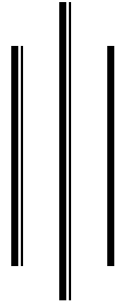


# **PROFIT PLANNING ANALYSIS OF RASTRIYA BEEMA SANSTHAN**



## **A THESIS**

*Submitted By:*

**BALRAM DHAKAL**

T.U. Regd. No: 7-1-280-0144-196

Class Roll No: 1419/061

**Shanker Dev Campus**

*Submitted To:*

Office of the Dean

Faculty of Management

Tribhuvan University

in partial fulfillment of the requirement for the degree of  
Master of Business Studies (M.B.S.)

Kathmandu, Nepal

February, 2011

# **RECOMMENDATION**

This is to certify that the thesis

*Submitted By:*

**BALRAM DHAKAL**

*Entitled:*

## **PROFIT PLANNING ANALYSIS OF RASTRIYA BEEMA SANSTHAN**

Has been Prepared as approved by this campus in the prescribed format of the Faculty of Management. This thesis is forwarded for Examination.

.....  
Associate: Prof. Yamesh Man Singh  
(Supervisor)

.....  
Prof. Bisheshwor Man Shrestha  
(Head of research Department)

.....  
Prof. Dr Kamal Deep Dhakal  
(Campus Chief)

# VIVA- VOCE SHEET

We have conducted the Viva-voce examination of the thesis

*Submitted By:*  
**BALRAM DHAKAL**

## **PROFIT PLANNING ANALYSIS OF RASTRIYA BEEMA SANSTHAN**

And found the thesis to be original work of the student and written according to the prescribed format. We recommend the thesis to be acceptance as partial fulfillment of the requirement for the degree of **Master of Business Studies (M.B.S.)**

### Viva-Voce Committee

Head, Research Department : .....

Member (Thesis Supervisor) : .....

Member (External Expert) : .....

## **DECLARATION**

I hereby declare that the work report in this thesis entitled “**Profit Planning Of Rastriya Beema Sansthan**” Submitted to Office of Dean, Faculty of Management, Tribhuvan University is my original work for the partial fulfillment of the requirement for the degree of Master of Business Studies under the supervision of **Associate Prof. Yamesh Man Singh**, Shanker Dev Campus, Faculty of Management, T.U.

.....

**BALRAM DHAKAL**

**Researcher**

T.U. Regd. No: 7-1-280-0144-196

Class Roll No: 1419/061

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Thank You,

**BALRAM DHAKA**

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## ABBREVIATION

A.D	: Anno Domini
ACA	: Annapurna conservation Area
&	: And
BS	: Bikram Samat
CEO	: Chief Executive Officer
I.e.	: That is
IT	: Information Technology
IUOTO	: International Union of Official Travels Organizations
LTD	: Limited
LNP	: Lantang National Park
MBS	: Master's of Business Studies
NTB	: Nepal Tourism Board
NO.	: Number
PVT	: Private
%	: Percent
S.N	: Serial Number
SNP	: Sagarmatha National Park
T.U.	: Tribhuvan University
USA	: United States of America
WWW	: world Wide Web

# **CHAPTER- I**

## **INTRODUCTI ON**

### **1.3 Background of the study**

The study on profit planning is important for every organization because it leads an organization for achieving its ultimate goals. Profit planning plays a vital role to measure the success or failure of an organization. It is a tool which may be used by the Management in planning the future course of actions and in controlling the actual performance. Development of profit plan includes the preparation of various functional budgets, analysis of variances and presentation of projected income statement and balance sheet. In this study, profit plans used in Rastriya Beema Sansthan.

Profit is the lifeblood of a business organization which is not only keeps it alive but also assures the future and makes it sound. In other words every such organization needs profit to survive and complete in open market. The success or the failure of the business firm depends upon the margin of profit because profits are the primary requirements for its success. The excess income over expenditure is called profit. The word profit brings for visions of reserves. The concept of profit is not new but the concept of profit planning & control is a tool of management used in profit making organization. The managerial skill which increase revenues and minimize the cost is called profit planning and control. Profit planning and control involves long term commitment waiting for a reward which comes in future and always remains uncertain. Therefore every planning entails some degree of uncertainty. So we can conclude profit planning and control is as an organized and formal approach for realize the planning, synchronization and Control responsibilities of management which provides guidelines to the overall managerial task.

### **1.4 Nepalese Economy-The Current Picture**

Nepal is a landlocked countries and lies between two large countries India and China in the central part of Asia with the area of 147,181 sq. km. and only about 27 % of the total land area is under cultivation. Nepalese economy is fully depended on agriculture.

So it plays a vital role in the Nepalese economy. More than 78 % people depend upon agricultural sector. Agriculture is the major instrument of progress, modernization and social change in Nepal. The share of manufacturing sector in the total GDP is 10 %. The government of Nepal has initiated liberal, open and market oriented economic policy since 1990s immediately after the restoration of the democracy. The deteriorating law and order situation, political instability in the country in the past few years has adversely affected the country's economy. Because of political unrest, Nepal has been facing very difficult situation. Economic activities including the development works were affected. Local level investment could not increase due to the absence of elected bodies and rural sector was adversely affected. Increasing number of youths continued to drain abroad in search of foreign employment. Under these circumstances, economic growth remained low compared to the target in the tenth plan. The growth in other sectors of the economy is embarrassed by the small domestic market, poor physical infrastructure, inadequate human and financial resources, and locked position of the country, the political instability and the geography of the country.

### **1.2.1 Background of Insurance Company**

Human beings have to shoulder many misadventures, catastrophes, calamities during one's life. Sometimes, they are bearable and damages are of small value and sometimes, they are unendurable and result in great losses affecting the economy of the concerned people as well as of country. Then people decided to look for a way out from such catastrophes and losses. After many study and research, the traditional concept of insurance emerged. Insurance, in general term, means the security given by the authorized insurance agencies/offices against damages, losses, casualties and calamities occurred to individuals, society and business organizations during the lifetime. Insurance can be provided for several kinds of damage, casualty and calamity. The traditional concept of insurance embraces indemnities against limited aspects only, such as fire, marine calamity, death, burglary, natural calamities and destruction etc. later on the modern concept extended the areas of insurance and comprised insurance against loss of profit, cash in transit, fidelity, medical scheme, public liability, educational and marriage deposit for women etc.

The concept of insurance was first introduced in Europe. It is being reformed and revised many times since it is first introduced. Indeed, the modern concept of insurance develops with the establishment of Lloyds of London and other insurance companies in the western part of the world.

According to Oxford Dictionary, the meaning of insurance is that a contract made by a company or society or by the state to provide or guarantee of compensation for loss, damages, sickness and death etc. in return of regular payment. It also defines as a measure taken to safeguard against loss and failure of properties. The insurance in modern times is associated with every aspect of human activities. Its main function and activities lie into the field of trade, industry and commerce. Even its activities broadened with the science and technology. As an individual, organization and society are involved in the different aspects of activities which are very risky. So, insurance can reduce the risk involving in human activities. Insurance is becoming one of the longest and autonomous service sectors among other business activities in present situation.

Mainly, the insurance business was started from the developed countries and gradually the developing and under developing countries also understood the concept of insurance as support for the development of industry, trade and commerce. Even in underdeveloped country like Nepal, the insurance business has found great potentiality and influenced its economy. After the Rana Regime, development planning was set up in the field of trade, industrial environment and commercial sector, as a result, it was felt by the Government to establish an indigenous insurance company to indemnify and safeguard the physical losses and damage caused by modern science and technology.

The Nepal Insurance and Transport Company Ltd., established in BS 2003 as a first and only indigenous insurance company, was undertaken by Nepal Bank Ltd. As there were not many Nepalese insurance companies at that time, most of the life and general insuring transactions fell into the hands of Indian insurance companies and this created a great crisis on internal resources and capital of funds of the country.

