

**COST-VOLUME-PROFIT ANALYSIS AS A TOOL TO MEASURE
EFFECTIVENESS OF PROFIT PLANNING AND CONTROL
(A Case Study of Salt Trading Corporation Limited)**

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Master of Business Studies (MBS)**

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RECOMMENDATION LETTER

This is to certify that the thesis

Submitted by:

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Entitled
**Cost-Volume-Profit Analysis as a Tool to Measure Effectiveness of
Profit Planning and Control**
(A Case Study of Salt Trading Corporation Limited)

*has been prepared as approved by the this Department in the prescribed
format of Faculty of Management. This thesis is forwarded for
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VIVA-VOCE SHEET

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**Cost-Volume-Profit Analysis as a Tool to Measure Effectiveness of
Profit Planning and Control
(A Case Study of Salt Trading Corporation Limited)**

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

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DECLARATION

I hereby declare that the work reported in this thesis entitled **Cost-Volume-Profit Analysis as a Tool to Measure Effectiveness of Profit Planning and Control (A Case Study of Salt Trading Corporation Limited)** submitted to the Shankar Dev Campus, Tribhuvan University, is my original work. It is done in the form of partial fulfillment of the requirements for the Master of Business Studies (MBS) under the supervision and guidance of, Mr. Shankar Raj Joshi and Mr. Prakash Singh Pradhan.

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LIST OF ABBREVIATION

A/C	Account
Asst.	Assistant
B.S.	Bikram Sambat
BE	Break Even
BEP	Break Even Point
CM	Contribution Margin
Cor.	Corporation
CV	Coefficient Variation
CVP	Cost Volume Profit
Dept.	Department
FC	Fixed Cost
FY	Fiscal Year
GDP	Gross Domestic Product
GP	Gross Profit
HMG	His Majesty's Government
i.e.	That is
Km.	Kilometer
Ltd.	Limited
MBS	Master of Business Studies
No.	Number
NOP	Net Operating Profit
OP	Operating Profit
P/L	Profit/Loss
P/V Ratio	Profit Volume Ratio
PE's	Public Enterprises
PPC	Profit Planning and Control
Prof.	Professor
Pvt.	Private

Rs. Rupees
NWSC/NTC Nepal water supply corporation/Nepal telecommunication
STCL Salt Trading Corporation Limited
T.U. Tribhuvan University

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CHAPTER-I

INTRODUCTION

1.1 Background of the Study

Nepal is an underdeveloped, small and landlocked country. Being between two economic emperors India and China, it lacks all major economic infrastructures. Landlockedness, over population, lack of economic infrastructure and political uncertainty are some of the reason behind the backward economic condition. Industrialization is still in its infancy, so agriculture has been major occupation holding most of the economic determinants. Private sectors are not influenced to invest in the sectors where most public concern but they seek for higher return of their investment. Due to this government has to take initiative of public concern and balance development of the country. This is the reason why public enterprises are essential.

Public enterprises are the establishment of a business character, managed and owned 51 percent or more by the government for providing services to people. Most of the public enterprises are established not for gaining or earning profit but for providing services or fulfillment of most public concerns.

Salt trading corporation limited is also one of the public enterprises of Nepal, which was established in 2020 B.S. (1963 A.D.) through the joint efforts of His Majesty Government Nepal and private sector to ensure proper supply of consumer's items throughout the country. It's first task was to makes edible salt readily available. The irregularities in the distribution have to be corrected through organized supply and delivery system. The salt trading corporation limited was not only able to meet the

demand but also maintain quality and later was able to provide iodized salt to prevent goiter a diseases that once plagued the Nepalese society.

This success in supply management led to the addition of essential commodities such as sugar, tea, wheat, lentils, grams, maize, milk, oil seeds, fresh and processed fruits, oil, cement, coffee and processed eatables into its distribution network profit from training activities were invested in the production of basic necessities to boost self sufficiency accelerate economic growth, and gain public support.

From its infancy as a trading house, salt trading corporation limited has matured into a diversified conglomerate with unmatched distribution network all over the country. Its twenty branches scattered throughout the country providing the people easy access to import outlets for goods produced in various parts of the country. The employment opportunities that arise through the activities of the organization are hard to quantify as they also providing plenty of self employment opportunity. The salt trading group directly employ about 2500 individuals all of the office in the country.

Salt trading corporation has equity in many pioneering and leading industries in the country such as Khaddhya U. Ltd. Spinning Mills Ltd., Gorachakali Rubber Udyog Limited, Morang Sugar Mills Ltd., and Gharelu Hastakala Udyog Ltd., Nepal Vegetable Ghee Udyog Ltd. The organization has also been assigned the responsibility of implementing the Nepal-India Goiter Control Project. The groups turn over exceeds NRs. 2 billion and investment in fixed assets in close to NRs. 1.5 billion.

Salt trading corporation limited a major catalyst in bringing about the desired economic changes and growth in Nepal, signing of the 1st salt contract between the representatives of STCL and state trading corporation of India on 14th July 1965.

The organization's accessibility to these remote areas have been turned out to be very rewarding and fruitful as it also provides the opportunities to procure commodities that are locally produced in different part of the country. STCL has been playing a very significant role in procuring goods from different parts of the country and supplying them in areas where they derive optimum value.

The organization began its trading activities by dealing in salt and now it imports, exports produces and supplies good of vast diversities. Industrial products, agricultural products and industrial raw materials are the major components of its trade. With the introduction of the liberal economic policy the organization is committed to boost exports to bring about a more favorable change in the balance of trade. The organization also conducts triangular trade dedicated to the task of promoting more exports for the benefit of exporters and importers alike.

Salt trading corporation limited, we know, deals with importing products and distributing or taking it to public reach through sales. Sales, cost profit analysis is very important tool of profit planning and control. This tool examines the behavior of total revenue, total cost and operating income as changes occur in the output level, the selling price, the variable cost per unit, and fiscal cost of a product. It is an analytical technique for studying the relationship between volume, cost, prices, and profits. It is used to determine the profit planning process of the firm. It is a simple but powerful tool for planning of profit and therefore, of operations. It provides an answer to "what if" theme-telling the volume required producing a target amount of profit. For a coordinate approach towards achieving production and profit goals. It has grown into a basic technique with a focus on future. It has gained greater utility and respectability.

In Nepalese public enterprise the objectives are mainly social welfare or they are for fulfilling the social obligation. Basically objectives

of most of the public enterprise is social welfare, profit is less emphasized. But they cannot survive only with social concern so have commercial obligation too. In this case corporation should earn profit also. Therefore cost-volume-profit analysis is the most important part of every business organization to achieve their goals whether they are manufacturing or non-manufacturing and public or private enterprises.

1.2 Statement of the Problems

Salt Trading Corporation is one of the trading corporations, large amount is invested from various sectors, and therefore, the successful operation of the industry is very much important. The success of the industry will not only attract the foreign investment in the country but also increase the private sector within the country. But financial performance of the industry is not satisfactory.

How the business is being operated largely depends upon how the business operation is planned. Poor performance is the outcome of poor planning, controlling and decision-making. Profit just doesn't happen by chance, it is to be managed. CVP analysis is a supplementary tool of planning for profit. CVP analysis is immensely helpful for developing alternative strategies in sales planning and cost estimation.

This study is basically designed to solve the following problems by taking into account the budget's role in planning the profit.

1. Is the company practicing the appropriate budgeting system?
2. Is the company practicing CVP analysis for its profit planning?
3. Are there any difficulties facing by the STCL in the application of the CVP analysis?
4. What is the impact of CPV analysis profitability?

1.3 Objectives of the Study

The general objectives of this study are to examine cost-volume-profit used by Salt Trading Corporation. The major objectives of this study are highlighted as below:

1. To study cost-volume-profit trend of Salt Trading Corporation Limited.
2. To assess the impact of CVP analysis on profitability.
3. To examine the sensitivity analysis of Salt Trading Corporation.
4. To provide recommendations and suitable suggestions to the corporation.

1.4 Significance of the Study

This research's work is based mainly on cost-volume-profit analysis and its effectiveness in Salt Trading Corporation. This is one of the public enterprises. The finding can be equally important to other public enterprises too. Many other organization taking care of profit planning and control in their management also can be benefited from it. Cost-volume-profit analysis and other information of the study can be useful for further research to university students and others too. Lastly the suggestion and recommendation will serve the concerned people while making analyzing cost-volume-profit.

1.5 Limitation of the Study

This study is based solely on Salt Trading Corporation. The study goes through cost-volume-profit analysis but still has some limitations.

1. This study is based on data and trend of only 5 years period of 2062/063 to 2066/067.
2. Analysis is concentrated in some managerial financial and accounting aspects and it doesn't cover the other area of the enterprise.
3. This is based on secondary data provided by the management of Salt Trading Corporation.

4. The study is a case study of the corporation. Findings, recommendation and suggestions are not for directing Salt Trading Corporation Limited.

1.6 Organization of the Study

As specified format of the research study, this study also comprises of five major chapters. They are:

- 1. Introduction:** This chapter includes focus of study on scenario of STL, statement of problem, objectives of study, significance of study and limitation of study.
- 2. Review of Literature:** This chapter concerns about the concepts of PPC, cost-volume-profit and review of related thesis to highlight the related terms and to present the available information about previous related studies.
- 3. Research Methodology:** This chapter includes introduction, research design, sources and nature of data, data gathering instruments, statistical tools used for the study.
- 4. Data Presentation and Analysis:** Various data are gathered from the application of the different methods and presented and tabulated as required by the research objectives. Data are interpreted and analyzed with the help of various analytical tools and technique.
- 5. Summary, Conclusion and Recommendation:** This chapter includes summary and conclusion of the study. It also includes recommendation on the basis of the study.

At the end of the study, bibliography, questionnaire and appendix are also incorporated questionnaires.

CHAPTER - II

REVIEW OF LITERATURE

2. Conceptual Review

2.1 Meaning and Definition of Profit Planning Control (PPC)

Usually, profit do not just happen profit are managed when a management plans its profit performance that is knew as "profit planning" (Lynch and Williamson; 1986: 99). Profit planning is a part of overall planning process of an organization "profit planning" include towards "profit" and "planning". Them it is required to explain them separately.

2.2 Profit

Generally profit is known as the part of income of the firm. Profit is signed for the allocation of resources and yardstick for judging managerial efficiency (Kulkarni, P.V., 1985: 245). The reliable measure of the effectiveness of performance of a business is profit. Profit is the primary measure of success of the business enterprise. It is the main test of business enterprise performance. Simply profit is the excess of income over cost of production.

Economic theories on profit may be put in broad categories, the first theory looks upon profit as the reward for bearing risks; the second views profit as the consequence of friction and imperfections in the competitive adjustment of the economy to dynamic changes, the third sees profit as the reward or successful innovation.

At last, it should be noted that profit are residual income left after the payment of the contractual to other factor of production (Joshi, 1993: 170).

2.3 Planning

Planning means setting of goals for the firm, considering various ways of meeting those goals and picking out what appears to be the best way to meet those goals (Lynch and Williamson: 1985: 18). Till

planning, the management is concerned with laying down objectives and determining the course of action to be followed out of the several alternatives available to meet those objectives.

Planning is the process of developing enterprise objectives and selecting future course of action to accomplish them. It includes: (Wealsh, Hilton and Gordon: 1999: 3).

- Establishing enterprise objectives.
- Developing premises about the environment in which they are to be accomplished.
- Selecting a course of action for accomplishing the objectives.
- Initiating activities necessary to translate plans into action.
- Current re-planning to correct current deficiencies.

Planning is essential to accomplish goals.

Planning reduces uncertainty and provides effective direction to the employees by determining the course of action in advance.

2.4 Concepts of Control

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

Controlling is the measurement and correction of performance in order to make sure that enterprise objectives and the plans devised to attain them are accomplished.

Controlling means evaluating the firm's activities against the plan and deciding what should be done if the plan is not being followed. (Lynch and Williamson: 1995: 18).

Planning and controlling are interdependent and thus closely related with each other because a manager cannot control unless he has planned a course of action for an effective and smooth managerial behavior into proper post and progress on behalf of company, firm or enterprise. Under this condition to be applied, both planning and controlling are mutually inseparable.

2.4.1. Meaning and Definition of Profit Planning

Of course, it is difficult to confess the actual meaning and definition of PPC. But nowadays it has been realized that PPC is somewhat, rather than narrow traditional view of a budget as a clerically derived set of quantitative schedules prepared of an accountant. In past years, there has also been a tendency to view the budget, primarily as mathematical model for an organizational development by computer programmers.

These views completely overlook the three most relevant aspects of the PPC concepts:

- PPC required major planning decision by management.
- PPC entails pervasive management control activities.
- PPC recognizes many of the critical behavior implication throughout the organization.

In comprehensive sense we can say that, PPC is one of the most important approaches that have been developed to facilitate effective performance of the management process.

Profit planning represents an overall plan of operation, covers a definite period of time and formulates the planning decisions of management. It consists of the operating budget, the financial budget and appropriation budget (Kulkarmi, 1992: 310).

Profit planning is especially effective in enabling middle management to help plan profit and control cost.

Profit planning is a technique of preparing and using an operating plan for the purpose of achieving the maximum profit or a profit target set by management. Such planning may be done for a short period or for a long period (Pandey, 1995: 329).

Profit planning or budgeting is a forward planning and involves the preparation in advance of the quantitative as well as financial statement to indicate the intention of management in respect of the various aspect of the business profit planning, in fact, is a managerial technique and it is a written plan in which all aspects of business operation with respect of definite future period are included. It is a formal statement of policy, plan, objectives and goal established by the top management in respect of some future period. Profit planning is a predetermined detailed plan of action developed and distributed as a guide to current operation and as a partial basis for the subsequent evaluation of performance. Thus, we can say that profit planning is a tool which may be used by the management in planning the future course of action and in controlling actual performance (Gupta, 1992: 521).

Profit planning is a systematic and formal means of decision-making and attaining organizational objectives and goals at a specific future period of time by the application of diversified managerial tools for utilization of available resources at a reasonable manner.

A profit plan is a comprehensive statement of intentions, expressed in financial plan for the operation of the firm for a short period. It is a plan of the firm's expectation and is used as a basis for meaning and controlling the actual performance managers and their unity (Pandey, 1999: 257).

Profit planning thus becomes a well throughout operational plan with its financial implications expressed as both long and short range

profit plans in the form of financial statement, including balance sheet, income statements, and cash and working capital projections.

Profit planning is now an important responsibility of the finance managers or the chief executive has the ultimate responsibility for profit planning and control program. Welsch suggests that "A comprehensive profit planning and control as a systematic and formalized approach for performing significant phase of the management planning and control function."

Long-range profit planning is a systematic and formalized process for purposefully directing and controlling future operation with a view to achieving desired objectives for periods extending beyond one year. And the success of each enterprise in realizing its optimum profit is determined by the extent, to which it attains its objectives, develops coordinated plans to realize them and exercises control of its entire process constitutes a budgetary planning and control program (Kulkarni, 1992: 315).

When the management plans for profit for a certain period of times it is called profit plan. Profit plan is defined "as an estimation and predetermination of revenue and expressed that estimates how much income will be generated and how it would be spent in order to meet investment and profit requirement. In case of institutional operations it presents a plan for spending income in a manner that does not result in loss. It represents an overall plan of operations, covers a definite period of time and formulates the planning decision of management.

In summary, profit planning means the development and acceptance of objectives and goals and moving an organization efficiently to achieve objectives and goals.

2.5 Strategic and Tactical Profit Plan

When managers of the various responsibility centers in the enterprise receive the executive management planning instruction and the projected plans, they began intensive activities to develop their respective strategic and tactical profit plans. The strategic plan, which is also, called long range plan and tactical plan which also called short range plan developed currently.

A short term profit plan which is for one or less than one year called tactical profit plan. The (actual profit plan is details and encompasses, a one year time coming year. These types of plan are prepared taking the bases of long range profit plan and profit plan. Tactical profit plan includes those detail essential:

- To provide a general understanding of the annual profit plan.
- To provide on overall view of the comprehensive short range profit plan the organizational chart and the statements of broad objectives, the specific goals, the strategies and planning premises memo as background before studying these schedule.
- To provide detailed classification by month responsibility and product.

2.5.1 Strategic Profit Plan

A long range plan which is prepared for more than one year is defined by strategic profit plan. Generally strategic profit plan may be five years. Strategic profit plan is main goal of the enterprise and other plans and programs deals along this plan. Strategic profit plan is broad and should summary data. Part of long range plan is more or less informal as represented by tentative commitments made by the executive committee in its planning session. The long range plan includes the following basic components detailed by each year.

- a. Income statement

- b. Cash flow projection
- c. Capital expenditure plan
- d. Manpower requirement
- e. Research plan, and
- f. Long range market plan.

