342435025	12769
2063/64	19162	157	3008434	367182244	24649
2064/65	21389	288.25	6165379	457489321	52098
2065/66	31904	301.77	9627670	1017865216	91065
Total	X X 112899	Y X1365	XY X31971743	X^2 X2666291527	Y^2 X435606

Let, Sales = X Profit = Y

Correlation Coefficient (r) $= \dfrac{N \quad XY \text{ Z} \quad X. \quad Y}{\sqrt{N \quad X^2 \text{ Z}(\quad X)^2}\sqrt{N \quad Y^2 \text{ Z}(\quad Y)^2}}$

$= \dfrac{75002315 \text{ Z}154107135}{\sqrt{1163650002 \text{ Z}1343385201}\sqrt{2157380 \text{ Z}1863225}}$

$= \dfrac{5751580}{24192.43 \mid 561.07}$

$= 0.423$

Probable Error (PE)

PE $= 0.6745 \mid \dfrac{(1 \text{Z} r^2)}{\sqrt{n}}$

$= 0.6745 \mid \dfrac{0.821}{2.236}$

$= 0.247$

APPENDIX-6

Table No. 4.20

Income Statement with Changes in Sales Value for the Fiscal Year 2065/066

(NRs. in Lakhs)

Details	**Original**	**Changes on Sales Value**	
		10% Increase	**10% Decrease**
Sales Revenue	31904	35094.4	28713.6
Less: Variable Cost	**28135**	30948.5	25321.5
Contribution Margin	3769	4145.9	3392.1
Less: Fixed Cost	3467.23	3467.23	3467.23
Profit	301.77	678.67	(75.13)
CM Ratio	0.118	0.118	0.118
BEP	29383	29383	29383

Table No. 4.21

Income Statement with Changes in Variable Cost for the Fiscal Year 2063/064

(NRs. In Lakhs)

Details	**Original**	**Changes in variable cost**	
		10% Increase	**10% Decrease**
Sales Revenue	31904	31904	31904
Less: Variable Cost	**28135**	30948.5	25321.5
Contribution Margin	3769	955.5	6582.5
Less: Fixed Cost	3467.23	3467.23	3467.23
Profit	301.77	(2511.73)	3115.27
CM Ratio	0.118	0.029	0.206
BEP	29383	119559	15860

APPENDIX-7

Table No. 4.22

Income Statement with Change in Fixed Cost for the Fiscal Year 2063/64

(NRs. in Lakhs)

Details	**Original**	**Changes in fixed cost**	
		10% Increase	**10% Decrease**
Sales Revenue	31904	31904	31904
Less: Variable Cost	**28135**	**28135**	**28135**
Contribution Margin	3769	3769	3769
Less: Fixed Cost	3467.23	3813.95	2490.5
Profit	301.77	(44.95)	1305.5
CM Ratio	0.118	0.118	0.118
BEP	29383	32321	23648

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Questionnaire

1. What are the main objectives to establish your organization?

   a) ……. b)……. c)…….. d)…….

2. What are the transactions of the organization to achieve objective?

   a)……. b)……. c)…….. d)…….

3. What are the products of your company?

   a)……. b)……. c)…….. d)……

4. What types of plant and machinery have been installed?

   a)……. b)……. c)…….. d)……

5. How many employees are engaged in this organization?

   ……

6. What are the major markets of the organization products?

   a) Local b) Regional c) National d) International

7. What are the organizational structures of the company?

   a) Government b) Private c) Public d) Join stock

8. What are the processes of management decision making?

   a) Top to Bottom b) Bottom to Top c)Participation d) Single decision

9. How the management of the organization does segregate cost?

   a) High Low Method b) Least Square Method c) Formula Method

10. What the major difficulties are for when prepared C-V-P analysis?

    a)……. b)……. c)…….. d)……

11. What are the major difficulties regarding sales expansion?

    a)……. b)……. c)…….. d)……

12. Is the organization going to drop or new lunch any products?

a) Drop b) New Lunch

13. Since, Nepal got the membership of WTO how do you assess export potentials?

    ……

14. What are the problems are faced by your organization?

    a)……. b)……. c)…….. d)……

15. What are the plans for developing skill manpower in your organization?

    a)……. b)……. c)…….. d)