Keeping in mind the above fact, the need for national insurance company for ensuring life property was felt by the government of Nepal and set up Rastriya Beema Sansthan Pvt. Ltd. (RBS) on B.S. 2024, Poush 1 under Nepal Company Act 2024. Later on Rastriya Beema Sansthan Act 2025 came into existence to govern RBS. As per the Act, RBS was to function as Sansthan in full fledged way and all its transaction and liabilities were to be handed over to Government.

### **1.2.2 Overview of the Rastriya Beema Sansthan**

After the establishments of the RBS, the company was sketched out their different phenomenons which are performing by the RBS. The main objectives of this company are to make available the ever increasing need of insurance facility required by growing trade and industry in country. This Sansthan has set following objectives.

- ) To mobilize the internal resource and capital for the economic development of the country and
- ) To minimize the outflow of foreign currency.

### **1.2.3 Source and Capital of Sansthan**

Main source and capital of Sansthan is the share capital. The authorized share capital of the company is Rs.20,00,00,000. out of which Rs.10,00,00,000. each for General Insurance section and Life Insurance section respectively. The paid-up share capital of General Insurance section and Life Insurance section are Rs.99,513800. and Rs.93,00,100. respectively. According to Insurance Act 1992, Rastriya Beema Sansthan was needed to increase its paid-up share capital for General Insurance section and Life Insurance section to Rs.250 million and Rs.100 million respectively within stipulated time as per directed by Rastriya Beema Samittee.

Besides share capital, the collection received from life and general insurance is also a part of the capital structure of the Sansthan.

### **1.2.4 Management and Organization**

The success or failure of the business depends upon the well management . The management of every organization has two major objectives, first is to manage the company well and second is to make more profits and expand the company. The Board

of Directors is selected by the Government. The Board of director should manage and work under the general rules and regulation of the government of Nepal. The size of board of director contains seven (7) members. One director is elected from the general share-holders and rests are from various organizations. The chairman is selected from nepal government . This body implements and formulates the policies and plan of the company. Chairman and General Manager have been appointed to work the day to day operation. General Manager acts upon the directives and control of the Board of directors.

### **1.2.5 Branches**

The head office of Rastriya Beema Sansathan (RBS) is situated in Kathmandu, Ramshahapath. It has branches in Biratnagar, Bhairawa, Birgunj, Nepalgunj, Pokhara, Narayangath, Dhangadhi, Birtamod and Hetauda Ithari .

### **1.2.6 Role in the Economic Development**

This Sansthan has been playing a key factor in the economic development in the country. It has played significant role for the national economy and it helps in mobilizing funds for the economic development of the country. Insurance Company not only reduces the risk but also collects the small capital, which is scattered around the country and injects these amounts in the development activities of long term nature. So that RBS plays the vital role in mobilizing the internal resources which is needed for the economic development of the country, in the context of growing financial, commercial and industrial development.

It is considered that insurance is the only one device for protecting all types of risk arising from financial, commercial and industrial development. It plays the following roles in the economic development of the country.

- ) It helps to minimize the outflow of foreign currency playing in account of premium fees
- ) To earn maximum foreign currency an account of reinsurance.
- ) It mobilizes the internal resources and capital from collected money as premium.

) It safeguards indirectly as per HMG rules and regulations for the economic development of the country

Thus, RBS plays an important role for the economic development of the country.

### **1.3 Focus of the Study**

Profit planning analysis is an important approach, mainly in profit oriented enterprises. Profit planning is merely a tool of management. It facilitates to managers to accomplish managerial goals in a systematic way. Profit is the ultimate goal of every business organization .they involves in business for making profit .profit cannot be achieve easily. It should be managed well with better managerial skills. By event profit is the difference of revenue and cost. Profit plan, thus, refers to the planning of revenues (i.e. increase the revenues), and planning of cost (i.e. increase the efficiency of cost). The focus of the study will be thus on effective profit planning analysis and implementation to ensure the situation of the enterprises and their sustainability in various environments such as the competition in a wider, growing and challenging market. Profit Planning is very important for every enterprise because it leads an organization to ultimate success. Profit planning analysis which considerably contributes to improve the profitability as well as overall financial performance of an enterprise. Thus, the present study is focused on the profit planning analysis and its application in RBS. This study will be provide information and draw attention of RBS management regarding what can be done for future of RBS.

### **1.4 Statement of the Problem**

Economy success depends upon a sustainable economic growth. For the achievement of accelerated economic development in the country, Rastriya Beema Sansthan had play vital role as that of agriculture and other primary sectors. It also helps the country by contributing in the creation of new employment opportunities and monetary amalgamation. As long as this sector couldn't be expanded on a promotional basis of company, due to the problem of political instability, Maoist problem and so on.

Success is not a matter of chance, profit doesn't just happen. It is to be planned and managed. Profit planning analysis provides the technique of profit planning frame work.

Poor performance is the outcome of poor planning, controlling and decision making. This has raised the question whether Nepalese managers are proficient enough? Do they practice Profit planning analysis tools and procedure to carry out planning, decision making and controlling functions? The research questions mainly posed in this research were:

- 1) Whether or not RBS is practicing profit planning analysis?
- 2) What are the key obstacles in the application of Profit Planning Analysis?
- 3) How will profits and Profit affected when the number of customer is change?
- 4) Which parts of profit planning analysis are mostly practiced and which are not practiced till now.
- 5) What will be the effect be of changes on premium, expenses and number of customer.

### **1.5 Objectives of the Study**

The main objective of the study is examine “Profit Planning -Analysis” as a tools to measure effectiveness of PPC of Rastriya Beema Sansthan. The specific objectives are as given

- 1) To study the relationship of revenue, cost and Profit as an applicable tools of budgeting.
- 2) To evaluate the profitability, financial position and sensitivity of RBS product.
- 3) To analyze the Profit Planning of the company and its impact in cost and revenue.
- 4) To provide submission and recommendations for improving RBS condition etc.
- 5) To decide whether the particular service should be expand or retrench and how it should be positioned in current market.

## **1.6 Significance of the Study**

The current research work is the revise of the practice of Profit Planning Analysis in Rastriya Beema Sansthan. This study will be noteworthy in the following ways:

- 1) It examines the application of Profit Planning analysis in the company.
- 2) It explores the problems and potentialities of the selected company. It will be useful to the potential managers, accountant, policy makers and planners etc.
- 3) It provides information on the application of the gear under profit planning in the different state of affairs.
- 4) This study also directed towards providing necessary recommendations to the related department of the company.
- 5) It provides literature to the researcher, who wants to carry on further research in this field.

## **1.7 Limitations of the Study**

This study is restricted only to Profit Planning Analysis as device of profit planning and control of Rastriya Beema Sansthan. Following factors have limited the scope of the study:

- 1) Profit Planning Analysis covers of last five years only. (I.e. F/Y 2061/62 to 65/66).
- 2) The study is based on primary as well as secondary data (i.e. Questionnaire, Interview, and financial statement collected from the company)
- 3) The accuracy of this study is based on true response and the data available from management of the company.
- 4) The study mainly focuses to keep sensitivity analysis of costs.
- 5) The study mainly covers in financial and accounting aspect of RBS. It doest not cover or include other areas of RBS.
- 6) Due to limited time and resources constraint. This study is neither the comprehensive nor extensive.

## **1.8 Organization of the Study**

The study has been classified into five major chapters. The titles of these chapters are outlined below.

Chapter One	Introduction
Chapter Two	Review of Literature
Chapter Three	Research Methodology
Chapter Four	Presentation and Analysis of Data
Chapter Five	Summaries, Conclusion and Recommendation

First chapter covered background of the study, introduction of the company, statement of the problem, objectives of the study, significance of the study, limitation of the study.

Therefore, this chapter is for brief introduction of the topic and it highlights the fundamental objectives.

The second chapter focused on the fundamental concepts of Insurance. It also provided the meaning of Profit Planning Analysis, its issues and objectives. This chapter is for pertinent literature and studies. This chapter is the backbone of study, where relevant studies have been reviewed.