2.6 Objectives of Profit Planning

"A comprehensive profit planning is systematic and formalized approach for stating and communicating the forms expectation and accomplishing management is such a way as to maximize the use of the profit plan is to achieve the maximum benefit from resources available to an organization over a particular span of time. It serves basically as at tool of management. The maximum objectives of PPC is to assist in systematic, planning and in control the operation and the enterprise. In fact it is best source of communication and an important tool in hand of management. The purpose of budgeting or PPC may be summarized as follows.

1. To state the firms expectations (goals) in clear, formal term to avoid confusion and to facilities their attainability.
2. To communicate expectations to all concerned with the management of the firm so that they are understood, supported and implemented.
3. To provide a detailed plan of action for reducing uncertainty and for the proper direction of individual and group effort to achieve goals.
4. To coordinate the activities and efforts is such a way that the use of resources is maximized.
5. The provide a means of measuring and controlling the performance of individual and units and to supply information on the basis of which the necessary corrective action can be taken.

2.7 Profit planning process and Basic Elements

Profit is not just happen but it is planned. The major processes of profit planning are as follows:

Overview of PPC Process

Management function	Sequential phases of the PPC process	Primary responsibility
↑ Planning ↓	1. External relevant variables—identity and evaluate	↑ Executive management
	2. Board objectives of business-develop or revise	
	3. Specific enterprise goals—develop consistent with item 2 above	↓ <hr/> ↑ Middle management
	4. Enterprise strategies-Specify major thrusts to attain the objectives and goals	
	5. Executive management planning instructions – specify planning premises (or guidelines) for managers (based on items 1-4 above)	
<hr/> ↑ Leading ↓ <hr/> ↑ Controlling ↓	6. Project plans – develop and evaluate for each project	↓ <hr/> ↑ Management levels
	7. Strategic profit plan (long-range) develop for 3, 5 or 10 years	
	8. Tactical profit plan (short-range) develop for upcoming year	↓ <hr/> ↑ All management levels
9. Implementation of profit plans –Implement throughout the budget year		
	10. Performance reports-prepare monthly reports by responsibility	
	11. Follow-Up-Provide feedback, take corrective action, and replan	

[Source: Welsch, Hilton and Gordon, 1999: 73]

The PPC process given in table typically is repeated each budget year. Also, the components of a PPC program typically are restated for each budget year.

The basic elements of profit planning are as follows:

*** Comprehensive and coordinate plan**

The profit planning considers all activities and operations of an organization. The budgets prepared by different departments inside an organization have to be compiled or coordinated and profit planning does it. So before preparing a profit planning, firstly, all the departments have to be compiled and that budget is known as comprehensive budget or coordinate plan.

*** Expressed in Financial Terms**

All activities covered by budgets are related with funds. Therefore, the budget has to be expressed in money units (i.e. in rupees, Dollars, Pounds etc.)

*** Plan for Operational Resources and Expenses**

It is a plan for the firm's operating and resources of budget are a mechanization to plan for the firm's all operations or activities. The two aspects of every operation are revenue and expenses. The budgets must plan for and quantity revenue and expenses related to specific operation planning should not be done for revenue and expenses only. The plan should be made for carry out the operations. The planning for resources will include planning assets and sources of funds.

*** Future plan**

It is a plan for specific period. Time dimension must be added to a budget. A budget is meaningful only when it is related to a specific time. The budget estimates will be relevant only for some specific period (Welsch, 1979: 73-75).

2.8 Process of Profit Planning and Control

The process

The process of PPC outlines the sequential phase that management must perform the development of objective for the business through control corrective action and re-planning. Economic, political, social and technological factor operating in the external environments have significant impact on all organization; the management must understand them and try to harmonize the internal environment with them. Thus, the basic tasks of managing, planning, organizing, directing and controlling are the same in business and non-business enterprises.

The planning process should involve periodic, consistent and in depth re-planning so that all aspects of operations are carefully reexamined and reevaluated. This prevents a budget planning approach that involves only justification of increase over the period the concepts of revaluation and the necessity to justify all aspect of the plans periodically finds its strongest support in what has been zero base budgeting.

2.8.1. Identification and Evaluation of External Variable

The variable identification phase of the PPC process focus on identification and evaluating the effects of the extent variables. Identification also involves. Separate consideration of variable that are controllable and those are non-controllable so the management can take advantage of potential favorable impacts and minimize potential unfavorable impacts of the enterprises. Analysis and evaluation of the environmental variables must be a continuing concern of management of particularly significant phase of this analysis includes an evaluation of the present strength and weakness of the enterprises by all executive managers.

2.8.2. Developing of the Broad Objectives of the Enterprises

In this phase of PPC executive management specify their broad objectives based on a realistic evaluation of the relevant variable and assessment of the strength and weakness. Its purpose is to provide enterprise identity, continuity and definition.

- a. To define the purpose of the company.
- b. To clarify the philosophy of the company.
- c. To create a particular environment.
- d. To set down a guide for manager.

The statement of broad objectives normally should not specify quantitative goals. Rather, it should be a narrative expression of the purpose, objectives and philosophical character of the business.

2.8.3. Development of Specific Goals for the Enterprises

The purpose of this phase is to bearing the statement of broad objectives into sharper focus and to move from the realm of general information to more specific planning information. It provides both narrative and quantitative goals that are define and measurable. The specific goals provide a basis for performance measurement. This specific goal may be interims of production goals, profit margin, return an investment, market share and cash flow.

2.8.4. Development and Evaluation of Company Strategy

The purpose of developing and disseminating enterprise strategies is to find the best alternative for attaining the planed broad objectives and specific goals. A particular strategy may be short term or long term but for development and evaluating of company strategies the management must focus on critical areas.

2.8.5 Executive Management Planning Instructions

This phase involves communication of the substantive plan to middle and lower levels management. It explains the broad objectives,

enterprise goals, strategies and other instruction needed to develop the strategic and tactical profit plans. Executive management planning instruction is necessary for implementation of strategies for lower level which are direct involve to implementation of plan.

2.8.6. Preparation and Evaluation of Project Plans

Profit plans encompass variable time horizons because each profit plan has a unique time dimension. Project plan encompass such terms as plans for improvement and present product new and expanded physical facilities entrance into new industries, exist from products and industries now technology and other major activities that can be separately identified for planning purpose. The nature of profit is such that they must be planned as separate units. In planning for a profit, the time span considered must normally be the anticipated. This preparation and evaluation of current and future profit plans are essential on a formal basis as one of the profit planning phases.

2.8.7 Development and Approval of Strategic and Tactical Profit Plans

The strategic long range plan and the tactical short plan we usually developed concurrently the chief executive and executive management with fully participation. This manager of each responsibility center to develop a strategic long range profit plan and in harmony with the five year plan a tactical profit plan and in harmony with the five years plan a tactical profit plan. All of this activity must be coordinated and a overall profit plan should be established among the center in conformity with the organization structure.

After the participatory approval process is completed for each major responsibility center and all the relevant differences are resolved. The various plan and programs form the major responsibilities centers are

combined into the overall strategic and tactical profit plans for the enterprise as a whole.

2.8.8 Implementation of Profit Plan

Effective management at all levels requires that enterprise objectives, goals, strategies and policies be communicated and understood by substantially. After communicated of the profit plans, a series of profit the chief executive officer should initially meet with the other top executives to discuss implementation and action in conferences with the objectives and goals specified in the profit plans similar conference should be conducted until all major responsibility centers are reached.

2.8.9 Use of Periodic Performance Report

As profit plans are being implemented during the period of time specified in the tactical plan, periodic performance reports are needed. These performance reports are prepared by the accounting department on monthly basis. Also some special performance with planned performance and (b) show each difference as a favorable or unfavorable performance variation.

2.8.10 Implementation of Follow Up

Follow up is an important part of effective control because performance reports are based on assigned responsibility; they are the basic for effective follow up actions. It is important to dishing with between calls and effects. The performance variation are effects, the management must determine the underlying causes. The identification of favorable and unfavorable variances of causes is primarily responsibility of line management. Alternative action must be selected than corrective action implement.

2.9 Components of Profit Planning and Control

The components of PPC as stated by Welsch Glenn A. are thus:
(Welsch, 1979: 74).

A. The substantive plan

- Broad objectives of the enterprise
- Specified enterprise goals
- Enterprise strategies
- Executive management planning instruction

B. The financial plan

i. Strategic long-range profit plan:

- Sales, cost and profit projections.
- Major projects and capital additions.
- Cash flow and financing.
- Personnel requirement.

ii. Tactical short-range (annual) profit plan

a. Operating plan

- Planned income statement
- Sales plan
- Production for merchandise purchase plan
- Administrative expenses budget.
- Appropriation-type budget.

b. Financial position plan (planned balance sheet)

- Asset
- Liabilities
- Owners equity

C. Variable expenses budget

D. Supplementary data (CVP, Ratio analysis)

E. Performance reports

F. Follow-up, corrective action, and preplanning reports.

2.10 Major Tools Used in Profit Planning and Control

Profit planning and control represent an overall plan of operations which cover a definite period and formulates a plan of management. It consists of three main budgets which are (Rijal, 2005: 16-22).

1. Operating budget

The operating budget covers revenue and expenses. In other words, operating budget relates to the physical activities or operations of a firm such as sales, production, purchased, labor and other different expenses budgets. In specification an operating budget has following term:

I. Sales budget: A sales budget is a detailed schedule of expected sales for coming period which is usually expressed in both on punds and units. Once the sales budget has been set, a decision can be made on the level of production budget can be set well. The sales budget is constructed by multiplying the expected sales in unit by the sales price (Garrison, 1985: 306).

Sales budget is prepared from sales forecast where as a sales forecast encompass potential sales for the entire industry as well as potential sales for the firm preparing the forecast. Sales result from prior years is used as a starting point in preparing a sales forecast. (Welsch, Hilton and Gordon, 1979: 173).

ii. Production budget: After the sales budget has been prepared the production requirements for the forth coming budget period can be determined and organized in the form of a production budget. Sufficient good will have to be available to meet sales need and provides for the desired ending inventory. A portion of these goods will already exist in the form of beginning inventory. The remainder will have to be produced. Thus, production need can be determined by adding budgeted sales units

to the desired ending inventory and deducting the beginning inventory from the total (Horngreen, Foster and Datar, 1999: 182).

iii. Purchase budget: In case of merchandizing firm, instead of preparing production budget, it would prepare a merchandise purchase budget showing the amount of goods to be purchase from its suppliers during the period. The merchandise purchase budget is in the same basic format as the production budget except that; it shows goods to be purchased rather than goods to be produced.

iv. Direct material budget: After the production needs have been computed, a direct material budget should be prepared to show the materials that will be required in the product process. Sufficient raw material will have to be available to meet production needs and to provide for the desired ending raw material inventory for the budget period, part of this raw material requirement will already exist in the form of a beginning raw materials inventory. The remainder will have to be purchased from supplier.

v. Direct labour budget: The direct labour budget is also developed from the production budget. Direct labour requirements must be computed so that the company will know whether sufficient labour time is available to meet production needs. Just knowing in advance, the company can develop plan to adjust the labour force as the situation may require. Direct labour requirement can be computed multiplying product to be produced of each period by the number of direct labour-hours required to produce a single unit. Many different type of labour may be involved. If so, then computation should be by type of labour needed. The hours of direct labour time resulting from these computations can then be multiplied by the direct labour cost per hour to obtain budgeted total direct labour cost.

vi. Manufacturing overhead budget: provides schedule of all cost of production other than direct material and direct labour. These costs should be broken down by cost behavior for budgeting purpose and a predetermined overhead rate developed. This rate will be used to apply manufacturing overhead to units product throughout the budget period.

vii. Selling and administrative overhead budget: The selling and administrative expenses overhead budget contains a listing of anticipated expenses for the budget period that will be incurred in area other than manufacturing the budget will be made up of many. Smaller, individual budgets submitted by various persons having responsibility for cost control in selling and administrative matters. If the number of expenses item is very large, separate budgets may be needed for the selling and administrative functions.

2. Financial Budgets

Financial budgets are concerned with expected cash receipts disbursement financial position and result of operations. The components of financial budgets are:

- i. **Budgeted income statement:** The budgeted income statement is one of the key schedules in the budget process. It is the document that tells how profitable operations are anticipated to be the forth coming period. After it has been prepared, it stands on a benchmark against which subsequent company performance can be measured (Garrison, 1985: 313).
- ii. **Cash budget:** Cash budget is the detail showing cash receipt cash disbursement and the balance cash. The cash budget is composed of four major sections: The receipts section, the disbursements section, the cash excess or deficiency section, and the financing section. The receipts section consists of the opening balance of cash added to whatever is expected in the

way of cash receipts during the budget period. The disbursement section consists of cash payments that are planned for the budget period. The cash excess or deficiency section consists of the difference between the cash receipts section total and the cash disbursement section total. The financing section provides a detailed account of the borrowing and repayments projected to take place during the budget period. It includes a detailed interest payment that will be due on money borrowed.

- iii. **Budgeted balance sheet:** Budgeted balance sheet is a statement of assets and liabilities prepared after the preparation of operating budgets and financial budgets. It is based on functional operating budgets, cash budget, projected income statement and the previous year's assets and liabilities. In other words, budgeted balance sheet developed by beginning with the current balance sheet and adjusting it for the data contained in the other budgets.

3. Appropriation Budget

The appropriation budget covers all types of expenditure on advertising and research sectors. Apart from above budgets, PPC also has a relationship with following additional budgets, CVP analysis, and completion of profit plan and performance report:

Flexible budget: Flexible expenses budget relates only to expenses or costs. They are also called dynamic activity or output adjusted expenses budgets. The concept of flexible budget is that all expenses are incurred because of passage of time, output, activity or combination of time and output, activity or combination of time and output or activity. Therefore, it is complementary to tactical profit plan which helps to provide an expenses plan. They should be adjusted to actual output for comparison with actual expenses in periodic performance report. Expenses or costs

must be identified into fixed and variable expenses or costs in flexible budget.

Capital expenditure budget:

Capital expenditure budgeting is a process of planning and controlling of the long-term and short-term expenditure for expansion replacement, and contraction of fixed assets. Capital budgeting is useful to earn future profit and reduce future costs. The major elements of a capital expenditure budget are cash outflow and cash in-flows. Cash outflow includes the cost of the project as cash outlays and different time during the life of a project. The cash outflows are affected by the provision of residual value of old equipment, tax position, additional working capital needed etc. Cash inflows are expected cash revenue during the life of a project. The non-cash expenses like depreciation and tax position can affect the cash inflows.

Zero based budgeting

Zero based budgeting is the method of budgeting in which managers are required to start at zero budget levels every year and to justify all costs as if the programs involved were being initiated for the first time. No costs are viewed as being on going in nature; the manager must start at the ground level each year and present justification for all costs in the proposed budget regardless of the type of costs involve. Zero based budgeting differs from traditional budgeting in which budgets are generally initiated on an incremental basis, the managers start with last year's budget and simply adds to it according to anticipated needs. The manager does not have to start at the ground each year and justify ongoing costs for existing programs.

Activity Base Budgeting

Activity based costing can lead to improved decision making which principles extend budgeting. Activity based budgeting focuses on

the lots of activities to produce and sell products and services. It separates indirect costs into separate homogeneous activity costs pools. Management uses the cause and effect criterion to identify to cost drivers for each of these indirect costs pools.

Cost volume profit analysis

The analysis of relationship between cost, volume and profit is known as cost-volume-profit analysis. It is an analytical tool. For studying the relationship between volumes, cost, price and profit. Cost-volume-profit analysis is great helpful in managerial decision making. Specially, cost control and profit planning is possible with the help of cost-volume-profit analysis.

Completion of Profit Plan

The principal output of a budgeting is a comprehensive profit plan that ties together all phases of an organization's operation. The completion of profit plan is comprised of many separate budgets or schedule that is interdependent. In other words, completion of profit plan means the process of profit planning ends with the planned income statement and planned balance sheet.

Performance Report

Performance report is an important part of comprehensive PPC system. The performance reporting phase of a comprehensive PPC program significantly influences the extent to which the organization's planned goals and objectives are attained. Performance reports deal with control aspects of PPC or management control function of management defined as "the action necessary to assure the objectives, plans, policies and standards are being attend" or in the words, the objectives of control is to guarantee the achievement the planned objectives of the management by introducing periodic systematic correction measure. Performance report is one of the vital tools of the management to exercise of control function effectively.

2.11 Cost-Volume-Profit Analysis: A Tool of Profit Planning and Control

Profit is the most important measure of the firm's performance. In the free-market economy, profit is a guide for allocating resources efficiently. An analysis of the effects of various factors on profits is an essential step in the financial planning and decision making.