The third chapter presented the research methodology used in the study. It encompassed research design, nature and sources of data, method of data analysis, statistical / groups of data.

The fourth chapter is the main part of the research that deals with the presentation, analysis and interpretation of data. Different types of tools and technique will be used to analyze the available data in order to achieve the objectives.

The last chapter presents the summary and conclusion of the study based on the analysis of the data and also provides recommendation.

## **CHAPTER-II**

### **REVIEW OF LITERATURE**

#### **2.1 Introduction**

The term review of literature is very important for the researcher or investigator in the area of concerned problem. This is related to the present study with a view to find out what had already been explained and how the present research adds new dimension to the study. It is an integral and mandatory process in research work. In this part, focus has been made on the conceptual framework and the review of literature that is relevant regarding to the profit planning concepts. In this regard, various books, journals and articles concerned to this topic have been reviewed. Review of literature is based on available literature in the field of research. Every possible effort has been made to grasp knowledge and information that is available from libraries; document collection center helps to take adequate feed back to broaden the information to study.

##### **2.1.1 Concept of Profit Planning**

The basic objective of running any business organization is to earn profit. Profit serves as a yardstick for judging the competence and efficiency of the management. In other words, profit is the primary measure of business success in any economy. Profit is not just happen but it is managed. If a firm can not make profit, it cannot generate capital for future. Profits are residual income left after the payment of the contractual rewards to others and for production. The difference between the outflow of expenses (i.e. cost of production and selling those products) and inflow of income (i.e. selling price) is called profit. It is a reward for business activities. Profit is obtained by subtracting the cost from revenue. Profit is determined the financial position, liquidity and solvency of the company.

Profit do not just fall, it should be properly planned. In other words, profit is not a matter of chance; it comes from effective and realistic plan. Planning is deciding in advance or forward thinking what is to be done in future? Planning is the process of developing enterprise's objective and selecting the future course of action to accomplish

them. It is the method of thinking about facts and purpose before planning starts from forecasting and determination of future events. It is the first essence of management and all other functions are performed within the framework of planning. Planning is the basic of profit plans. Planning includes the establishing enterprise's objectives, developing promise 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 actions and current re-planning to correct deficiency. The operational terms, planning process involves four stages The first stage in the planning and control system is setting the objectives, which are defined as the broad and long range desired state or position in the future. They are motivational or directional in the future and are expressed in qualitative terms.

The second stage in the planning process is specifying the goals. The terms as an element in planning, represent targets, specified in quantitative terms to be achieved in a specific period of time The next step involves laying down the strategies. Strategies devote specific methods or course of action to achieve the goals, strategies are the basic thrusts ways and tactics that will be used to attain planned objectives and goals. A particular strategy may be short-term and long term strategies focus. The final step is the preparation of budget/plan. Basically budgeting is the periodic planning to implement the alternative during a particular fiscal period, usually one year. It converts goals and strategies during into annual operating plan.

#### **2.1.1.1 Profit Planning**

Profit planning is therefore a fundamental part of the overall management functions and is a vital part of the total budgeting process. The management determines the profit goals and prepares budgets that will lead them to the realization of these goals. Profit plan can be done only when the management has the information about the cost of the products both fixed and variables, and the selling price at which it will be in a position to sell the products of the company.

Profit planning is planning for future operation in such a way as to maximize the profit or to maintain a specified level of the profit. A comprehensive the profit planning is also

known as broad budgeting schedule developed in financial statement. Profit planning deals with the development of objectives, specification of short term goals and development of strategic and tactical profit plan. In other words, profit plan is detailed expression of the expected results from the planning decisions. Profit planning is an important approach developed to facilitate for effective performance of management process like as planning, organizing, staffing, controlling etc. therefore profit planning carryout the responsibility of forwarding thinking about the future operation of the organization. Since, the precise measurement of operation is in terms of quantity. (I.e. the matters of profit planning are expressed in numerical value.)

### **2.1.2 Profit Planning Process and Basic Elements**

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

- ) Identification and evaluation of external relevant variables.
- ) Development (or revise) of the board objective of the business/enterprise.
- ) Development of specific goals for the business/enterprise.
- ) Development and Evaluation of business/enterprise strategies.
- ) Specification executive management planning instructions.
- ) Preparation and evaluation of project plans.
- ) Development and Approval of strategic and tactical profit plan.
- ) Implementation of profit plan.

As controlling function of management: prepare monthly performance reports by responsibility and follow-up by provide feedback, take corrective action, re-plan, etc.

The basic elements of profit planning are as follows

#### **) Comprehensive and co-ordinate plan: -**

The profit planning considers all activities and operations of an organization. The budgets prepared by different departments inside an organization gave to be compiled or coordinate and it is one of the profit planning. So before preparing a profit planning,

firstly, all the departments have to be compiled and that budget is known as comprehensive budget or profit planning.

**) Expressed in financial terms: -**

All activities covered by budget 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: -**

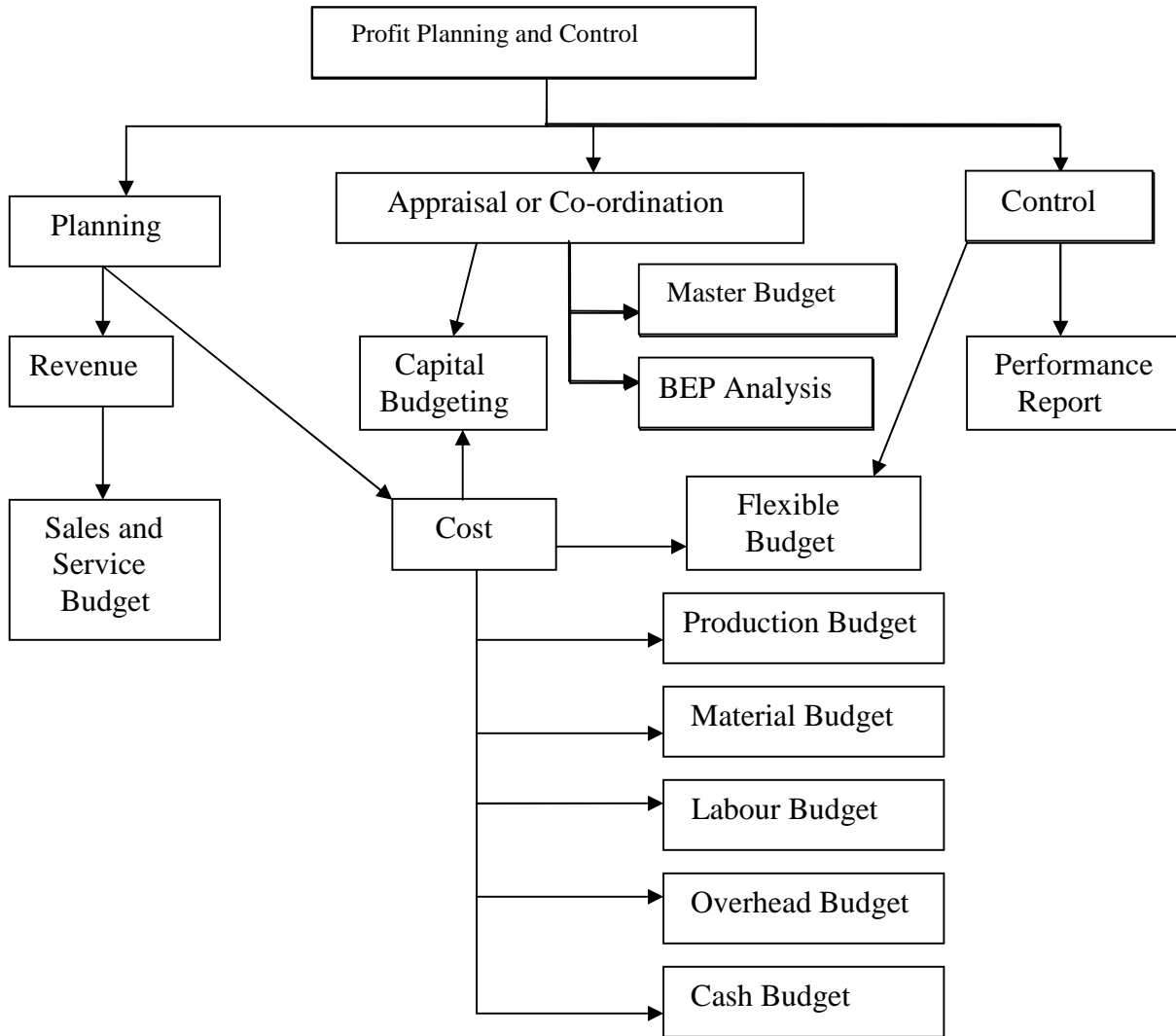
It is the plan for the firm's operating all resources of budget is a mechanization to plan for the firm's all operations of activities. The two aspects of every operation are revenue and expenses. The budget must plan for quantity revenue and expenses related to specific operation. Planning should not 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 the 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.