The analytical technique used to study the behavior of profit in response to the changes in volume, costs and prices is called the cost-volume-profit (CVP) analysis. It is the device used to determine the usefulness of the profit planning process of the firm, in fact, the entire field of profit planning has become associated with the CVP inter-relationships. As a starting point in profit planning CVP analysis helps to determine the minimum sales volume to avoid losses and the sales volume at which the profit goal of the firm will be achieved. As an ultimate objective, it helps management in seeking the most profitable combination of cost and volume. A dynamic management, therefore, uses CVP analysis to predict and evaluate the implications of its short-run decision about fixed cost, variable cost, volume and selling price for its profit plan on a continuous basis. Generally, CVP analysis provides answers to questions such as:

1. What minimum level of sales need be achieved to avoid losses?
2. What should be the sales level to earn a target profit?
3. What will be the effect of changes in prices, costs and volume on profit?
4. How will profit be affected when sales mix is changed?
5. What will be new break-even point under (3) and (4) above?
6. What will be the impact of plant expansion on cost-volume-profit relationships?

7. Which product of the most profitable and which one is the least profitable?
8. Should sales of a product or operation of a plan be discontinued?
9. Should the firm be shelf-down temporarily?

(Pandey, 1993: 267).

The CVP analysis is of immense utility to management as it provides an insight into the effect and interrelationship of factors which influence profit of the firm.

Cost-Volume-Profit (CVP) analysis examines the behavior of total revenues, total costs, and operating income as changes occur in the output level, the selling price, the variable cost per unit, and/or the fixed costs of a product (Horngren, Datar and Foster, 2003).

Cost-Volume profit analysis is a systematic method of examining the relationship between changes in activity and change in total sales revenue, expenses and net profit. As a model of this relationship CVP analysis simplifies the real world condition that a firm will face. Like most models, which are abstractions from reality, CVP analysis is subject to a number of underlying assumption and limitations, nevertheless, it is a powerful tool for decision making in certain situation (Drury, 2000).

Cost-Volume-Profit analysis a management accounting tool to show the relationship between the elements of profit planning. Profit planning is the function of the selling price of product, demand, variable cost, fixed costs, taxes etc. The whole picture of profit planning is associated with cost-volume-profit interrelationship (Bajracharya, Ojha, Goat and Sharma, 2004: 225).

Cost-Volume-Profit analysis is a supplementary tool of planning for profit Cost-volume profit analysis is immensely helpful for developing alternative strategies in sales planning and cost estimation. A certain relationship exists between the variables like selling price, sales

volume, expenses and taxes. Cost-volume-profit analysis is an accounting technique showing the relationship between these variables. This technique is applicable in all economic sectors.

2.11.1 Basic Features of Cost-Volume-Profit Analysis Information

- Sales revenue: Total sales revenue fluctuates in direct proportion to the units sold. Revenue per unit is assumed to remain constant.
- Variable costs: Total variable costs change in the same proportion and in the same direction as the volume of output changes, and the per unit variable costs remain fixed.
- Fixed costs: Total fixed costs remain unchanged for the same period of time whatever may be the level of output within the relevant range. Per unit fixed costs are variable.
- Semi-variable costs: Those costs, which are neither constant in total amount nor constant. Per unit are mixed or semi-variable costs.

CVP analysis required a separation between fixed and variable costs. Semi-variable or mixed costs can be segregated into variable and fixed components by applying any of the cost segregation methods as: visual fit methods, high-low point method or least square regression analysis method.

2.11.2 Utility of Cost-Volume Profit

Cost-volume-profit analysis is the most useful technique of profit planning and control. It is a device to explain the relationship between cost, volume and profits. The utility of CVP analysis lies in the following advantages:

1. It is a simple device to understand accounting data.
2. It is a useful diagnostic tool.
3. It provides basic information for future profit improvement studies.

4. It is useful method for considering the risk implication of alternative actions.

2.11.3 Assumption of CVP/BEP

Cost-volume-profit analysis is based on the following assumptions (Pandey, 1993: 216).

1. The total cost can be separated into fixed and variable components.
2. The total cost can be separated into fixed and variable components.
 - a. That total fixed cost remains unchanged with change in sales volume.
 - b. That variable cost per unit is constraint and total variable

Cost changes in direct proportion to sales volume:

3. The selling price per unit remains constant; that is, it does not change with volume or because of other factors.
4. The firm manufactures only one product or if there are multiple products, the sales mix does not change.
5. Production and sales are synchronized; that is, inventories remain the same.

2.12 Approaches to Cost-Volume-Profit Analysis

The CVP relationships can be analyzed through different approaches which are (Dhakal, 2004: 54).

2.12.1 Contribution Margin Approach

Contribution margin reflects the revenue remaining after certainty all variable costs. In managerial accounting language, contribution margin is the excess of sales revenue over variable costs. So contribution margin means how much is left from sales revenue over variable costs. So contribution margin means how much is left from sales revenue, after covering variable expenses that are contributed toward the covering of fixed expense and then toward profit for the period. If the contribution margin is not sufficient to cover the fixed expense, then a loss occurs for

the period. Basically contribution margin indicates why operating income changes as the volume of sales changes:

It can be expressed as:

Contribution margin = Sales – Variable cost

Or

Contribution margin = Fixed cost + Profit

Contribution margin is usually expressed as a percentage sales which is known as contribution margin ratio or profit volume ratio. That is:

$$\begin{aligned} \text{CM ratio or P/V ratio} &= \frac{\text{Individual products sales unit or value}}{\text{Total of all products sales units or value}} \\ &= 1 - \frac{VC}{SP} \end{aligned}$$

2.12.2 Formula Approach

The most popularly practice approach to the breakeven point and cost volume profit analysis is to formula, also known as the equation, it is particularly because the equation provides the most general and the easiest to remember – approach uses an algebraic equation to calculate the breakeven point. The answer provides by solving the equation may sometimes, need to be rounded to whole number of units or lots sizes. The rounding of break even points is always done upward because this will provide a small profit rather than the small loss that would be shown from rounding downward (Chaibon, Barfield and Kinney: 1993).

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

BE sales value = FC + VC I profit

BE sales unit x SPPU = FC + (BE sales unit x VCPU) + 0

Contribution margin approach	Symbol or equation
Sales volume (units)	Q
Selling price per unit	P
Sales revenue (Rs.)	Q x P
Less variable costs	Q x VCPU
Contribution margin	Q x P – Q x VCP
Less fixed costs	FC
Net profit	Q x P-Q x VCPU- FC

2.12.3 The Graphic Approach to CVP Analysis

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

In the graph given below the fixed costs remain constraint within the relevant range; the fixed cost curve is parallel to 'ox' axis. Variable cost slope downward from the origin to right but the slope depends on variable cost ratio. The total costs curve parallels the variable cost curve. So the angle 'o' equals the angle 'v', it is because total cost = total fixed costs plus total variable costs at volume 'Q'.

$$\text{Total costs} = \text{TFC} + Q \times \text{VCPU}$$

At volume 'Q +N'

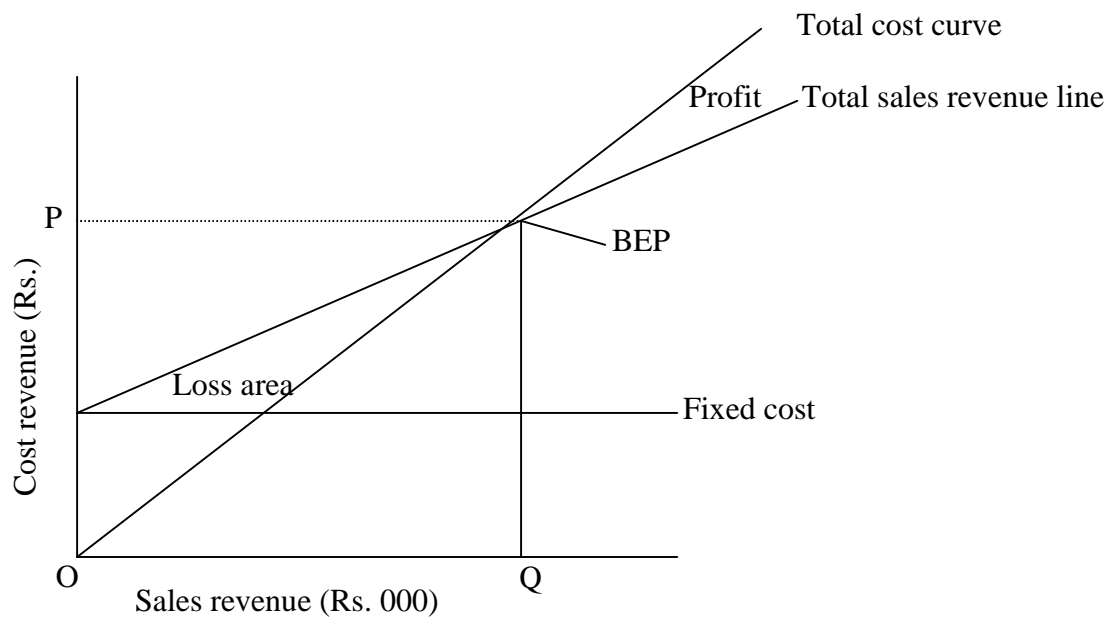
$$\text{Total costs} = \text{TFC} + (Q +N) \times \text{VCPU}$$

$$\text{Total costs} = O + n \times \text{VCPU}$$

$$\text{Total Cost} = \text{Variable Costs}$$

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

Graphical approach to CVP



The above graph clearly shows that of the company can reach the point of BEP it can generate sufficient revenue to cover all its operating expenses. At this point, the total revenue equal the total cost. Here, the revenue curve breaks up (intersects) the total cost curve, that's why this point is called breakeven point. In short, breakeven point is the point where, total sales revenue = total cost.

2.12.3.1 Limitation of Break-Even Analysis

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

- The assumptions of producer's market phenomenon may not hold good for all type of commodities.
- The fixed costs may not remain constant as well as the variable costs may post vary in fixed proportions at different levels of output.

- With variation in the prices of the items or services which also depend on the factors affecting its demand and supply will certainly affect the demand and supply will certainly affected the demand of the commodity. This phenomenon is not covered in break-even analysis.
- Identification of fixed and variable costs involved in production process is very complicated. A shift in product mix may change the break-even point.
- Consumers may be given certain discount on purchases to promote sales. This revenue may not be perfectly variable with level of sales output.

2.12.3.2. Application of Break-Even Analysis

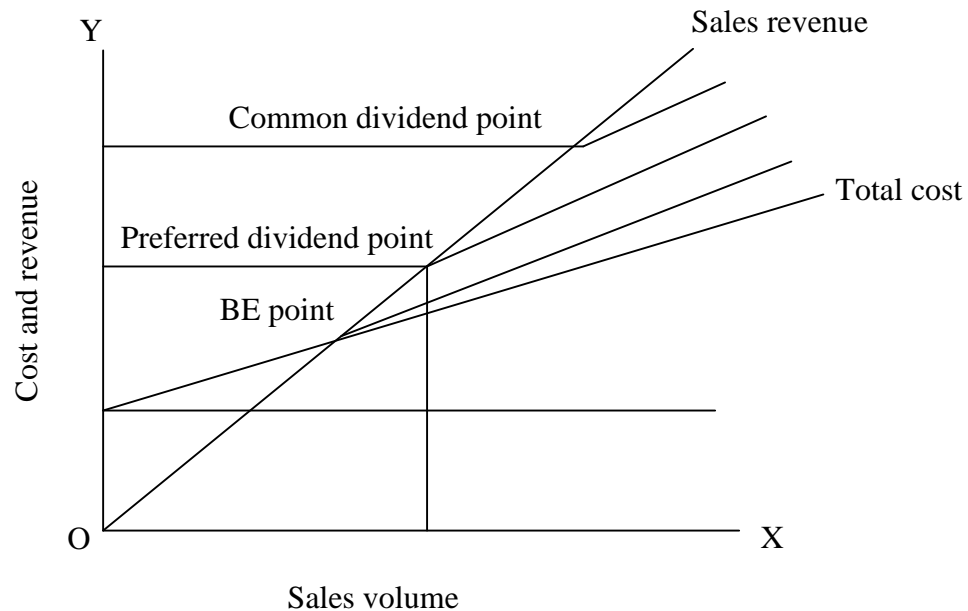
Break even concepts can be used to formulate different policies in a business enterprise. Some of the applications are (Dkahak, 2000: 58-59).

- Determination of profit at different levels of sales and margin of safety.
- To find the level of output to get the desired profit.
- Effect of price reduction on sales volume and changes in sales mix.
- Effect of fixed cost or variable cost changes
- Selection of most probable alternative make or by decisions and drop and I add decision.

2.13 Economic Characteristics of Cost Volume Profit Analysis

Where cost-volume-profit analysis is reasonably accurate they can help management decision-making. Essentially, CVP analysis offers greater insight into the economic characteristics of a company and may be used to determine the approximate effect of various alternatives. CVP analysis is based on estimates, however, the arithmetical manipulation generally involves averages, and hence the result should never be

interpreted as precise. Rather, the analysis may be characterized approximately as a 'slide-rule' approach that may be used to develop and test with a minimum of effort, the approximate effect on cost and profits of several types of management decisions (Welsch, 1979: 467-468).



Above break-even chart with economic characteristics indicates few of the economic characteristics of a business, which are (Welsch, 1979: 468).

- 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 the point where management earns only the 'going' rate on the investment.

- The common dividend or unhealthy point the point below which earning is insufficient to pay the preferred dividend and the expected dividend on the common stock.

All the point, and as others, can be computed if data or developed for cost-volume-profit purposes.

2.14 Margin of Safety (M/S)

The margin of safety (M/S) is the excess of budgeted (or actual) sales over the break-even volume of sales. It states the amount by which sales can drop before losses begin to be incurred in organization. Margin of safety = Budgeted sales – Break even sales

The higher the margin of safety, the safer is the business. For example, if the ratio of the margin of safety to the projected sales is 40%, the firm will cover its fixed cost burden at 60% of the projected sales. The firm will earn profit equal to the contribution margin of 40 percent of the expected sales. Margin of safety can be ascertained by using the following formula:

Margin of safety = (Actual sales value – B.E. sales value)

$$= \frac{\text{Profit}}{\text{Profit volume ratio}} \text{ in amount}$$

$$= \frac{\text{Profit}}{\text{Unit contribution margin}} \text{ in units}$$

The relationship between margin of safety and actual sales is known as margin of safety ratio, which is determined as follows:

$$\text{Margin of safety ratio} = \frac{\text{Actual sales} - \text{Break - even sales}}{\text{Actual sales}}$$

The following steps are needed to rectify margin of safety:

2.15 Cost-Volume Profit Analysis for a Multi-Product Firm

Sales mix can be defined as the relative combination of two or more products represented in total. It is not only the sales revenue that

makes profit. The proportion of the sales contributed by different products greatly changes the amount of profit. Managers try to achieve that combination, or mix, that will yield the greatest amount of profit. If a company sells more than one product, these may not be equally profitable. So, the company's profit will depend upon the ratio of each products sale to total sales revenue. Profit will be greater if high margin items make up a relatively large proportion of total sales than of sales consist mostly of low margin items. Changes in sales mix can cause great variation in a company's profit. A shift to low-margin items to high margin items can cause the reverse effect-total profit may increase even through total sales decrease. (Bajracharya, Ojha, and Sharma, 2004: P. 260).

Following procedures are followed to calculated BEP for sales mix or multi-product:

- Calculated contribution margin or profit-volume ratio for each product.
- Calculated proportion of sales mix in units or values as follows:

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

- Calculated weighted average for all products as follows:

$$\begin{aligned} \text{Weighted average} &= [\text{Sales} \times (\text{units}) \times \text{Unit C.M.}] \\ &= [\text{Sales mix (value)} \times \text{P/V ratio}] \end{aligned}$$

- Calculated break-even point (BEP)

$$\text{BEP} = \frac{\text{Fixed cost}}{\text{Weighted average}}$$

2.16 Risk Measurement: The operating Leverage and Break-Even Point

Operating leverage tells us how profit change with the change in sales. It is evident that profit changes profit more rapidly than sales. Why

do profit change more rapidly than the sales? It is because some costs do not change. So, if sales decline, variable costs also decline in the same ratio so that contribution margin also decline proportionately. But fixed costs do not decline. So the net operating income declines more rapidly. The same thing applied in the case of increase as well. Sales revenue change, but some part of costs, known as fixed costs, remain unchanged. That Is why net operating income changes more rapidly. This change is called in the operating leverage. Operating leverage can be measured in terms of the "degree of operating leverage." A DOL shows the time of percentage change in net operating income of the given percentage change in sales. Degree of operating leverage (DOL) may be defined as the percentage change in net operating income or EBIT associated with a given percentage change in sales.

$$\text{DOL} = \frac{\% \text{ on change in net operating income or EBIT}}{\% \text{ change in sales}}$$

or

$$\text{DOL} = \frac{CM}{\text{Net operating income}}$$

$$\text{or, DOL} = \frac{Q(SP - VCPU)}{Q(SP - VCPU) - FC}$$

Where, Q = Total demand in unit

SP = Selling price per unit

VCPU = Variable cost per unit

Higher fixed cost increases the DOL and they also increase the break-even point. So, there is a close relationship between the degree of operating leverage and the break-even point. A high DOL and a high BEP both are the indicators of higher risk of high degree of operating leverage (DOL) makes good times better and bad times worse.