**2.1.3 Simple Structure of Profit Planning and Control**

**Figure 2.1**  
**Simple Structure of Profit Planning and Control**



) source:Ranald w.Hilton,Managerial Accounting,fifth Edition2002

**2.1.4 Major Tools and Technique of Profit Planning and Control**

Profit planning and control represents on overhaul plan of operations which covers a definite period and formulates of planning decision of management. It consists of three main budgets, which are:

## **(1) Operating Budget**

- i. Sales Budget
- ii. Production Budget
- iii. Purchase Budget
- iv. Direct Materials Budget
- v. Direct Labour Budget
- vi. Manufacturing Overhead Budget
- vii. Selling and Administrative Overhead Budget

## **(2) Financial Budget**

Financial budgets are concerned with expected cash receipts/disbursement financial position and results of operations. The components of financial budget 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 in the forthcoming period. After it has been prepared, it stands as a benchmark against which subsequent company performance can be measured.

**(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 receipt section, the disbursement 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 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 during the budgeted period. It also includes a detail 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 or operating budgets, cash budget, projected income statement and the previous year's assets and liabilities. In other words, budgeted balance sheet develops by beginning with the current balance sheet and adjusting it for the data contained in the other budget.

**(3) Appropriation Budget:** - The appropriation budget covers all types of expenditure on advertising and research sectors.

A part from above budgets, PPC also has relationship with following addition budgets, CPV analysis, and completion of profit plan and performance reports: -

) **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 expenses budget is that all expenses are incurred because of passage of time, 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 flow and cash in-flows. Cash outflow includes the cost of project as cash outlays at different times during the life of the project. The cash out-flows are affected by the provision of residual value of old equipment, tax position, addition working capital needed etc. cash inflows are expected cash revenue during the life of a project affect the cash in-flows.

) **Zero Base Budgeting:** Zero base budgeting is the method of budgeting in which managers are required to start at zero levels every year and to justify all cost as if the programmed involved were being initiated for the first time. No cost are

viewed as being on going in nature, the manager must start at ground level each year and present justification for all costs in the proposed budget regard less of the type of cost involved. Zero base 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 add to it according to anticipated needs. The manager does not have to start at the ground each year and justify on going costs for existing programmed.

- ) **Activity Based Budgeting:** Activity based costing can lead to improve decision making which principles extend budgeting. Activity based budgeting focuses on the lost of activities to produce and sell product and services. It separates indirect cost into separate homogeneous activity cost pools. Management uses the cause and effect creation to identify to cost drivers for each of these cost 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 volume, cost, price and profit. Cost volume profit analysis is grate 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 principle output of a budgeting is a comprehensive profit plan that ties together all phases of an organization's operations. The completion of profit plan is comprised of many separate budgets, or schedules, that are 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 a comprehensive PPC system. The performance reporting phase of a comprehensive PPC programmed significantly influences the extent to which the organization's planned goals and object9ve 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 other words, the objectives of control is to guarantee the achievement of the planned objectives of the management by introducing periodic systematic correction measure. Performance report is on of the vital tools of management to exercise its control function effectively

### **2.1.5 Cost Volume Profit Analysis as a Tool of Profit Planning and budgeting**

Cost Volume Profit is an important tools of profit planning because it provides the information about the behavior of cost in relation to volume, volume of production or sales where the business will break even, sensitivity of profit due to variation of output, amount of profit for a projected sales volume and quantity of production and sales for a larger level etc. CPV analysis may therefore by defined as a managerial tools showing the relationship between various ingredients of profit planning, (i.e. cost, selling price and volume of activity). CVP analysis is an important media through which the management can have an insight into effect on profit on account of variations in cost and sales and take appropriate decisions. Cost volume profit analysis is great helpful in managerial decision making. Specially, cost control and profit planning is possible with the help of the overall management functions. Profit planning can be done only when the management has the information about the cost of the product and the selling price of the product.

### **2.1.6 Concept of Cost-Volume-profit Analysis**

The dictionary meaning of ‘cost’ is the price paid to acquire, produce, accomplish or maintain any things, ‘volume’ is a mass or quantity of something or amount, ‘profit ’is the ratio of such pecuniary gain to the amount of capital invested and analysis is resolution, separation or breaking into parts. But actually cost volume profit analysis is the process of examining the relationship among revenues, cost and profit for the relevant range of activity and for a particular time frame. Basically, CVP analysis involves finding the most favorable combination of variable cost, fixed cost, selling price, sales volume and mix of products sold. CVP analysis provides the managers with and will not improve profitability.

CVP analysis is a management accounting tools to show the relationship between the ingredients of profit planning. Profit planning is the function of the selling profit and units sold. The entire gamut of profit planning is associated with CVP inter relationships. CVP analysis is the technique explores the relationships which exist between cost, revenue, output level and resulting profit. Cost volume profit analysis can be extended to cover the effects on profit of change in selling prices or service fees, cost, income tax rate and product mix. The aim of cost volume profit analysis is to have a fair estimate of total cost, total revenue and profit at various sales volumes. CPV analysis provides the management with a comprehensive overview of the effects on revenue and cost of all kinds of short-run financial changes. It is related to profit, sales volume and cost.

### **2.1.7 Application of Cost- Volume-Profit Analysis**

Cost volume profit analysis is applied specially for break even analysis and profit planning. Business organizations are to earn profit. Profit planning is the fundamental part of the overall management function. Profit planning can be done only when the management has the information about the cost of the product, both fixed and variable cost and the selling price of the product. The cost volume profit relationship will be established by break even analysis. Therefore, cost volume profit analysis uses for

- (i) Contribution Margin analysis
- (ii) Break Even Analysis.
- (iii) Profit Volume Analysis.

#### **2.1.7.1 Contribution Margin Analysis**

The difference between selling price and variable cost (i.e. the marginal cost) is known as contribution margin or Gross margin. In other words, Fixed cost plus the amount of profit is equivalent to contribution margin. It can be expressed by the following formula: -

$$\begin{aligned} \text{Contribution margin} &= \text{Selling Price} - \text{Variable Cost} \\ &= \text{Fixed Cost} + \text{Profit} \end{aligned}$$

We can derive from it that profit cannot result unless contribution exceeds Fixed Cost. In other words, the point of no profit no loss shall be arrived at where contribution is equal to fixed costs.

CVP analysis is the amount of contribution margin available from the sales volume of absorbs fixed cost and also contributes towards company's profit goal after deducting all variable cost of sales. When the contribution margin is high then also profit is high. Contribution margin usually is expressed as a percentage of sales or contribution margin ratio. i.e.

$$\text{ContributionMarginRatio} = 1 - \frac{\text{Variable Cost}}{\text{Selling Price}}$$

The variable cost usually uses in cost-volume-profit analysis are:

**(a) Sales Value:** - any firm of r company may have different product, services etc. The sales value is actually includes the quantity of total sales multiply by selling price per unit or sales rupees. Sales a rupee is calculated by sales units multiply selling price per unit.

**(b) Variable Cost:** - variable cost is that cost which is directly affected by change in the activity level. The per unit variable cost always constant. If the activity level is decrease, the variable cost also decrease. If the activity level or production level increase, than the variable cost also increase. Change of variable cost effects to P/V ratio, BEP and net income. When variable cost increase: Net income, P/V ratio and margin of safety will be decrease but it helps to increase BEP.

**(c) Fixed Cost:** - Fixed cost remains constant in total amount despite the changes in the level of activities. That is, the fixed cost remains unchanged in total as the activity level various. When other factors remain unchanged, the change in fixed cost effects to BEP and Net income. When increase the fixed cost: increase the volume of BEP and decrease the Net income or vice-versa. Fixed cost also called capacity cost.

**(d) Mixed cost:** - Expenditures that cannot be categorized as purely fixed or variables is termed as mixed cost or semi-variable cost. Mixed costs contain both variable and fixed cost elements. Repair and maintenance, supervision, telephone cost, electricity charges are some example of mixed costs. It should be separated form the variable and fixed cost elements as the function of profit planning, cost control and decision making.

**(e) Jumping Cost:** -Some costs remain fixed over a wide range of activity, but jump to different amount for activity levels outside that range. Such costs are called jumping costs or step fixed cost or moving fixed cost or ladder costs.

### 2.1.7.2 Break-Even Analysis

Break-even analysis is widely used technique to study cost-volume-profit relationship. The narrower interpretation of the term break-even analysis refers to a system determination of that level of activity where total cost equals total setting price. The broader interpretation refers to that system of analysis which determines probable profit at any level of activity. It portrays the relationship between cost of production, volume of production and the sales value. CVP analysis includes the entire gomus of profit planning, while break- even analysis is also one of the techniques used in this process. However is so popular for studying CVP analysis that the two terms are used as synonymous terms

**(I) Break-even point:** - The point which breaks the total cost and the selling price evenly to show the level of output or sales at which there shall be neither profit nor loss, is regarded as break-even point. At this point, the income pf the business exactly equals its expenditure. Break-even point can be determined by the two methods

**(a) The equation method:** - Break-even point can be calculated by using following algebraic equations:

$$\text{BE sales value} = \text{FC} + \text{VC} \pm \text{Profit}$$

$$\text{Or, (BE sales unit x SPPU)} = \text{FC} + (\text{BE Sales units x VCPU}) \pm 0$$

**(b) The unit contribution method:** - BEP can also be ascertained through unit contribution margin approach. In this approach, BEP can be calculated by using following formula:

$$\text{BEP in units} = \frac{\text{Fixed Cost}}{\text{CMPU}} \times \frac{\text{Fixed Cost}}{\text{SPPU} - \text{VCPU}}$$

$$\text{BEP in amount} = \frac{\text{Fixed Cost}}{\text{P/V ratio}} \times \frac{\text{FC}}{\text{CMPU}} \text{ } \epsilon \text{ SPPU} \text{ etc.}$$

At break even point, the desired profit is zero. In this case the volume of output or sales is to be computed for 'a desired profit', the amount of desired profit should be added to fixed cost in the formula given above.

) **Cash break Even Point:** - it is the output where cash break even (i.e. the value of sales where cash realization on account of sales will be just sufficient to meet immediate cash liabilities). While calculating this point cash fixed cost (i.e. excluding depreciation and deferred expenses) and cash contribution (i.e. selling price less the cash variable costs.) are considered. The point helps the management in determining the level of activity below which there are chances of insolvency on account of the firm's inability to meet cash obligation unless alternative arrangements are made :-

$$\text{Cash BEP} = \frac{\text{Cash Fixed Cost}}{\text{Cash Contribution per unit}} \text{ in units.}$$

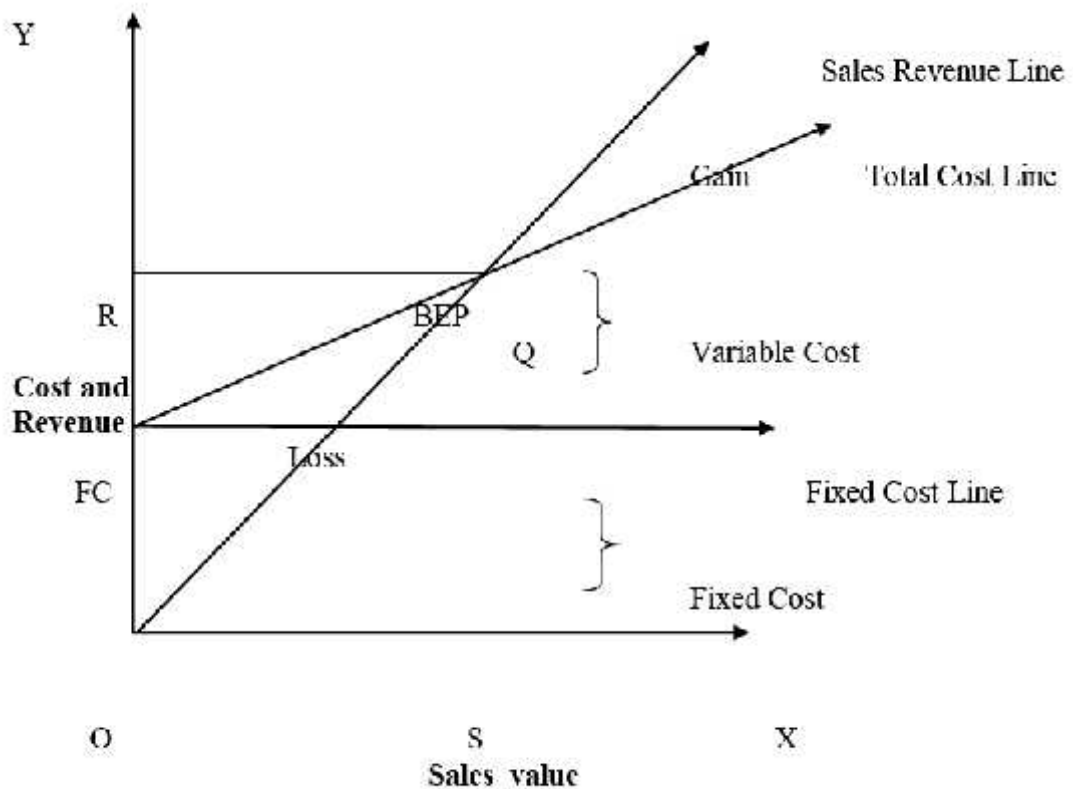
) **Composite Break- Even Point :** - In case concern is dealing in several products, a composite break- even- point can be computed according to the following formula

$$\text{Composite BEP in amount} = \frac{\text{Total Fixed Cost}}{\text{Composite P/V ratio}} \times \frac{\text{TFC}}{\text{TCM}} \text{ } \epsilon \text{ TS}$$

) **Cost Break Even Point:** - Cost Break Even Point refers to a situation where the costs of operating two alternative plants are equal. The point enables the firm to identify which plant is the best to operate at or a given level of output assuming that sales price per unit is the same.

(ii) **Break even Chart:** - The relationship between the costs, sales and profit can be shown in the form of a chart. Such a chart not only depicts the level of activity where there will be neither loss nor profit but also shows the profit or loss at various level of activity:

**Figure 2.2**  
**Break Even Chart**



In the above Break-Even Chart, an equilibrium point between sales or revenue curve and total cost curve is “Q” known as BEP. Therefore “OS” is the break even sales

volume and “OR” is the break even sales in amount. If the actual sales volume is more than break even sales, the organization will earn profit and if the actual sales is less than the break even sales, the organization will suffer from loss.

#### **2.1.7.2.1 Application of Break-Even Analysis: -**

Break-even concept can be used to formulate different policies in a business enterprise.