2.17 Sensitivity Analysis

Sensitivity analysis is the measurement of elasticity of the change in cost-volume-profit factors on break-even point or given profit. The strength should focus more on the factor, which is more sensitive or responsive for profit. To measure the sensitivity of cost-volume-profit factors one can see the impact of certain percentage or amount 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 determined variables. We know that the goal of a business enterprise is to maximize profit. Profit is the excess of revenue over the total costs.

$$\begin{aligned}\text{Net profit} &= \text{Total sales revenue} - \text{Total costs} \\ &= \text{Sales units} \times \text{SPPU} - \text{Sales units} \times \text{VCPU} - \text{FC} - \text{Taxes}\end{aligned}$$

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

But none of the factors remain unchanged. Sometimes the manager can intentionally change the price and cost factor as a part of strategic decisions. But the strategy should focus more on the factor, which is more sensitive or responsive of profit. Therefore, to measure the sensitive of cost-volume-profit factor we can see the impact of certain percentage or amount change in volume, price, or cost factors on net profit.

2.18 Segregation of Semi-Fixed (Mixed) Costs

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

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

According to this method, the output at two different levels in compared with corresponding level of expenses. Since the fixed expense

remains constant, the variable overheads are arrived at by the ratio of change in expenses to change in output whereas;

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

2. Range Method

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

- Select the highest pair and the lowest pair
- Compute the variable rate 'b' using the formula, variable rate = Difference in cost 'y'/Difference in activity 'x'.
- Compute the fixed cost portion as,

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

3. Degree of variability method

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

4. Scatter-graph method

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

5. Least Square Regression Method

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

2.19 Impact of Changes on Profits

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

*** Effect of price changes**

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

*** Effect of volume changes**

A change in volume, not accompanied with a change in the selling price and/or costs, will not affect P/V ratio. As a result, the break-even point remains unchanged. Profit will increase with an increase in volume and will be reduced with a decrease in volume.

*** Effect of price and volume changes**

A change in price invariably affects volume. A price reduction may increase in demand of the product and consequently, may result in increased volume. On the other hand, increase in price may adversely affect the demand and thus, reduce volume. The impact on profits under these circumstances is not obvious. Profit may increase with a price reduction if volume increases substantially. Similarly, a price rise may reduce profits if there is material fall in volume.

*** Effect of changes in variable costs**

The impact of the changes in variable costs on profits is straight forward if it does not cause any change in selling price and/or volume. An increase in variable costs will lower P/V ratio, push up the BEP and reduce profits. On the other hand, if the variable costs decline P/V ratio will increase, BEP will be lowered and profit would rise.

*** Effect of changes in fixed costs**

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

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

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

2.20 Limitations of CVP Analysis

Cost-volume-profit analysis suffers from the following limitations (Pandey, 1999: 219).

- It is difficult to separate costs, into fixed and variable components.
- It is not correct to assume that total fixed cost would remain unchanged over the entire range of volume.
- It is difficult to use the break-even analysis for a multi product firm.
- The break-even analysis is a short run concept and has a limited use in long range planning.

2.21 Special Problem in Cost Volume Profit Analysis

Cost-volume-profit analysis are applied to individual procedures or part of a business and all the products are activities combined in the later, there are three special problems may be encountered (Welsch, Hilton and Gordon, 2001: 513-518).

- The activity base: When two or more product or activities are combined for break even analysis, the activities based are usually in amount. Production unit is used for single product. The activity base must be in additive units using a common denominator of volume or output in multiple products. Therefore, for the company as a whole, net sales amount are usually the only satisfactory amount denominator because manufacturing, selling and administrative activities are expressed in combination.
- The change in inventory: Usually the budgeted change in inventories (i.e. finished good and work in progress) is immaterial in amount and there may be disregard in cost-volume-profit analysis. On the other hand, when the change in budgeted inventory is significant it should be included in the analysis including the effect of inventory change in cost-volume-profit

analysis requires subjective judgments about what management might do (about making inventory changes) at different volume levels and the conceptual precision that is desired. Management consider two practical approaches or policies in inventory change often used:

- a. disregard the inventory changes, b. include the inventory changes.
- The non-operating incomes and expenses: Non-operating incomes and expenses are extra-ordinary gains and losses, if material in amount, cause another problem in CVP analysis. The basic issue is whether they should be included or excluded. Extra ordinary gain and losses are non-recurring and unusual; therefore they should be excluded. Non-operating incomes and expenses are recurring but they are not related to ongoing operations management considers the policy may be to: (a) include the non-operating incomes and expenses (b) exclude the non-operating income and expenses.

2.22 CVP Analysis under Condition of Uncertainty

CVP analysis have been used for various purposes such as choosing between machine and products, planning and profit of most significantly fixing up of selling price management has used this as conventionally took 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 project and product in general but it fails to explain the among of certainty in the product and it also between the alternative. To overcome such a difficulty, risk and uncertainty analysis like in any other management decision making can also be used in CVP analysis.

2.22.1 Probability Distribution

Probability distribution approach is a simple statistical tools which may be used to measure the risk and uncertainty involved in CVP analysis. A probability distribution theory normally suggests for postulation of various possibility of happening of the event in consideration. This may be done either taking into consideration of the experience in the past or may be done by considering the personal intuition of the persons during so in business reference of past experience are hardly available not a person is likely to behave in the same manner in the similar situation in different time. Therefore personal 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: 17).

2.23 Jumping Fixed Cost and Multiple BEPS

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

2.24 A Brief Review of Previous Work

There are very few research paper concerning cost-volume profit analysis has been conducted. Most of the researches are in the area of profit planning and control. Out of the previous research studies only two researches is conducted to analyze the cost-volume profit of private

enterprise and the study is limited by various constraints. Therefore, this study is attempted to review the previous research work in PPC as well as management accounting. As CVP is one of the tools of PPC, the previous studies related to PPC are also reviewed.

2.24.1 Journal Review

John F. Nash (1975) conducted the study on "A note on cost-volume-profit analysis and price elasticity. The study was concentrated on difference in behavior of net income associated with the differences in their respective cost structures. Moreover, it is clear that the precise ward changes in net income are governed by the change in volume assumed to result from the price change. The relationship between price and volume is described by the elasticity of demand.

He used simple example, on the process of conducting is to show that the direction of the change in net income can be predicted in terms of the contribution marginal ratio and market elasticity of demand for the product. The coupling of the elasticity concept with cost volume profit analysis also provides a decision rule which indicate whether a company,. Having a particular cost structure, should rise or lower its prices in order increase to net income.

Major finding of this study were:

In comparison of the contribution margin ratio with the reciprocal of the elasticity thus provide a means for determining whether an increase or a decrease in price would be appropriate in a given situation.

- If the market is inelastic ($e < 1$) a price cut can never result in a higher net income, whereas an increase in price is always profitable.
- If this market is elastic ($e > 1$) then the appropriate strategy depends on the precise value of $1/3$ relative to the contribution margin.

- A price cut is appropriate for almost any type of operation so long as the elasticity is large enough. There will, however be a range of values of elasticity for which a price cut would be appropriate for a relatively low variable cost operation while a price increase would be appropriate for a higher variable-cost operation.

2.24.2 Mr. Agnidev Parajuli

Mr. Parajuli has conducted a research about profit planning in manufacturing public enterprises. In his study two public enterprises have been selected for case study and there are "Basbari leather and shoe factory and Dairy Development Corporation". In this study he has tried to point out some features and problem of profit planning. Prevailing practices and premise for implementing profit planning in these two manufacturing public enterprises. The main objectives of this research work were:

1. To sketch the trends of profit planning in DDC and BLSF.
2. To draw a picture of profit diversification (utilization of resources).
3. To examine the course lying make a statement behind the managerial there are knows to be untrue problems of profit planning.
4. To see the DDC and BLSF's profit planning in the basis of overall managerial budgeting.

Mr. Parajuli has made his research covering the time period of 10 years from 2035 to 2045 B.S. to accomplish his above stated objectives. Mainly secondary data and essential primary data were used for his research work.

Mr. Parajulis research work points out that these two PEs were adopting profit planning on a unrealistic premises, which only promote and irrational optimism and undue conservative has pointed out various finding and recommendation. Major of them are as follows:

Findings:

1. There is no adequate coordination system and realization of objectives between the different levels of management.
2. Very few managers are competent to identify the relevant factors and variable and manipulate them for the successful formulation and implementation of the plan.
3. Enterprise have no any financial plan of enterprise, they have only sales and production target.
4. There is no any practice of profit planning. So, it must be necessary to practice profit planning.

Recommendations

1. The enterprise should be necessary to develop the alternative for the earning of profit.
2. The goals and objective should be clearly and adequately spelled out.
3. Periodic performance reports detailed by assigned responsibilities for the accomplishing the planning objectives.
4. There is necessary to formulate the profit planning calendar.
5. Enterprises should define the short range profit plans detailed by relevant responsibilities as a systematic and formalized approach for accomplishing the planning coordination and control responsibilities of management.
6. There should be annual evaluation by the executive committee of the statement of broad objectives of the enterprise.
7. There is necessary to develop the basis strategic by the executive management.

2.24.3 Mr. Khagendra Prasad Ojha

Mr. Ojha has tried to point out some features and problems of profit planning in the context of Nepalese manufacturing enterprises in

his research work "profit planning in public enterprise in Nepal" (A comparative study of Royal Drugs Limited and Herbs Production and Processing Industry). He submitted to the faculty of management, Central Department, T.U. in the course of partial fulfillment of Master Degree in Management. Mr. Ojha has focused his basic objectives of the study was to highlight the current practice of profit planning and its effectiveness. Mr. Ojha has followed the analytical as well as descriptive approach of research design. He has explored the data of 6 years from 2046/047 to 2051/052. The data and necessary information were collected by using secondary as well the primary sources.

The main objectives of this research work were:

1. To highlight the current practice of profit planning and its effectiveness in Nepalese public enterprises.
2. To analyses the various functional budgets adopted in those enterprises.
3. To evaluate the variance between target and actual of the enterprises.
4. To draw a picture of profit planning process adopted in those enterprises with the article prescriptions.

Mr. Ojha has pointed out his research with some finding and conclusion and recommendations. The major findings and conclusion of his research were:

Major findings regarding RDL:

1. Role conflict between departmental management.
2. Lack of coordination among departments.
3. Unnecessary centralized decision making and planning system.
4. Inadequate planning of profit due to lack of skilled planners.
5. Inadequate authority and responsibility to planning department.

6. Failure in achievement due to inadequate evaluation of internal and external variables.
7. Failure due to inadequate forecasting system.

Major finding regarding of HPPCL:

1. Lengthy bureaucratic process leading delays in decision-making and planning.
2. Inadequate evaluation of relevant internal and external market variables.
3. Failure due to lack in maintaining contemporary data base on market.
4. No efforts of market research for indigenous products.
5. Unrealistic sales forecast.
6. Inadequate planning due to lack of planning experts.

Recommendations:

1. Sales forecasting should be realistic.
2. A systematic approach to comprehensive profit planning should be followed.
3. System of periodical performance report should be strictly followed.
4. Price cost volume relationship should be taken into consideration while developing sales plan and pricing strategies.
5. Planning department should be given adequate authority to decide and create new ideas to formulate various plans.
6. Programs to improve the employee productivity should be made effective.
7. Policy to finance the cash deficit and to utilize excess funds should be formulated.

2.24.4 Mr. Madhav Rijal (2005)

Mr. Rijal has conducted a research entitled "Cost-volume profit analysis as tools to measure effectiveness of PPC of case study of Nabico Private Limited." He has centered his study to examine CVP analysis as a tool in manufacturing industry and to analyze the CVP and its impact in profit planning.

Mr. Rijal's study is based on primary and secondary data. The study period has covered five years. The basic objective of this research paper is as follows:

- To study relationship of cost, volume and profit as an applicable tools of budgeting.
- To evaluate the profitability, financial position and sensitivity of NEB company's activities.
- To analysis the cost-volume-profit of the company and its impact in profit planning.
- To provide suggestion and recommendation for improving NEB/Co's condition, etc.

Major findings are as follows:

- The company sales trend has fluctuated trend, but not satisfactory trend of increasing.
- The company variable cost is high proportion than fixed costs in total cost amount which contribute for lower contribution margin.
- The profit trend of the company is not satisfactory as compare to profit; proportion is very low with fluctuated trend.
- The company has no detailed any systematic experiences plan. The fixed, variable and mixed expenses tenth plan is the necessary elements for profit planning and control.
- There is no any specially system of taking corrective action for the re-planning.

Recommendations

- NEBICO private limited should clearly define their broad objectives, because objective is the basic guidelines of the company. Duties and responsibilities should be identified in clear-cut way between the employees.
- Classification of expenses item as variable and fixed or controllable and non-controllable must be made within a specific framework of responsibility and time.
- NEBICO should consider BEP analysis while preparing sales plan, production plan and setting the price of its products.
- Cost control department separately established which divided the cost by products and control the costs.
- NEBICO Pvt. Ltd. has invested big amount in fixed cost for generate profit by maximum utilization of fixed costs. Therefore company should pit stress on effective utilization of fixed costs.

2.24.5 Mr. Dipendra Raj Dhakal (2005)

Mr. Dhakal has conducted a research entitled "Cost-Volume-Profit analysis as tools to measure effectiveness of profit planning and control: A case study of Gorakhali Rubber Industry Limited." He has centered his study to examine CVP analysis and its impact in profit planning.

Mr. Dhakal study is based on primary and secondary data. The study period has covered five years. Mr. Dhakal has pointed out various objective, finding and recommendations.

The main objectives of this research work were:

- To study the relationship of CVP analysis and its applicability as a tool of budgeting.
- To analyze the variance between targets and the actual data of the industry.

- To study the sensitivity analysis of GRIL.
- To study the risk-return relationship of the company with the help of operating leverage technique.
- To provide relevant suggestions, recommendation and practices ideas for improving the condition of GRIL.

Major Findings

- Sales plan of GRIL is not properly maintained. The industry uses the various methods for sales planning like maximum survey; distribution networks etc. but up to date record are not maintained. So they have poor budgeting system.
- GRIL does not practice the scientific and appropriate cost classification technique. Costs are classified into fixed and variable as per the decision of the management.
- Sales trend of GRIL shows the negative directions which can further increase the net loss for future. The sales trend is very fluctuating.
- The industry does not have any detailed and systematic practice of planning of cost which is one of the essential elements of profit planning and control.

Recommendation

- GRIL should clearly define its goal and objectives. And management should make sure that each and every employee is aware of the organizational objectives, which are the basis foundation of planning because conflicting goals always create confusion in their application phase.
- To improve profit planning system in GRIL, trained and qualified professional should be hire.

- The industry should consider about the product line to improve its position. As shown by the analysis, the truck tyre product is more profitability than non-truck tyre products.
- GRIL bearing huge amount of fixed costs for employee expenses which is not a good for the organization. Therefore the industry should initiate the cost control program.

2.24.6 Rudra Bahadur Bhattarai (2005)

Mr. Rudra Bahadur Bhattarai has submitted the thesis on the topic “Cost-Volume-Profit Analysis as Tools to Measure Effectiveness of Profit Planning and Control: A case study of NEBICO private limited”. The study is mainly concerned with the application of CVP as a profit planning tool in the NEBICO private limited. Mr. Rudra has covered the data of five years. In his research paper he has used both primary data and secondary data by various sources. He has listed the following major findings:-

- The company’s sales trend has fluctuated, but not satisfactory trend of increasing.
- The company’s variable cost is high proportion than fixed cost in total cost amount.
- The company has high fixed costs.
- In Nepalese manufacturing company, especially in NEBICO, there is no any plan to reduce cost.
- There is lack of effective cost control programmers or techniques.
- The profit trend of the company is not satisfactory.
- The company has no detailed any systematic expenses plan.
- The goal and objectives of the company are not clearly communicated to operating level of management.
- In the company, there is no effective inventory policy.