Some of these applications are

- ) Determine of profit at different levels 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.
- ) Selection of most profitable alternative and make or buy decision and drop and/or add decisions.

#### **2.1.7.2.2 Assumption of Break-Even-Analysis: -**

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

- ) All cost can classify into two parts, fixed cost and variable cost. There is not cost other than fixed and variable.
- ) There is a relevant range of validity (activity) for using the results of the analysis and sales price does not change as units of sales change.
- ) There is only one product or in case of multiple products, the sales mix among the products remain constant.
- ) Basic management policy about operation will not change materially in short run.
- ) The general price level (inflation/deflation) will remain essentially stable in the short run.
- ) Sales and production levels are synchronized, that is inventory remains essentially constant or zero.
- ) Efficiency and productivity per person will remain essentially unchanged in the short run.

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

#### **2.1.7.2.3 Limitations of Break-Even Analysis**

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

- ) The assumption of producer's market phenomenon may not hold good for all types of commodities.
- ) The fixed costs may not remain constant as well as the variable costs may not vary in fixed proportions at different levels of output.
- ) With variation in the prices of the items or services which also depends on the factors affecting its demand and supply will certainly affect the demand of the commodity. This phenomenon is not covered in break-even analysis.
- ) Identification of fixed and variable costs involved in production process is very complicated. A shift in product mix may change the break-even point.
- ) Consumers may be given certain discount on purchases to promote sales. This revenue may not be perfectly variable with level of sales output.

#### **2.1.7.3 Profit-Volume Analysis**

The analysis of relationship between profit and volume is known as profit-volume analysis. The two factors profit and volume are interconnected and dependent with each other. Profit depends upon sales; selling price to a greater extent will depend upon the volume of production. Thus, the entire gamut of profit planning is associated with cost-volume-profit inter-relationship.

#### **Profit/Volume Ratio**

This term is important for studying the profitability of operations of a business. Profit/volume ratio (i.e. P/V ratio) establishes a relationship between the contribution

and the sales value. The ratio can be shown in the form of a percentage also. The formula can be expressed by

$$\text{P/V ratio} = \frac{\text{Contribution Margin}}{\text{Sales}} \times \frac{S - VC}{S} \times 1 - \frac{VC}{S}$$

This ratio can also be called as contribution margin ratio. This ratio can also be known by comparing the change in contribution to change in sales or change in profit to change in sales. Any increase in contribution would mean increase in profit only because fixed costs are assumed to be constant at all level of production. Thus,

$$\text{P/V ratio} = \frac{\text{Changes in contribution}}{\text{Changes in Sales}} \times \frac{\text{Changes in profit}}{\text{Changes in Sales}}$$

This ratio would remain constant at different levels of production since variable costs as a proportion to sales remain constant at various levels. The ratio is useful for determination of the desired level of output or profit and for the calculation of variable costs for any value sales. The variable cost can be expressed as under:

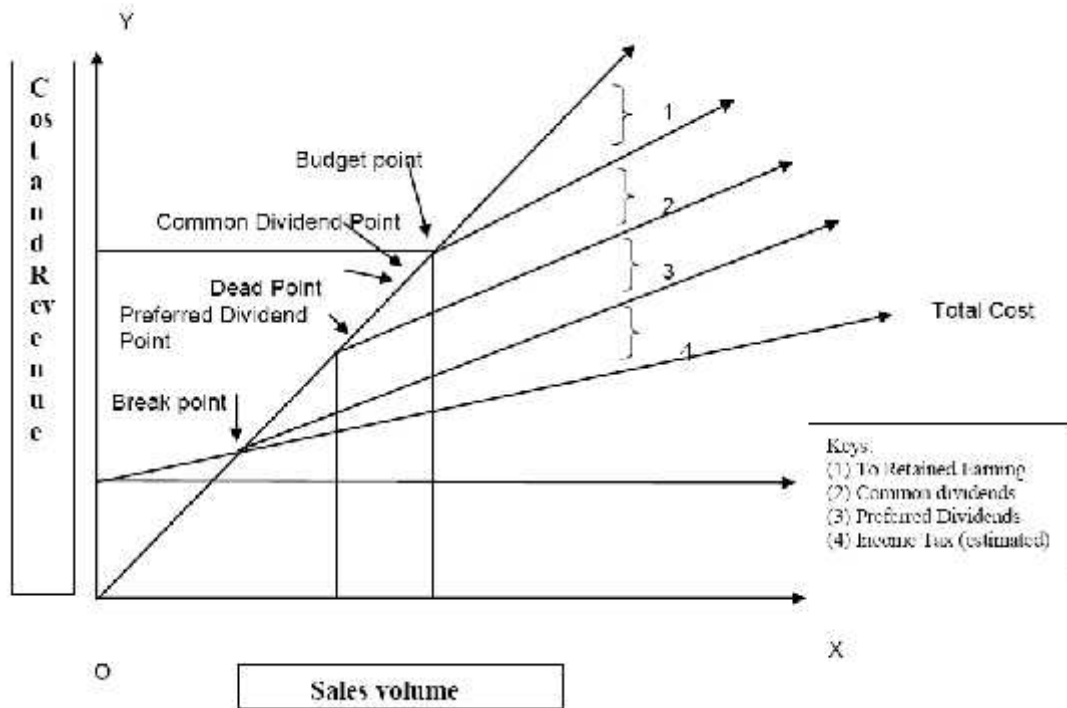
$VC = \text{Sales} (1 - \text{P/V ratio})$  Comparison of different P/V ratios is usually made by the management to find out which product is more profitable. Management tries to increase the value of the ratio by reducing cost or by increasing the selling prices.

### **2.1.8 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 the company and may be used to determine the approximate effect of various alternatives. CVP analysis is based on estimates, however, and the arithmetical manipulations generally involve averages, hence the results should never be interpreted as precise. Rather, the analysis may be cauterized appropriately as a 'slide-rule' approach that may be used to develop and test, with the minimum of effort, the approximate effect on costs and profits of several types of management decisions.

**Figure 2.3**

**Economic Characteristics of Cost-Volume-Profit Analysis**



Above Break even chart with economic characteristics indicates few of the economic characteristics of a business, which are

- ) 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 earnings are insufficient to pay the preferred dividends and the expected dividend on the common stock.

All these points, and as others, can be computed if data are developed for cost-volume-profit purposes.

### 2.1.9 Margin of Safety

Margin of safety is the excess of budgeted or actual sales over the break-even sales volume. In other words, it is the different between the budgeted or actual sales revenue and the break-even sales revenue. It is a position above the break even point. It gives management a feel for how close projected operations are to be organization's break-even point. Managers often consider the size of the company's margin of safety when making decision about various opportunities.

The larger is the safety margin, the greater is the chances for the company to earn profit (i.e. Larger the margin of safety, safer the company). A high margin of safety is particularly significant in times of depression when the demand for the company's or the firm's product is falling. A low margin of safety may result for a firm which has a low contribution ratio. When both the margin of safety and the P/V ratio are low, management should think of the possibilities of increasing the selling price, provided it does not adversely affect the sales volume or reducing variables costs by bringing improvement in the manufacturing process. Margin of safety can be ascertained by using the following formula

Margin of safety = (Actual sales value – Break-even sales value)

$$X \frac{\text{Profit}}{\text{Profit Volume Ratio}} \quad \text{In amount}$$

$$X \frac{\text{Profit}}{\text{Unit Contribution Margin}} \quad \text{In Units}$$

The relation between margin of safety and the 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.

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

#### **2.1.10 Cost-Volume-Profit Analysis for Multi Product Firm**

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

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

#### **Break-Even point for Multi-product Company/Firm**

In multi product firm we have to calculate the BEP in aggregate. The sales mix is used to compute a weighted average unit contribution. This is the average of the several product unit contribution margin weighted by the relative sales proportion of each product.

Following procedures are followed to calculate BEP for sales mix or multi product  
Calculate contribution margin or Profit-volume ratio for each product.

) Calculate proportion of sales mix in Units or Values as follows:

$$\text{Sales Mix} = \frac{\text{Individual Product's Sales Units or value}}{\text{Total of all Product's Sales Units or Value}}$$

) Calculated Weighted average for all Products as follows:

Weighted average = (sales mix (units) x Unit Contribution Margin)

Or, = (Sales Mix (Value) x P/v Ratio).

) Calculate Break-Even point (BEP):

$$\text{Break Even Point} = \frac{\text{Fixed Cost}}{\text{Weighted Average}}$$

### **2.1.11 Cost-Volume-Profit Analysis and Limiting Factors**

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

#### **2.1.11.1 CVP Analysis with a Single Constraint**

Scarce resource should be efficiently allocated in order to maximize the contribution margin. A particular simple and instructive situation arises when there is only one constraining resource. This can occur if the firm products are all produced on a single machine and output is limited by hours available on this machine. In the same way, single resource constraint arise, if the firm's products are all produced with only one material and output is limited by quantity available for that materials. When there is a constraint for a scarce resource to have alternatives uses, Then, the available capacity for such scarce resource should be allocated to the alternative uses on the basis of contribution per scarce resource.

#### **2.1.11.2 CVP Analysis with Multiple Constraints**

Where more than one scarce resource exists, the optimum production programme can not easily be established by the simple process applied in single resource constraint. Under the circumstances simple allocation of resource or the basis of contribution margin per unit is neither feasible nor desirable. Contribution margin per unit of scarce resources may be different for different scarce resources may be the ranking of product; because production processes are affected by many constraints factors rather than single constraint. In such situation, linear programming technique may be used to optimize product mix. The linear programming formulation is required to determine a production plan that maximizes contribution from the product mix. Linear programming is a mathematical technique which shows how to arrive at the optimum results, allocation available resources in a meaningful manner. It is basically concerned with the problem of allocating limit resources among competitive activities in an optimal manner. It is a technique to optimize the allocation of scarce resources in product mix problems which provides a valuable extension to cost-volume-profit analysis.

#### **2.1.12 CVP Analysis Under Condition of Uncertainty**

CVP analysis have been used for various purposes such as choosing between machine and products, planning of profit and most significantly fixing up of selling price. Management has used this as a conveniently tools 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 among of certainty in the product and also between the alternatives. To overcome such a difficulty, risk and uncertainty analysis like in any other management decision making can also be used in CVP analysis.

Probability distribution approach is a simple statistical tool which may be used to measure the risk and uncertainty involved in CVP analysis. A probability 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 in tuition of the persons doing so. In business reference of past experience are hardly available not a person is likely to

behave in the same manner in the similar situation in different time. Therefore, personal 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 analysis.

### **2.1.13 Step (Jumping) Fixed Cost and Multiple BEP**

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

### **2.1.14 Assumptions Underlying CVP Analysis**

Break-even analysis is the most useful technique of profit planning and control. It is a device to explain the relationship between cost, volume and profit. The discussion of the CVP analysis (or break-even analysis) so far is based on the following assumption.

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

### 2.1.15 Limitations of CVP Analysis

Assumptions limit the utility and general applicability of the CVP analysis. Therefore, the analysis should recognize these limitations and adjust data, wherever possible, to get meaningful results. The CVP analysis suffers from the following limitations.

- ) It is difficult to separate costs into fixed and variable components.
- ) It is not correct to assume that total fixed cost would remain unchanged over the entire range of volume.
- ) The assumption of constant selling price and unit variable cost is not valid.
- ) 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.
- ) The break-even analysis is a static tool.

### 2.1.16 Special Problems in Cost-Volume-Profit Analysis

Cost-Volume-Profit analyses are applied to individual products or parts of a business and all the products or activities combined. In the latter case, there are three special problems may be encountered.

- ) **The Activity Base:** When two or more products or activities are combined for break-even analysis, the activity base is usually in amount. Product 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 a company as a whole, net sales amount are usually the satisfactory common denominator because manufacturing, selling and administrative activities are expressed in combination.
- ) **The Change in Inventory:** Usually the budgeted changes in inventories (i.e. finished goods and work-in process) are immaterial in amount and thus may be disregarded in cost-volume-profit analysis. On the other hand, when the change in budgeted inventory is significant, it should include in the analysis. Including the effect of inventory changes in cost in cost volume profit analysis requires

subjective judgments about what management might do (about making inventory changes) at different volumes levels and the conceptual precision that is desired. Management considers two practical approaches or policies in the inventory changes often used: (a) Disregard the inventory changes (b) Include the inventory changes.

**J The Non- Operating Incomes and Expenses:** Non-operating incomes (gains) and expenses (losses) and the extraordinary 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 gains 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 incomes and expenses.

## **2.1.17 Cost Structure and Operating Leverage**

### **2.1.17.1 Cost Structure**

Cost structure refers to the relative proportion of fixed and variable cost in the organization. The relationship of a company's variable and fixed cost is reflected in its operating leverage. The highly labour intensive organizations have high variable cost and low fixed cost and thus have low operating leverage and a relative low break-even point. Conversely, organizations that are highly capital-intensive have a cost structure that includes low variable and high fixed costs. Such a structure reflects high operating leverage and relatively high break even point. Company with lower fixed costs and higher variable costs will enjoy greater stability in net income and will be more protected from losses during bad years but at the cost of lower net income in good years'.

### **2.1.17.2 Operating Leverage**

Operating leverage is a measure of the extent to which fixed costs are being used in organization. The relationship of a company's variable and fixed cost is reflected in its

operating leverage. Generally highly labour intensive organization have high variable costs and low fixed costs and this low operating leverage and relatively low break-even point. Conversely, organizations that are highly capital intensive have a cost structure that includes low variable and high fixed costs which reflects high operating leverage with high break-even point. It shows that fixed cost and operating leverage has direct relationship. Higher the amount of fixed costs higher the operating leverage and break-even point and vice versa. In other words, the firm with relatively high operating leverage has proportionally high fixed expenses; the firm's break-even point will be relatively high. The operating leverage, factory is determined as under;

$$\text{Degree of operating leverage} = \frac{\text{Contribution Margin}}{\text{Net income}}$$

### **2.1.18 Segregation of Semi-variable (Mixed) Costs**

#### **(i) Levels of Output Compared to Levels of Expenses Method**

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

$$\text{Variable Elements} = \frac{\text{Change in Amounts of Expenses}}{\text{Change in Activity or Quantity}}$$

$$\text{Variable Elements} = \frac{\text{Change in Amounts of Expenses}}{\text{Change in Activity or Quantity}}$$

#### **(ii) Range Method**

This method is similar to output compared to levels or expenses method except that only the highest and lowest points of output are compared out of various levels. This method is also designed as 'High and low' method. The high low method is explained, step, as follows:

- (a) Select the highest pair and the lowest pair.
- (b) Compute the variable rate 'b' using the formula:

$$\text{Variable rate} = \frac{\text{Difference in Cost 'y'}}{\text{Difference in Activity 'x'}}$$

(C) Compute the fixed cost portion as

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

### **(iii) Degree of Variability Method**

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

### **(iv) 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 is plotted on the vertical axis (Y-axis) and the activity measures is plotted on the horizontal axis (X-axis). The method is explained below: -

- a) The volume of production is plotted on the horizontal axis and the costs are plotted on the vertical axis.
- b) Corresponding to each volume of production costs are then plotted on the paper, thus, several points are shown on it.
- c) A straight line of best fit is then drawn through the points plotted. This is the total cost line. The point where this line intersects the vertical axis is taken to be the amount of fixed element.
- d) A line parallel to the horizontal axis is drawn where the line of best fit intersects the vertical axis. This is the fixed cost line.
- e) The variable cost at any point can be known as noting difference between fixed cost and total cost lines.