- The company does not apply any appropriate and effective sales forecasting techniques.
- There is not any special system of taking corrective action for the re-planning.
- Especially in NEBICO Pvt. Ltd., the Board of Directors is the main authority in price fixing.
- Wages structure is based on accordance with the level of skill.
- Most of the employees are male.
- NEBICO Pvt. Ltd. distributes their products all over Nepal.
- NEBICO Pvt. Ltd. has not proper practice of segregating the costs.
- The pricing policy of the company is not scientific.
- There is not proper co-ordination among production, administration, distribution, inventory and sales department.
- NEBICO has tried to adopt the new technology for improvement of qualitative products.
- Financial positions of the company are not so good.
- NEBICO Pvt. Ltd. has not utilized its capacity.

2.24.7 Mr. Basudev Chaudhary (2005)

Mr. Basudev Chaudhary has done a research on the “Cost Volume Profit Analysis of Himalayan Distillery Ltd”. The study is mainly concerned to analyze HDL with CVP analytical tool and to tackle the various problem. In his research paper, he has used both primary and secondary data by various sources. He has listed the following major findings:-

1. The company had not practice of classification of costs into fixed costs and variable cost.
2. The total fixed cost of the company was increasing annually.

3. Advertisement, salary and allowance, communication, expenses, insurance premium, depreciation and interest on long term were higher portion of total fixed cost and the amount of these items were highly incremental condition.
4. The variable costs were also at increasing trend.
5. The unit variable cost of Royal Stag was fluctuating but Ruslan Vodka's and Blue Diamonds unit variable costs were decreased.
6. Semi variable costs or semi fixed costs were classified on the basis of estimation or assumption.
7. The actual sales of the company had not reached at BEP as a whole.
8. The CM ratio is about 20% which is much low to cover up its fixed cost.
9. The actual sales of selected product lines were more than BEP at all presented fiscal year.
10. Selected product lines were utilizing their specific fixed costs.
11. The CM ratio of selected product lines were also less than and nearly 20%.
12. Since lower fixed costs and mass production and sales of selected product lines cause profitability.
13. The overall BEP was nearly 85% to 96%, of estimated or budgeted sales figure.
14. The cash sales of initial two fiscal year were not reached at Cash BEP but it was in increasing trend.
15. The total BEP of selected product lines were utilized nearly 6% to 9% of the total capacity.

16. The CM ratio regarding cash BEP was 31% to 40%.
17. The MOS ratio was more than 10% at last year and 15% at previous year.
18. For profit achievement, the company should be adjusted its cost.
19. The P/V analysis alternatives might be helpful for profit planning and corresponding sales etc.

2.24.8 Mr.Umesh raj poudel(2007)

Mr Umesh raj Poudel has submitted the thesis entitled “profit Planning and control of government corporations, a case study of salt Trading Corporation Limited” He has focused his study to analyze the sales and purchase budget of salt trading corporation Ltd.

Major Findings:

1. The overall financial condition of the STC is satisfactory.
2. The planning process of STC is little bit ambitious the actual achievement is lower than that of targeted figure.
3. STC has practiced only short term planning rather than long term planning.
4. Minimum expenditure is made in advertisement. In fact most people don't know that STC deals in product other than salt.

Recommendation offered

1. STC should develop realistic strategic plan as well as tactical plan regarding sales, purchase, and expenses.
2. Long term objectives of the STC should be clearly formulated so as to make clear distribution between profit motive and social motive.
3. STC needs to explore business opportunities and develop it as a self sustainable public enterprise.
4. To improve the profit pattern of STC should develop profit plan formulation and make proper implementation.

2.24.9 Mr.Kiran Shrestha(2009)

Shrestha has submitted the thesis entitled “Comparative study of Profit Planning in Nepal water supply corporation and Nepal Telecommunication Corporation “He has focused his study to examine the current practice and effectiveness of profit planning in NWSC and NTC .And tried to understand the practical aspects of the industry and highlight in the current practice of profit planning in NWSC & NTC.

Major Findings:

1. Planning department of NTC and NWSC does not have any authority to decide and creat new ideas while formulating various plan.Basically few hieher level officials formulate plans, particularly decision making is not considered necessary in the corporation.
2. Redtops are another main obstacle in decision making and implementation of plans and program me.
3. Nepalese public enterprise lack budgeting experts and skilled planners.
4. NWSC and to some extent NTC are not efficiently able to adopt new technology advancement. That’s why the cost of production are too high than they should be.
5. NWSC and NTC have not a practice of systematic forecasting which lack of skilled experts is.
6. Cost-volume profit relationship has not been considered while developing the sales plans fixed assets purchase plan and pricing strategy.
7. The leakage of drinking water which is assumed 25% should be controlled by NWSC.Rules and regulation should be strictly implemented to control leakage.

Recommendations

1. All PEs should adequately identify and evaluate the internal and external variable which has influences on the enterprises.
2. Nepales public enterprise should clearly define their broad objectives.NWSC and NTC should develop the objectives to creat the minimum and optimum environment that maximize the interest and motivation.
3. NWSC and NTC should decide to develop effective programme to expand growth rate.Both NWSC and NTC should adopt participatory management policy as well as management by objectives.NWSC and NTC should decide and make policy about research and developing,productivity,capacity utilization and cost control.
4. Cost benefit analysis and CVP analysis should be taken in to consideration while developing sales plan fixed assets purchase plan and pricing strategies
5. The theoretical formula for production as well as stable production policy except un usual case should be considered if possible.

2.25 Research Gap

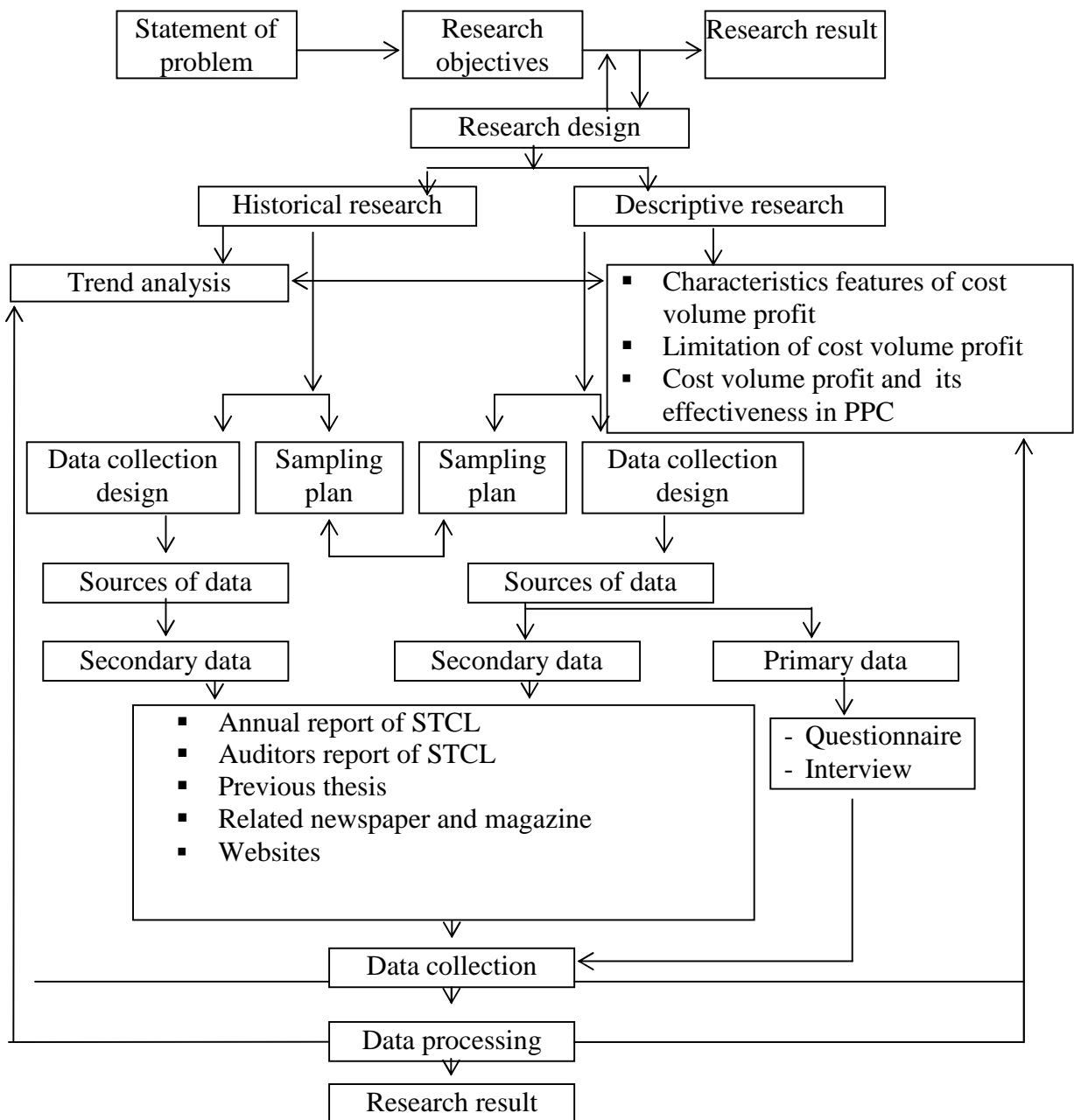
Cost-volume profit analysis is major tools to measure the effectiveness of profit planning and control. Cost-volume-profit analysis and the sensitivity of their variable in modern business is a current issue but these facts are rarely study. Since the former researcher have not studies the sensitivity analysis, cost volume, profit trend and its impact on profitability. I am interested to research on it. I will examine the current practice of CVP analysis of STCL which will be the influential study to those interested person, parties, students, teachers, civil society, government for academically as well as policy prospective and especial STCL.

CHAPTER-III

RESEARCH METHODOLOGY

In order to achieve the objectives of the study an appropriate methodology necessary, which will be given due importance throughout the study. It include research design, nature and sources of data analysis tools and data processing procedure or method of analysis.

3.1 Research Design



Research design is the plan structure and strongly of investigation conceived to obtain answer of research question and control variability. The research design of the study is analytical as well as descriptive. This study attempts to show the relationship among cost-volume and profit and various functional budgets for their achievement and effective application within the conceptual framework of profit planning for solving the problems that have accused in STCL. Therefore, this study is closely related to various accounting statement as well as the actual result of the budget. This study is not only analytical but also descriptive. To facilitate the assessment, research. To facilitate the assessment, researcher collect quantitative information from salt trading company and related data are tabulated manipulated and analysis according to research objectives. Both primary and secondary data are used.

3.2 Period Covered

The period covered by the study is five years for trend analysis and one year for the analysis of cost-volume-profit variable and related aspects. This period covered is from Fy 2062/63 to 2066/67.

3.3 Population and Sample

There are thirty enterprises operating in Nepal, those are the sample of study. For this study, only Salt Trading Corporation is selected as sample.

3.4 Nature and Source of Data

The study is based on secondary data. Some additional information have been collected through the discussion and interview with the concerned personal and employee and secondary data and information have been taken mainly from annual reports, balance sheet auditor's report, P/L account, official records and other form published and unpublished books and booklets.

3.5 Data Processing Procedure

Collected data have been analyzed by using statistical and financial tools which are: mean regression, graphs, BEP charts, bar diagram, percentage, ratio etc. Similarly, the accounting tools used as per necessary are: contribution margin, breakeven point, sensitivity analysis etc.

CHAPTER-IV

PRESENTATION AND ANALYSIS OF DATA

4.1 Sales Plan of Salt Trading Corporation Limited

A sales planning process is a part of profit planning and control because it provides the basic management decision about marketing. It is an organized approach for developing the sale plan. Sales plan should be realistic. Salt trading corporation limited does not have long range and short range sales plan. It hasn't properly maintained the annual sales budget. Therefore, actual sales value has been analyzed. Sales value means total monetary value of unit sold by salt trading corporation limited.

Table No. 1
Sales Revenue

Year	Sales revenue	% change
2061/062	2193935368	-
2062/063	1851702406	(15.599)
20630/64	1916218180	3.484133
2064/065	2138957424	11.6239
2065/066	3190432746	49.15831
2066/067	3366335450	5.513443

Source: Annual Report of Salt Trading Corporation.

The sales value of salt trading corporation limited has decreased in the year 2062/063 and increasing from year from the fiscal year 2063/64 to 2066/67 but it has been changed at the fiscal year of 2066/67 it shows that the increasing rate is decreased.

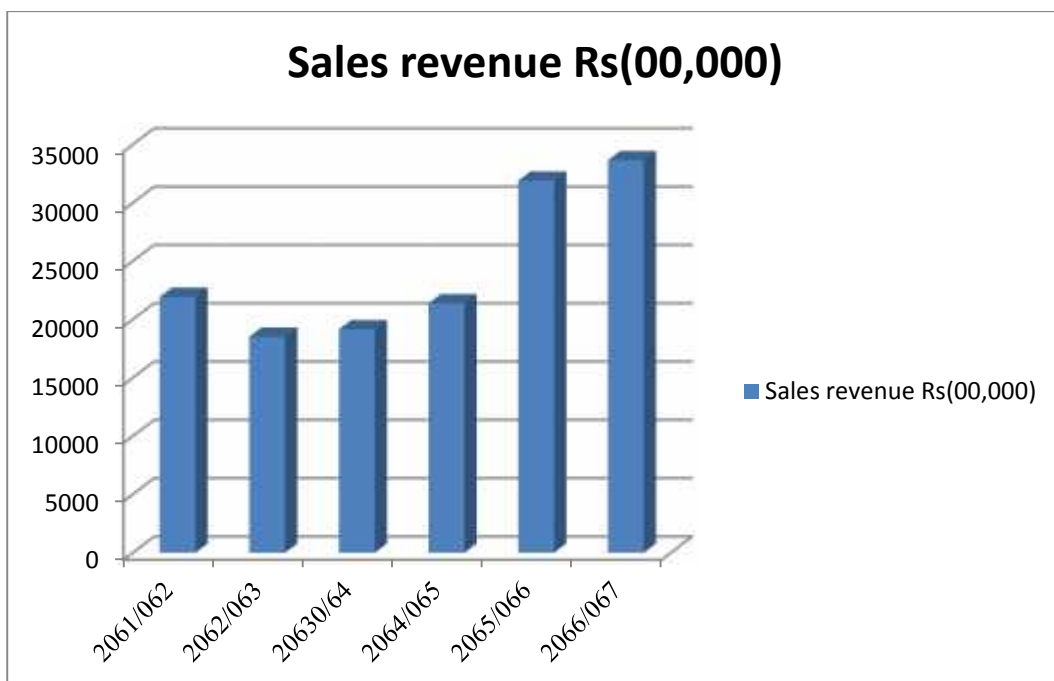
There are various reasons which cause the variation on sales revenue. The significant factors responsible for the variation in sales revenue are demand condition of the product, cost of products, political conflict, socio-political condition of the country, government policy,

tough competition with imported product etc. National and international reason also causes for fluctuating sales value.

In the fiscal year 2062/63 the total revenue collection by salt trading corporation is Rs. 1851702406 which is decreased by 15.59 percent of previous year of 2061/62. But in the year 2063/064 sales revenue collected by salt trading corporation is increased continuously by 15.59, 3.4, 11.62, 49.15, 5.15 percent as respectively. Therefore the above mentioned fact clearly shows that the sales revenue of the corporation is unstable.

The presentation of the above total sales figure will be more effective by following graphs.

Figure 1: Sales Revenue



To analyze the trend of actual sales, least square method can be used to estimate the possible future sales for given time or year. A straight line trend will show the relationship between time period and actual sales of the relevant year. In this method, it is assumed that the changes in sales revenue in consistent way as previous year. In this method, time factor is considered as independent factor and sales is

considered as dependent factor upon time. The straight line trend of actual sales (y) depends upon the time (x) which is expressed as:

$y = a + bx$,For the calculation, the value of a (constant) and b (variable) can be obtained by solving the following two equations.

$$\sum y = na + b\sum x \dots\dots\dots (i)$$

$$\sum xy = a\sum x + b\sum x^2 \dots\dots (ii)$$

Table No. 2

Time Series Analysis

Fitting Straight Line Trend by Least Square Method

FY	Actual sales(Y)	X(base year2064/065)	x^2	XY
2062/063	1851702406	-2	4	-3703404812
20630/64	1916218180	-1	1	-1916218180
2064/065	2138957424	0	0	0
2065/066	3190432746	1	1	3190432746
2066/067	3366335450	2	4	6732670900
	$\sum y = 12463646206$	0	$\sum x^2 = 10$	$\sum xy = 4303480654$

Source: Appendix III.

Therefore, $a = 2492729241$ and $b = 430348065.4$

Thus, $y = 2492729241 + 430348065.4x$, is the trend of sales figure which shows the positive sales revenue in the future.

By using this trend equation we can estimate the actual sales, for the year 2067/68. $y = 2492729241 + 430348065.4 \times 6 = 5074817633$

Therefore, if the trend does not change, the possible sales for the year 2067/68 will be Rs. 5074817633.

a	b	x	Salesforecasted
2492729241	430348065	6	5074817633
2492729241	430348065	7	5505165699
2492729241	430348065	8	5935513764
2492729241	430348065	9	6365861830
2492729241	430348065	10	6796209895

The presentation of the above figure with the trend will be more effective by following graph.

Figure 2: Graphical Representation of Actual Sales Trend

Time Series Analysis of Sales Revenue

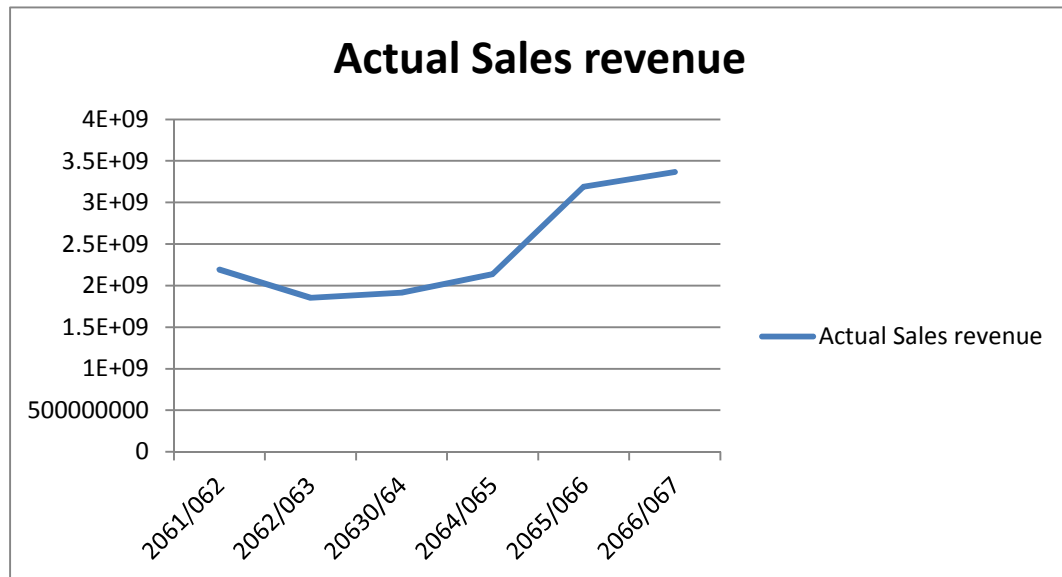
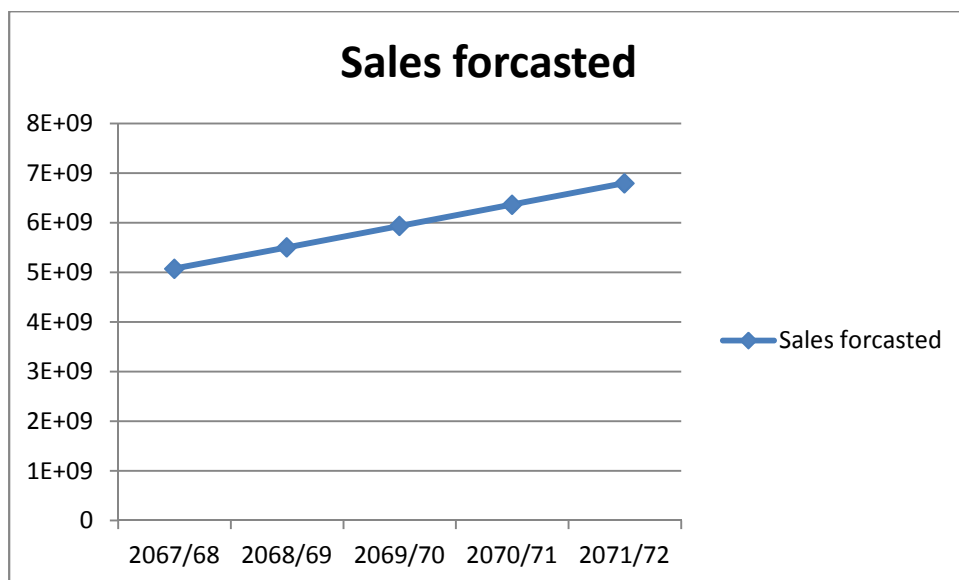


Figure 3: Graphical Representation of Forecasted Sales



To analyze the trend of net operating profit, least square method can be used to estimate the possible future net operating profit for giving

sales revenues. A straight line trend will show the relationship between sales revenue and net operating profit of the relevant year. In this method, it is assumed that the net operating profit consistently changes with the change in actual sales. In this method, actual sales revenue is considered as dependent factors and net operating profit is considered as an independent factor. Then straight line trend of net operating profit (y) depends upon actual sales (x), which is expressed as:

$$y = a + bx$$

For the calculation, the value of the 'a' (constant) and 'b' (variable) can be obtained by solving the following two equations:

$$\sum y = na + b\sum x \text{ ----- (i)}$$

$$\sum xy = a\sum x + b\sum x^2 \text{ ----- (ii)}$$

Table No. 3
Time Series Analysis
Fitting Straight Line Trend by Least Square Method

(Rs. '000')

Sales(x)	Net operating profit(y)	xy	x ²
1851702.406	15960.508	29554111065	3428801800386
1916218.180	41759.056	80019462287	3671892113363
2138957.424	54635.534	116863081064	4575138861685
3190432.746	58409.685	186352171708	10178861106749
3366335.450	103986.682	350054053944	11332214361927
$\sum x =$ 12463646.21	$\sum y =$ 274751.465	$\sum xy =$ 762842880067	$\sum x^2 =$ 33186908244109

Source: Appendix IV.

Therefore, $a = -25403731.27$ and $b = 0.03651$

Thus, $y = -25403731.27 + 0.03651x$, is the trend line of net operating profit which helps to estimate the future net operating profit.

4.2 Variable Cost Analysis of Salt Trading Corporation Limited

Variable costs which increase directly and proportionately with the increment in production unit are called variable costs. A variable cost is changed in the same proportion due to change into production volume. If other thing remains constant, variable cost per unit is not changed. But total variable cost is changed due to changing in production volume. Variable cost per unit is constant within the one fiscal year. Variable cost per unit are varies for different fiscal year affected by internal and external environment of the company. According to the company's costs detail sheet, separate the following variable cost by nature and used of them.

Table No. 4

Variable Costs Analysis of STCL					
Details	2062/063	2063/064	2064/065	2065/066	2066/067
1. Cost of sales	1584930453	1644540991	1837630785	2813514025	2846981343
Total cost of sales (a)(70%)	1109451317	1151178694	1286341550	1969459818	1992886940
2. Administration cost(b)					
salary	30989526	36030922	49077476	52987869	68368634
Salaries and allowance (70%)	21692668.2	25221645.4	34354233.2	37091508.3	47858043.8
TADA	1645145	6133277	5030640	10472556	10682336
Ticket and telephone	3084599	2941791	3059448	3170962	3532961
Stationery expenses	100926	1849461	1636773	1395578	2074648
Petrol expenses	1834078	3042708	2952908	3858293	4024889
Cloths allowances	219692	386573	358933	2246027	2107700
Anniversary expenses	161611	301218	414438	460937	549660
Books and newspaper	138180	495199	775511	263481	273254
Charity expenses	405798	1352938	1570970	2846820	4179416
Consultancy fees	93778	539718	647488	1032970	2982975
Training expenses	297915		680324	208635	803684
General assembly	0	0	125909	126246	313772
Meting allowances	119700	1991277	1644618	1930776	2636794
Worshipping expenses	2912108	1084478	366125	534300	330170
Hosting expenses	2113459	1991277	1644618	1170886	2821736
Water and electricity (70%)	869626	1237728	1114871	1143381	1403522
Misc. expenses	0	0	465672	334295	49530
Overwriting	981240	5630634	0	0	7278200
Frees and tax	662061	2566177	914678	2866997	3769565
Total administration cost	37332584.2	56766099.4	57758157.2	71154648.3	97672855.8
Total a+b	1146783901	1207944793	1344099707	2040614466	2090559796
Change		0.05333253	0.11271617	0.5182017	0.02447563

Source: Appendix VI.

Above table shows that there is variation in variable cost of sales, administrative cost for different years. Because various factors effected to these cost from different angle. All these variable costs are fluctuated trend. In the above table also shows that salaries and allowances, TADA, petrol expenses, ticket and telephone, stationary expenses, consultancy fees, meeting allowances, hosting expenses, water and electricity expenses, fees and tax, books and newspaper cost contribute to increase amount of variable administrative cost for every year. Similarly variable cost of sales also contribute to increase amount of variable cost every year.

As above table shows that cost of sales is increased in the FY 2057/58, 2058/059, 2059/060 and 2060/061, but decrease in FY 2061/062 as compare to previous year.

Total variable cost amount increase by 0.06 percent, 0.071 percent, 0.031 percent, 0.61 percent in the years 2057/58, 2058/59, 2059/60, 2060/61, respectively than the last based years. Total variable cost is decreased by 0.44 percent in the year 2061/62 then the fiscal year 2060/61. Mainly, cost of sales contribute to increase amount of total variable costs.

4.3 Fixed Costs Analysis

Those costs which do not change due to changing in to production units is known as fixed costs. Such costs remain constant in total amount and are unaffected by changing into production units. Main features of fixed costs are:

- i. The fixed costs are not changed due to change into production unit.
- ii. Fixed cost per unit is changeable due to change into production units.
- iii. Fixed cost cannot be controlled by the manager.

But fixed cost in total may vary for different fiscal year. The fixed cost of STCL is presented in the table below:

Table No. 5

(Amount in Rs.)

Fixed cost Analysis of STCL					
Details	2062/063	2063/064	2064/065	2065/066	2066/067
1. Cost of sales	1584930453	1644540991	1837630785	2813514025	2846981343
cost of sale 30%	475479136	493362297.3	551289235.5	844054207.5	854094402.9
2. Administration cost(b)					
salaries	30989526	36030922	49077476	52987869	68368634
salaries and allowance(30%)	9296857.8	10809276.6	14723242.8	15896360.7	20510590.2
Medical expenses	2577349	2478910	3379939	4180938	6125540
Maintenance expenses	2688039	1970729	3512649	3983071	5030400
water & electricity	260887.8	371318.4	334461.3	343014.3	421056.6
House rent	2213300	5013838	5779363	7022272	9050352
Bank commission	597907	539781	647488	1032970	2982957
House & land tax	-	626188	1155936	951632	870317
Insurance	7830274	5919969	9789776	14889497	17114649
audit fees	146500	161500	177650	195500	215050
Bribe expense		44100		12546014	20902989
Total(b)	25611114.6	27935610	39500505.1	61041269	83223900.8
Selling and distribution cost					
Advertisement	896319	495199	775511	1134246	1788552
sales promotion		5670476	5375836	8459469	12024866
Total©	896319	6165675	6151347	9593715	13813418
Other fixed cost					
Depreciation	387313	4275438	5169703	7064647	7719126
Interest	11999490	161188663	152956369	197195114	260201790
Total(d)	12386803	165464101	158126072	204259761	267920916
Total fixed cost	514373373	692927683.3	755067159.6	1118948953	1219052638

Source: Appendix VII.

In the above table there is increasing in fixed costs. This variation is caused by the variation of cost of sales, administrative cost, selling and distribution cost and other fixed costs namely depreciation and interest.

The above table reveals, administrative cost is increased in the FY 2062/63 to 2066/67 continuously. Selling and distribution cost is decreased in FY 2063/64 as compared with previous year and in year from 2064/65 is increasing. The other fixed costs namely depreciation and interest are also increasing trend.

The total fixed **514373373** is in the FY 2062/63. In the FY 2066/067 it is reached to Rs. **1219052638**.

4.5 Profitability Ratio Analysis of STCL

An arithmetical relationship between two figures is known as 'ratio.' it is computed by dividing one item of relationship with the other. Ratio analysis is technique of analysis and interpretation of financial statesmen. To evaluate the performance of an organization by creating the ratio form the figures of different accounts consisting in balance sheet and income statement is known as ratio analysis.

Ratio can be classified into four broad groups. One of them, profitability ratio shows the overall efficiency of all business concerns. The relation of the return of the firm to either its sales or its equity or its assets is known as profitability ratios. Profitability ratios are two types, profitability in relation to sales and profitability in relation to investment. But this analysis concerns only with profitability in relation to sales.

Gross profit is the amount left after deducting cost of sales from total sales revenue. The operating profit of the corporation has been derived after adding gross profit with other income and then deducting administrative cost.

The net operating profit of the industry is calculated by subtracting interest and depreciation expenses from operating profit.

Table No. 7

Profitability Analysis of Salt Trading Corporation Limited

Year	Gross profit	Operating profit	Net operating profit
2062/063	214950097	18070290	15960508
2063/064	271677189	207223157	41759056
2064/065	301326639	209161606	54635534
2065/066	376918721	262669446	58409685
2066/067	518354107	371907598	103986682

Source: Appendix II.

The corporation is earning profit from the beginning year of its establishment. The amount of profit is increasing way as compared to previous year.

STCL's performance is satisfactory.

Comparative profitability ratio analysis for the FY 2065/66 to 2066/067

Income statement for the FY 2066/67 are shown as follows:

Table No. 8

Income Statement for the Fiscal Year 2066/067

Particular	Amount	Amount
Sales revenue		3366335450
Less: cost sales		2846981343
Gross profit		518354107
Add: other incomes		47146529
Total gross profit including other income		565500636
Less: Administrative expenses		193593038
Operating income s		371907598
Less: Other fixed cost		
Depreciation	3628563	
Interest	115686298	
Net operating incomes		103986682
Add: Profit on sale of assets		1287081
Profit before tax and bonus		105273763
Less: Bonus		6393586
Less: Profit before tax		9880177
Less; advance		34944314
Profit before Tax		63935863
Less: Tax		27753494
Add Deferred tax	968651	36182369
Net profit		37151020

Source: Appendix II.

Table No. 9
Income Statement for the Year Ended 2065/66

Particular	Amount	Amount
Sales revenue		3190432746
Less: cost sales		2813514025
Gross profit		376918721
Add: other incomes		28214940
Total gross profit including other income		405133661
Less: Administrative expenses		142464215
Operating incomes		201958847
Less: Other fixed cost		
Depreciation	197195114	
Interest	7064647	
Net operating incomes		58409685
Add: Profit on sale of assets		2953
Profit before tax and bonus		58412638
Less: Advance		29810500
Profit before bonus and tax		28602138
Less: Bonus		2600194
Profit before tax		26001944
Less: Tax		15276583
Add: Deferred Tax		(829720)
Net profit		11555081

Source: Appendix II.

4.5.1 Gross profit margin ratio

Gross profit margin ratio expresses the relationship between gross profit margin and sales amount. A firm should have a reasonable gross profit margin to ensure adequate coverage for operating expenses of the firm and sufficient return to the owners of the business. Gross profit margin ratio can be expressed by the following formula:

$$\text{Gross profit margin ratio} = \frac{\text{Gross profit}}{\text{Sales}}$$

Gross profit margin ratio for the fiscal year (2065/66)=
376918721/3190432746=11.8%

Gross profit margin ratio for the fiscal year 2066/67= $\frac{518354107}{3366335450}$ =15.3%

A higher ratio is a sign of good management. A low gross profit ratio is definitely a dangerous signal, requiring a careful and detailed analysis of the factors responsible for it.

Gross profit margin ratio of corporation for the fiscal year 2066/67 is higher than the fiscal year 2065/66 since it is a sign of good management as it implies that the cost of sales of corporation is relatively low.

4.5.2 Net Profit Margin Ratio

This ratio measures the overall profitability of the firm by establishing relationship between net profit and sales. The relationship between net profit and sales indicates management's ability to operate the business with sufficient success not only to cover the cost of production, operating expenses of business and cost of borrowed fund but also to leave a margin of reasonable compensation to the owners for providing their capital at risk. This ratio is calculated by dividing net profit after tax and interest by sales.

$$\text{Net profit margin ratio} = \frac{\text{Net Profit after tax}}{\text{Sales}}$$

On the basis of fiscal year 2065/66, the company's net profit margin ratio is 0.36 percent. But for the fiscal year 2066/67, the company's ratio is 1.10 percent which is greater than the previous fiscal year's ratio. It indicates that, at present company's overall efficiency is better than previous fiscal year from the net profit margin view.

$$\text{Net profit margin ratio for the fiscal year (2066/67)} = \frac{37151020}{3366335450} = 1.10$$

$$\text{Net profit margin ratio for the fiscal year (2065/66)} = \frac{11555081}{3190432746} = 0.36$$

4.5.3 Operating Ratio

Operating ratio expresses the relationship between total operating expenses and sales amount. The operating ratio can be calculated by using following formula:

$$\text{Operating ratio} = \frac{\text{Total operating expenses}}{\text{Sales amount}}$$

For the fiscal year, 2065/66:

$$\text{Operating ratio} = \frac{142464215}{3190432746} = 0.974 = 97.4\%$$

For the fiscal year 2066/67:

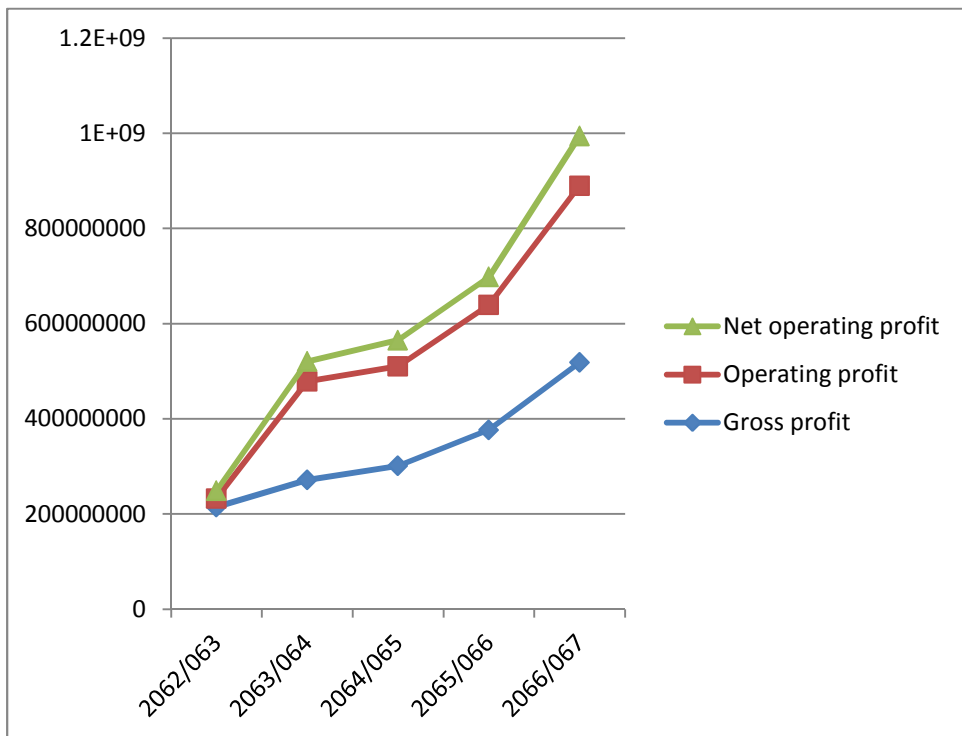
$$\text{Operating ratio} = \frac{21433957025}{2193935368} = 0.976 = 97.6\%$$

Lower the operating ratio indicates the higher operating profit. So minimum percentage of operating ratio is preferable.

For the fiscal year 206/67 the company's operating ratio is higher than the previous fiscal year 2065/66.

Gross profit, operating profit and net operating profit is shown by the following graph:

Figure 4: Graphical Representation of GP, OP and NOP



4.6 Cost-Volume-Profit Analysis of Salt Trading Corporation Limited

Cost-volume-profit analysis is a management accounting tool to show the relationship between costs volume and profits with given change in cost or volume. What is the expected change in profit? While volume is a function of price, cost is a function of volume. That is, CVP technique analysis the behavior of the three key parameters of costs, volume and profits. It is thus based on cost behavior patterns – how costs respond to changes in output levels. CVP analysis provides the management with a comprehensive overview of the effects on revenue and costs of all kinds of short run financial changes. It is related to profit, sales volume and cost. CVP analysis helps to determine the minimum sales volume to avoid losses and the sales volume at which the profit goal of the corporation will be achieved. And this analysis is possible only when the management has information about variable cost and fixed cost and selling price of the product or sales revenue.

Table No. 10
Income Statement for the Year 2062/63 to 2066/67

sales Revenue(1)	1851702406	1916218180	2138957424	3190432746	3366335450
Less V.C.					
Cost of sale	1109451317	1151178694	1286341550	1969459818	1992886940
admin exp.	37332584.2	56766099.4	57758157.2	71154648.3	97672855.8
Total V.C.(2)	1146783901	1207944793	1344099707	2040614466	2090559796
C.M.(1-2=3)	704918504.7	708273386.9	794857717.3	1149818280	1275775654
Less:F.C.Cost of sale	475479135.9	493362297.3	551289235.5	844054207.5	854094402.9
Admin.Cost.	25611114.6	27935610	39500505.1	61041269	83223900.8
Selling &Distrib.cost	896319	6165675	6151347	9593715	13813418
Depreciation	387313	4275438	5169703	7064647	7719126
Interest	11999490	161188663	152956369	197195114	260201790
Total Fixed cost(4)	514373372.5	692927683.3	755067159.6	1118948953	1219052638
Profit(3-4=5)	190545132.2	15345703.6	39790557.7	30869327.7	56723016.4
P/V Ratio=CM/sales	0.380686714	0.36962043	0.371609883	0.360395712	0.378980548
BEP=fixed cost/PV Ratio	1351172377	1874700714	2031881268	3104778764	3216662817
Margin of safety=As-BES	500530029.2	41517465.95	107076155.8	85653981.71	149672632.7
% of BEP=BEP/sales	72.96919702	97.83336436	94.99400247	97.3152864	95.55384082
% of Margin of safety	27.03080298	2.166635636	5.005997531	2.684713596	4.446159183

Source: Appendix IX.

4.7 Analysis of Contribution Margin Ratio, BEP and Margin of Safety

An alternative approach to cost-volume profit analysis is based on the contribution margin. Contribution margin is the excess of sales price of unit of output over its variable cost. i.e. (S-V). It is the different between the portions of rupees that is left after variable expenses are deducted. Variable cost is the sum of manufacturing costs and marketing and administrative cost. Contribution margin can be written in the formula form as (margin of safety = sales revenue – variable cost).

The CM approach is particularly useful in determining the break-even point and target profit breakeven point defined as the output level which evenly breaks-even the costs and revenue. Break-even sales volume is the level of sales volume in which a corporation neither makes a profit nor suffers losses. At this level of activity the sales just covers the total costs, and the profit are zero.

Table No. 11

Analysis of Contribution Margin Ratio, BEP and Margin of Safety

Particular	Year				
	2062/063	2063/64	2064/065	2065/066	2066/067
1. Sales revenue	1851702406	1916218180	2138957424	3190432746	3366335450
2. Contribution margin	704918504.7	708273386.9	794857717.3	1149818280	1275775654
3. CM ratio/PV ratio	0.380686714	0.36962043	0.371609883	0.360395712	0.378980548
4. BE percentage	72.96919702	97.83336436	94.99400247	97.3152864	95.55384082
5. Margin of safety	500530029.2	41517465.95	107076155.8	85653981.71	149672632.7
6. Percentage of margin of safety	27.03080298	2.166635636	5.005997531	2.684713596	4.446159183

From the above table, contribution margin of the corporation is in increasing trend from the fiscal year 206/063 to 2066/67. Higher contribution margin ratio is better for the company.

The margin of safety for year 2062/63 is 500530029 where as in year 2063/064 it is decreased to 41517465. And that after it is increasing in year 2064/65 to 107076155 and again decreased in year 2065/066 and than again increasing order. . For the fiscal year 2066/67 the corporation makes the highest margin of safety which is 149672632.

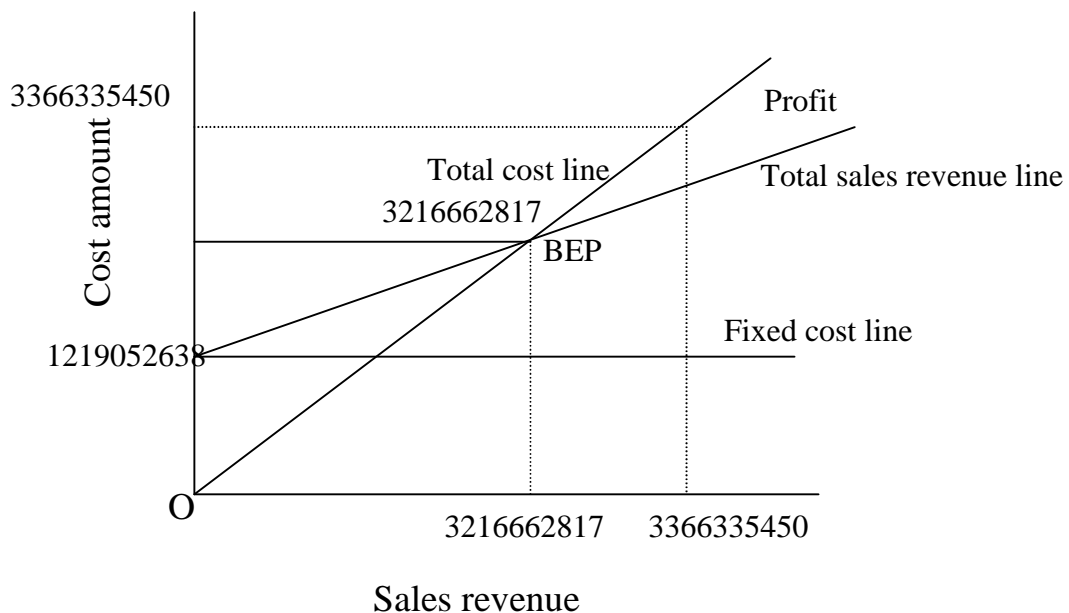
The point at which the corporation makes neither profit nor gain is termed as BEP. At this point the total sales revenue is just sufficient to cover both variable and fixed costs. Following computation shows the BEP in Rs. for the fiscal year. 2062/63 to 2066/67.

Fiscal year	2062/063	2063/64	2064/065	2065/066	2066/067
BE sales	1351172377	1874700714	2031881268	3104778764	3216662817

This computation can be represented in the graphical form which is as follows:

Following graphical representation of BEP (Rs.) for the fiscal year 2066/67.

Figure 5: Graphical Representation of BEP (Rs.) for the FY 2066/67



In the above chart, sales volume is plotted on horizontal or x-axis and vertical or y-axis represents revenue, fixed costs and variable costs. Breakeven point is located where the total cost line crosses the sales line.

From the above chart the total fixed cost of the corporation is Rs. 1219052638. It is parallel to x-axis. Since the variable cost directly varies with unit of production therefore. It is sloping upward to right side. If no purchase and sales is made variable cost is zero but still the company should bear the fixed cost of Rs. 219052638. Total sales revenue curves originate from the origin because sales revenue is zero when sales volume is zero. And as the sales volume increases, sales revenue also increases. The equilibrium point in the graph where total sales revenue and total cost cross which each other is known as breakeven point. Below this point the corporation cannot cover its cost as a result it suffers the loss. And above this point sales revenue exceeds the total cost which provides the profit to the corporation. In the figure above salt trading corporation gaining profit, i.e. total cost is less than the sales revenue.

4.8 Relationship among Sales, Cost and Profit

Table No. 12

Relationship among Sales, Cost and Profit

Year	Sales	Cost	Profit
2062/063	1851702406	1661157274	190545132
2063/064	1916218180	895463636.9	15345703
2064/065	2138957424	475479136.3	39790557
2065/066	3190432746	1376783491	30869327
2066/067	3366335450	501426348.2	56723016

In order to determine the effect of sales revenue and total cost (variable + fixed) on net profit, SPSS processor is used for model and coefficient.

Reported statistics (Appendix V) have the following interpretations.

- R square for model 1 = 100% indicates that variations in net profit are explained by sales revenue (SR) and total cost (TC).

- Standard error of model-1 = 0% indicates that standard deviation of actual value of net profit about the regression line of estimated net profit.
- The column "headed B" shows that the unsteady regression coefficients for the equation. Equation can be shown as equation 1% increase in sales revenue would lead to about 1% increase in net profit.
- 1% increase in total cost would lead to about 1% decrease in net profit.

4.9 Measuring Risk: Degree of Operating Leverage (DOL)

Operating leverage tells us how profit change with the change in sales volume. Degree of operating leverage can be measured in terms of 'Degree of Operating Leverage'. A DOL shows the time of percentage change in operating income to the given percentage change in sales. It may be defined as the percentage change in net operating income or EBIT associated with a given percentage change in sales (Pandey: 2004).

$$DOL = \frac{\% \text{ change in net operating income or EBIT}}{\% \text{ change in sales}}$$

Alternatively

$$DOL = \frac{\text{Contribution margin}}{\text{Net operating income}} = \frac{CM}{CM - TFC + Int.}$$

4.10 Sensitivity Analysis: Assessing the Impacts of Change in Cost-Volume-Profit Variables

Sensitivity analysis is the measurement of elasticity of the change in cost-volume-profit factors on breakeven point or given profit. To measure the sensitivity of cost-volume-profit factors one can see the impact of certain percentage or amount change in volume, price or cost factors on net profit. In other words, sensitivity analysis is the measurement of responsiveness in outcome with the change in the

determinant variables. As we know the profit is the function of volume, price, fixed cost, variable cost etc. Here we systematically deal with the following sensitivity analysis.

4.10.1 Assessing the Impact When Selling Price is changed

An increase in the sales value will be the increase profit-volume-ratio and as a result, will lower the breakeven point. On the contrary a decrease in sales value will reduce the profit volume ratio and therefore, result in a higher break-even-point, if increase and decrease of sales value by 10 percent with other factors assumed to remain same; it gets following result for the fiscal year 2066/67.

Table No. 13
Income Statement with Change of Sales Value for the Fiscal Year
2066/067

	Original sales	10% increase	10% Decrease
Sales revenue	3366335450	3702968995	3029701905
Less: Variable cost	2090559796	2090559796	2090559796
Contribution margin	1275775654	1612409199	939142109.1
Less: Fixed cost	1219052638	1219052638	1219052638
Profit/Loss	56723016.4	393356561.4	-279910528.6
P/V ratio =(CM/Sales)	0.378980548	0.435436862	0.309978387
BEP =	3216662817	2799608265	3932702051
% change in BEP	0.955538408	0.756044209	1.298049173

The above table shows that when sales value increases by 10%, profit also increases to 393356561 forms 56723016. Similarly, profit volume ratio is increased to 0.4354 forms 0.3789. The break even amount is decreased to 2799608265 from Rs. 3216662817.

When the sales value is decreased by 10%, corporation becomes in loss. P/V ratio is only 0.3099 But BEP amount is increased to Rs. 3932702051 form 3216662817.

4.10.2 Accessing the Impact When Variable Cost is changed

If the variable cost is changed without changing the selling price and fixed cost, we can easily predict the result. When variable cost is increased profit volume ratio will be decreased as a result profit will be decreased and vice-versa when variable cost is decreased.

Table No. 14

Income Statement by 10% Change in Variable Cost (Amount in Rs.)

Particular	Original variable cost	10% increase in variable cost	10% decrease in variable cost
Sales	3366335450	3366335450	3366335450
Less: Variable cost	2090559796	2299615775	1881503816
Contribution margin	1275775654	1066719675	1484831634
Less: Fixed costs	1219052638	1219052638	1219052638
Profit/Loss	56723016.4	-152332962.7	265778996.3
P/V ratio= (CM/Sales)	0.378980548	0.316878603	0.441082493
BEP = FC/PV Ratio	3216662817	3847065172	2763774704
% change in BEP=FC/PV ratio	0.955538408	1.142805056	0.821003951

From the above table, when no change is brought in variable cost, the contribution margin is Rs. 1275775654 and net profit is Rs. 56723016. But when, the variable cost is increased by 10% the corporation incurs loss because contribution margin is not enough to cover the fixed cost. But in the other hand when variable cost is decreased by 10%, contribution margin is increased and the loss of the corporation is decreased. When the change is brought in variable cost profit volume ratio is also changed and as a result BEP sales value is also changed.

4.10.3 Assessing Impact When Fixed Cost is changed

The change in fixed cost does not bring any change in contribution and P/V ratio. When only fixed cost is changed without any change in other factors, net income and BEP amount are also changed.

Table No. 15

Income Statement by 10% change in Fixed Cost

Particular	Original variable cost	10% increase in variable cost	10% decrease in variable cost
Sales	3366335450	3366335450	3366335450
Less: Variable cost	2090559796	2090559796	2090559796
Contribution margin	1275775654	1275775654	1275775654
Less: Fixed costs	1219052638	1340956801	1097147374
Profit/Loss	56723016.4	-65181146.9	178628280.1
P/V ratio= (CM/Sales)	0.378980548	0.378980548	0.378980548
BEP = FC/PV Ratio	3216662817	3538326195	2894996536
% change in BEP=FC/Pvratio	0.955538408	1.051091386	0.859984567

From above table when fixed cost is increased by 10% net profit is decreased because more amount of fixed cost is to be covered by the same amount of contribution margin. As a result BEP amount is also increased when fixed cost is increased. It is observed from the above table that, fixed cost is increased by 10% BEP amount is also increase by 10%. On the other hand, fixed cost is decrease by 10% amount of profit is increased. This is because less amount of fixed cost is to be covered by same amount of contribution margin. It is seen form the table that 10% decrease in fixed cost causes the same percentage decrease in BEP amount.

4.11 Major Findings

From the analysis of various data collected from primary and secondary sources, the major findings of the study are as follows:

- Sales plan of salt trading corporation is not properly maintained.
- The corporation's variable costs is high proportion than fixed cost in total cost amount, which contributes for lower contribution margin.
- Sales trend of salt trading corporation shows the positive direction from 2063 to 2067.
- Salt trading corporation does not practice the scientific appropriate cost classification technique.
- The corporation is in profit but actually it is not seen that it has controlled the cost mechanism.
- Financial position of corporation is satisfactory as compared to previous year but net profit margin, profitability ratio and other things are not satisfactory.
- The corporation has not any practice of cost-volume profit analysis and its impact on profitability.
- The corporation does not apply any appropriate and effective action for the re-planning.
- The corporation has high fixed costs (i.e. depreciations and interest).
- The goal and objective of the corporation are not clearly communicated to operating level of management.
- The corporation is not confined within the narrow territory of its profit trend. But it has launched the public awareness program me in different media.

- Even in the critical situation prevailing in the country the corporation is committed to serve the country, people and the consumers with the supply of quality goods.
- Due to the excessive price hike of eating things; petroleum items and fertilizers in the national and international market level, those goods couldn't be import as the past year as it is hoped. Therefore, the transaction is affected negatively.

CHAPTER-V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary and Conclusion

Cost-volume-profit analysis examines the behavior of total revenues, total costs and operating income as changes occur in the output level, the selling price, and the variable cost per unit and/or the fixed costs of a product. The study entitled cost volume profit analysis as tools to measure effectiveness of profit planning and control. The main objective of this study is, to analysis sale trend of corporation, to evaluate cost volume profit trend, to evaluate sensitivity of the corporation and to provide suggestion and recommendation to the corporation.

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

Hence, the effort has been made in this chapter to present summary, conclusion and recommendation of the study of CVP analysis to measure effectiveness of profit planning and control.

Conclusively, it can be stated that the corporation has not applied CVP tools for profit planning and control it has not proper method to segregate cost into fixed and variable. The main problem faced by the corporation is increment in variable operating costs because it has adopted neither the cost control system nor systematic and scientific plan for classification of costs. The corporation earns profit as increasing trend as compared to previous year. The goal and objectives of the corporation are not communicated to operating level of management.

The corporation does not apply any appropriate effective action for replanting. Financial position of the corporation is satisfactory as

compared to previous year but net profit margin, profitability ratio and other things are not so satisfactory.

Even in the critical situation prevailing in the country the corporation is committed to serve the country, people and the consumer with the supply of quality goods salt trading corporation should seek for drastic change on its policy and should plan for using CVP tools for profit plan immediately. It would be beneficial to manage according to the recommendation given below.

5.2 Recommendation

On the basis of research work, the following recommendation is given to improve the present condition of the corporation.

- The corporation should formulate strategic programme and policies according to the basic objectives mission and goals.
- The corporation should make a specific framework and responsibility center for classification of expenses such as variable, fixed and semi-fixed costs which helps to control/reduce the cost.
- To make CVP analysis effective the corporation should use the approach of calculating the BE point, safety of margin and contribution margin ratio.
- The corporation should prepare a periodic performance report to evaluate the poor performance.
- All the participants can be involved on decision making and planning process if CVP analysis and PCC manuals is communicated from top to bottom levels.
- To run the corporation more effectively and to achieve the targeted mission it should depend on convincing method of market survey and statistical tools likes regression analysis, time series analysis, barometric technique, input-output analysis for sales forecasting.

- Since the corporation is service oriented it should promote the depot so that it can provide the easy service for the consumer and it can enhance the sales of corporation.
- The corporation should be self-reliant as one of the responsible institution establishing good relationship with other government corporations.
- It should apply the effective strategy to establish the corporation in the international market and should tilt towards the trade diversification searching for new goods, new idea and new market.
- As we know the corporation works assisting with the government, it must move according to the policy of government, therefore it should initiate the further public awareness programmes even in the remote areas of the country, so that the sales increases and it broadness the market. As a result margin of safety increases.
- The corporation should consider its product line to improve the profit. The market survey on demand, supply and pricing of its items should be carried out and loss oriented costs should be identified and controlled.
- Finally, a systematic approach should be made comprehensive profit planning. This can considerably contribute to the increase in profitability of all corporation.

5.4 Recommendation for Further Study

Further researcher is advised to pursue research work separately on BEP of different consumer goods. This approach of conducting research would facilitate to investigate the degree of contribution of each group in the life of STCL. Now a day's competitive environment such separate product based analysis should be prescribed the corporation to formulate strategic plan for the long term sustainability of STCL.

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APPENDICES

Appendix-I

Balance Sheet for Five Years

	2062/063	2063/064	2064/065	2065/066	2066/067
Share capital and liabilities:					
Share capital	24777700	24777700	24777700	28537500	32859200
Reserve and profit	1546000307	1374882494	15351720148	1285722894	1285103580
Mid-term and long-term loan:					
Secured loan	362889233	416532694	437625683	432886967	430737324
Total	1933667240	1816192888	15814123531	1747147361	1748700104
Fixed assets:					
Net assets	1393158082	1377867557	1361452939	1343390052	1308870098
Investment	441759529	368654475	383312777	401406589	403477607
Current assets:					
Deferred tax			2987193	3816913	4785564
Inventory	789888205	714440295	611621230	1007175635	1447506550
Debtors	51678428	218938094	224310407	244732573	223039125
Cash and bank	203881404	80292345	62952414	104834296	65295940
Paid in advance	707408920	878272814	975640222	1167344054	1138652562
Total	1752856957	1891943548	1874524273	2524086558	2874494177
Current liabilities	1654107328	1822272692	1808153651	2525552751	2842927342
Total assets		69670856	66370622	-1466193	31566835
Total	1933667240	1816192888	1814123531	1747147361	1748700104

Appendix-II
Income Statement

	2062/063	2063/064	2064/065	2065/066	2066/067
Sales revenue	1851702406	1916218180	2138957424	3190432746	3366335450
Less: Cost of sales	1636752309	1644540991	1837630785	2813514025	2846981343
Gross profit	214950097	271677189	301326639	376918721	518354107
Others incomes:	25427524	26024744	25788804	28214940	47146529
Total income	189522573	297701933	327115443	405133661	565500636
Less: Administrative cost	51227438	90478776	114353837	142464215	193593038
Interest expenses	93352837	161188663	152956369	197195114	260201790
Depreciation expenses	2109782	4275438	5169703	7064647	7719126
Net operating profit	15960508	41759056	54635534	58409685	103986682
Income from sales of assets	9672	96171	8996	2953	1287081
Profit before bonus-income tax	15435180	41855227	54644530	58412638	105273763
Less: Loan and advance		13500000	30000000	29810500	34944314
Profit before bonus-income tax		(93144773)	24644530	28602138	70329449
Bonus	1543518	-	2240412	2600194	6393586
Profit before income tax	13891662	(93144773)	22404118	26001944	63935863
Income tax	3346419	10511593	12364110	15276583	27753494
Deferred tax		-	(2987193)	(829720)	(968651)
Net profit	10545243	(103656366)	13027201	11555081	37151020

Appendix-III

Time Series Analysis

Fitting Straight Line Trend by Least Square Method

Year	Actual sales (y)	t = t-	ty	x ²
1	1851702406	-2	-3703404812	4
2	1916218180	-1	-1916218180	1
3	2138957424	0	0	0
4	3190432746	1	3190432746	1
5	3366335450	2	6732670900	4
n = 5	$\Sigma y = 12463646206$	$\Sigma t = 0$	$\Sigma ty = 4303480654$	$\Sigma x^2 = 10$

Appendix-IV

Time Series Analysis

Fitting Straight Line Trend by Least Square Method

(Rs. '000')

Sales(x)	Net operating profit(y)	xy	x ²
1851702.406	15960.508	29554111065	3428801800386
1916218.180	41759.056	80019462287	3671892113363
2138957.424	54635.534	116863081064	4575138861685
3190432.746	58409.685	186352171708	10178861106749
3366335.450	103986.682	350054053944	11332214361927
$\Sigma x =$ 12463646.21	$\Sigma y =$ 274751.465	$\Sigma xy =$ 762842880067	$\Sigma x^2 =$ 33186908244109

Appendix- 5 is in the next copy

Appendix-VI

Variable Costs Analysis of STCL					
Details	2062/063	2063/064	2064/065	2065/066	2066/067
1. Cost of sales	1584930453	1644540991	1837630785	2813514025	2846981343
Total cost of sales (a)(70%)	1109451317	1151178694	1286341550	1969459818	1992886940
2. Administration cost(b)					
salary	30989526	36030922	49077476	52987869	68368634
Salaries and allowance (70%)	21692668.2	25221645.4	34354233.2	37091508.3	47858043.8
TADA	1645145	6133277	5030640	10472556	10682336
Ticket and telephone	3084599	2941791	3059448	3170962	3532961
Stationery expenses	100926	1849461	1636773	1395578	2074648
Petrol expenses	1834078	3042708	2952908	3858293	4024889
Cloths allowances	219692	386573	358933	2246027	2107700
Anniversary expenses	161611	301218	414438	460937	549660
Books and newspaper	138180	495199	775511	263481	273254
Charity expenses	405798	1352938	1570970	2846820	4179416
Consultancy fees	93778	539718	647488	1032970	2982975
Training expenses	297915		680324	208635	803684
General assembly	0	0	125909	126246	313772
Metting allowances	119700	1991277	1644618	1930776	2636794
Worshipping expenses	2912108	1084478	366125	534300	330170
Hosting expenses	2113459	1991277	1644618	1170886	2821736
Water and electricity (70%)	869626	1237728	1114871	1143381	1403522
Misc. expenses	0	0	465672	334295	49530
Overwriting	981240	5630634	0	0	7278200
Frees and tax	662061	2566177	914678	2866997	3769565
Total administration cost	37332584.2	56766099.4	57758157.2	71154648.3	97672855.8
Total a+b	1146783901	1207944793	1344099707	2040614466	2090559796
Change		0.05333253	0.11271617	0.5182017	0.02447563

Appendix-VII
Fixed Cost Analysis of STCL

(Amount in Rs.)

Fixed cost Analysis of STCL					
Details	2062/063	2063/064	2064/065	2065/066	2066/067
1. Cost of sales	1584930453	1644540991	1837630785	2813514025	2846981343
cost of sale 30%	475479136	493362297.3	551289235.5	844054207.5	854094402.9
2. Administration cost(b)					
salaries	30989526	36030922	49077476	52987869	68368634
salaries and allowance(30%)	9296857.8	10809276.6	14723242.8	15896360.7	20510590.2
Medical expenses	2577349	2478910	3379939	4180938	6125540
Maintenance expenses	2688039	1970729	3512649	3983071	5030400
water & electricity	260887.8	371318.4	334461.3	343014.3	421056.6
House rent	2213300	5013838	5779363	7022272	9050352
Bank commission	597907	539781	647488	1032970	2982957
House & land tax	-	626188	1155936	951632	870317
Insurance	7830274	5919969	9789776	14889497	17114649
audit fees	146500	161500	177650	195500	215050
Bribe expense		44100		12546014	20902989
Total(b)	25611114.6	27935610	39500505.1	61041269	83223900.8
Selling and distribution cost					
Advertisement	896319	495199	775511	1134246	1788552
sales promotion		5670476	5375836	8459469	12024866
Total©	896319	6165675	6151347	9593715	13813418
Other fixed cost					
Depreciation	387313	4275438	5169703	7064647	7719126
Interest	11999490	161188663	152956369	197195114	260201790
Total(d)	12386803	165464101	158126072	204259761	267920916
Total fixed cost	514373373	692927683.3	755067159.6	1118948953	1219052638

Appendix-VIII
Semi-Variable Costs Sheet

Details	2062/063	2063/064	2064/065	2065/066	2066/067
1. Cost of sales					
Cost of sales	1584930453	1683662151	2202300714	3603256766	193723534
Total	1584930453	1683662151	2202300714	3603256766	193723534
2. Administrative cost					
Salaries and allowances	20464066	23600715	29904499	29550748	30989526
Water and electricity	-	1425523	1720657	1248903	1242323
Misc. expense	-	165950	439638	0	0
Total	20464066	25192190	32064796	30799653	32231851
3. Total mixed cost (1+2)	1605394519	1708854341	2234365510	3634056419	225955385
4. Increase/decrease	0.051	0.064	0.3075	0.625	(0.938)

Appendix-IX

Income Statement for the Year 2062/063to 2066/67

sales Revenue(1)	1851702406	1916218180	2138957424	3190432746	3366335450
Less V.C.					
Cost of sale	1109451317	1151178694	1286341550	1969459818	1992886940
admin exp.	37332584.2	56766099.4	57758157.2	71154648.3	97672855.8
Total V.C.(2)	1146783901	1207944793	1344099707	2040614466	2090559796
C.M.(1-2=3)	704918504.7	708273386.9	794857717.3	1149818280	1275775654
Less:F.C.Cost of sale	475479135.9	493362297.3	551289235.5	844054207.5	854094402.9
Admin.Cost.	25611114.6	27935610	39500505.1	61041269	83223900.8
Selling &Distrib.cost	896319	6165675	6151347	9593715	13813418
Depreciation	387313	4275438	5169703	7064647	7719126
Interest	11999490	161188663	152956369	197195114	260201790
Total Fixed cost(4)	514373372.5	692927683.3	755067159.6	1118948953	1219052638
Profit(3-4=5)	190545132.2	15345703.6	39790557.7	30869327.7	56723016.4
P/V Ratio=CM/sales	0.380686714	0.36962043	0.371609883	0.360395712	0.378980548
BEP=fixed cost/PV Ratio	1351172377	1874700714	2031881268	3104778764	3216662817
Margin of safety=As-BES	500530029.2	41517465.95	107076155.8	85653981.71	149672632.7
% of BEP=BEP/sales	72.96919702	97.83336436	94.99400247	97.3152864	95.55384082
% of Margin of safety	27.03080298	2.166635636	5.005997531	2.684713596	4.446159183

Appendix-10
Questionnaires

Being a student of research in Central Department of Management, T.U. me Krishna Prasad Neupane would like to request the necessary questionnaire from your corporation. I'm doing research about your corporation entitled "Cost Volume Profit Analysis – As a Tool Measure Effectiveness of Profit Planning and Control." It is the matter of happiness that the study of your corporation would help you and me both because it would explore a objective realistic finding on the above topic if you provide me true answers of the question attached here under. I am looking forward for your positive response and again humbly beg to state your kind and indispensable suggestions.

1. Has the company made sales plan?
 - a. Yes b. No
2. If made, what sort of tools and methods are used?
 - a. Survey method b. Market study and experiment method
 - c. Statistical method d. others
3. Has the corporation studied CVP and it's impact on profitability?
 - a. Yes b. No
4. To segregate fixed and variable cost has any method been used?
 - a. Yes b. No
5. If it is used, which method has been used?
 - i. High low method ii. Least square method
 - iii. On the basis of nature of the cost
6. Is STCL practicing cost volume profit analysis?
 - a. Yes b. No
7. If yes, which tool of cost volume profit is practiced?
 - i. Contribution margin ii. Break even point II
 - iii. Margin of safety
8. If not, what is the difficulties in application of CVP analysis?
 - a. b.....
 - c. d.....

9. Is CVP analysis important for profit planning?
a. Yes b. No
10. Is the corporation planning to practice CVP analysis?
i. Yes ii. No
11. Are the tools used for sales promotion?
i. Yes ii. No
12. If yes, what kind of tools are used?
i. Sales promotion ii. Personal selling
iii. Advertisement iv. Door to door program
13. Has the corporation launched any social awareness programmers?
i. Yes ii. No
14. If yes ,which medium has been used?
i. Radio ii. Press
c. Door to door iv. Street drama
15. Have you faced any obstacles during the delivery of the goods?
i. Yes b. No
16. If yes, what sort of problems are faced?
i. Weak administration of government
ii. Political activities of the parties
iii. Rebel's protest iv. Other institutions block