The scatter-graph method is relatively easy to use and simple to understand. However, it should be best with extreme caution, because it does not provide an objective test for assuring that the regression line drawn is the most accurate fit for the underlying observations.

**(v) Method of Least Squares**

One popularly used method for estimating the cost-volume formula is regression analysis. Regression analysis is a statistical procedure for estimating mathematically, the average relationship between the dependent variable (y) and the independent variable (x). The regression method does include all the observe data and attempts to find a line of best fit. To find the line of best fit, a technique called the method of least squares is used. Method of least squares is based on the mathematical technique of fitting an equation with the help of a number of observations. The linear equation, (i.e. a straight line equation can be assumed as :

$Y = a + bx$  and the various sub-equations shall be;

$$\sum y = \sum Xa + \sum b \cdot x$$

$$\sum xy = \sum Xa \cdot x + \sum b \cdot x^2$$

An equation of second order, (i.e., a curvilinear equation) can be drawn as:

$Y = a + bx + cx^2$  and the various sub-equations to solve it. i.e., to find out the values of constraints a, b, and c shall be:

$$\sum y = \sum Xa + \sum bx + \sum cx^2$$

$$\sum xy = \sum Xa \cdot x + \sum bx^2 + \sum cx^3$$

$$\sum x^2 y = \sum x^2 Xa + \sum x^2 bx + \sum x^3 cx$$

Similarly the equations can be fitted for any number of order or degree depending upon the number of observation available and the accuracy desired.

Compute the per unit variable cost (b) and the fixed cost (a) by using the following formula:

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

$$a = \frac{\sum y - b \sum x}{N}$$

Where;

Y = total cost,                      N = No. of series.              x – production unit  
b= variable cost per unit              a – Fixed cost                      - sum of

### 2.1.19 Impact of Changes on Profits

Profit is the function of a variety of factors: it is affected by changes in volumes, cost and prices. Profits may be affected by then changes, (increase or decrease), in the following factors

- ) **Effect of price changes:** An increase in the selling price will the increase the P/V ratio and, as a result, will lower the break even point. On the country, a decrease in selling price will reduce the P/V ratio and therefore, result in the higher breakeven point.
- ) **Effect on volume changes:** A changes in volume, not accompanied with the changes 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 changes in price invariably affects volume. A price reduction may increase demand of the product and consequently, may result in increase 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 raise may reduce profits if there is material fall in volume.
- ) **Effect in changes in variables costs:** - The effect of the changes in variable costs on profits is straight forward if it is does not cause any change in selling price and or volume. An increase in variable costs will lower the 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.

- J) **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 cost will, however the BEP and raise profits. An increase in fixed cost caused either due to some external factors or due to some changes in the policy, will raise the BEP. Increase in factory rent or insurance and taxes are example of external factors, while increase depreciation or salaries of managers may be the result of management decisions.
  
- J) **Effects 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 factors leads to a change in another factors. Therefore, all such changes should be carefully visualized and their net impact on profit must be seen.

## 2.2 Review of the Previous Studies

Researches in the area of 'Profit Planning analysis as a tool to measure effectiveness of PPC/ budgeting of a company' in Nepalese context are not made. But many researchers have been made in the area of profit planning and control and management accounting etc. in Nepalese context. As profit planning and control and management accounting covers major of the aspects of Profit Planning analysis, researchers made on these areas are taken into consideration for the sake of review to examine how profit planning and control and management accounting practices in Nepalese companies. Many of the researchers have been made of manufacturing concerns and except a few most of them are not profound. An attempt is made here to review some of the researchers, which have been submitted in profit planning and control and management accounting in the context of Nepal.

Parajuli,A(1991) had conducted a research on a topic "*Profit planning in Manufacturing Public Enerprises of Nepal;*" an unpublished master level thesis submitted to Central Department, of Management, Faculty of Management T.U. A case study of Bansbari Leatherand Shoe Factory and Dairy Development Corporation.' The study had concerned his study to examined how for the profit planning system of BLSF and DDC has been applied and effective . The study covers the time of ten years from 1978 to 1988 A.D. The data and other necessary information had been used from both

the secondary and primary sources of data. In his research, the major relating of CVP of the study is as follows

- ) There is no adequate co-ordination system and realization of objectives between the different level managers.
- ) Very few managers are competent to identify the factors and manipulate them for the successful formulation and implementation of the plan.
- ) Enterprises have no any financial plan of enterprises. They only sales and production bunch targets.
- ) There is no any practice of profit planning.

Ojha, K. P. (1995) has conducted a research in the topic “*Profit Planning in Manufacturing Public Enterprises;*” an unpublished master level thesis submitted to Central Department of Management, Faculty of Management T.U .A case study of Royal Drugs Limited and Herbal Production and processing company limited.This study was mainly centered with the current practice of profit planning and its effectiveness in RDL and HPPC covering only six years period of time from fiscal year 2047 to 2052. Thus, the study used both secondary as well as primary sources of data. Mainly, primary data were collected and secondary have been used as per necessary. Interview and questionnaire approaches are the main techniques or primary sources of data. Statistical tools like percentage, mean, standard deviation, co-efficient of variation, time series, correlation and regression have been used to analysis the data. Similarly, financial tools like financial ratio, flexible budget, CVP analysis, variance analysis have been also used. The major findings are as follows:

- ) Inadequate planning’s of profit due to lack of skilled planner.
- ) Inadequate authority and responsibility to planning department.
- ) Various costs are not diagnosed as controllable and non-controllable expenses.
- ) Pricing system is not scientific.
- ) Failure in achievements due to inadequate evaluation of internal and external variables.
- ) Failure due to inadequate forecasting system.

- ) Lack of entrepreneurship and commercial concepts in overall operations of the enterprises.

Bishowkarma, Dhurba R. (1996) had conducted a research on a topic “*A Study on Profit Planning and Control of Kathmandu Milk Supply Scheme;*” an unpublished master level thesis submitted to Central Department of Management, Faculty of Management T.U. This study had mainly focuses his research in examining the technique of comprehensive profit planning system applied by KMSS. Time period covered by the research was five years from FY 2051 to FY 2055. Necessary data and other information have been collected from both the secondary and primary sources of data. The major findings are as follows:

- ) No proper practice of segregation cost into fixed and variable.
- ) There is no periodic report.
- ) There is no specific goals and objectives.

Poudel, Surya P. (1997) had conducted a research entitled “*Profit Planning in Manufacturing Company: A case study of Himat Cement Company Limited;*” an unpublished master level thesis submitted to Central Department of Management, Faculty of Management T.U. This study had mainly centered on application of profit planning concept in HCCL. The time period covered by this research was six years from FY 2044 to FY 2049. The data other necessary information were collected by using secondary sources of data. Company had fluctuation trend in targeted production. The major findings are as follows:

- ) In variable cost structure, sales commission has the dominant role.
- ) In fixed cost structure, salary has occupied the dominant role.
- ) Actual sales of the company seem to be more than 50% of plan sales in most of years during the six years period.

Shrestha, Tulsi P. (1998) had conducted a research on a topic “*Profit planning in Sri Bhrikuti Pulp and Paper Nepal Limited;*” an unpublished master level thesis submitted to Central Department of Management, Faculty of Management T.U. This study is mainly focused on the practice and effectiveness of profit planning system in SBPP. An

unpublished Master level thesis submitted to. The time period covered by the research was five years from FY 2052 to 2056. Necessary data and other information were collected from both the secondary and primary sources of data. SBPPNL's objectives are not much clear, different specific financial goals are not prepared and strategic policies and programmes are not adequate to develop the company. The major findings are as follows:

- ) SBPPNL does not consider CVP analysis while pricing the product.
- ) Inadequate forecasting system.
- ) Un-necessary centralization of power, so that decision making is only from top level.

Dahal, Narayan P. (1999) had conducted a research in a topic "*Profit Planning in Nepalese Manufacturing Company: A case study of Himal Cement Company;*" an unpublished master level thesis submitted to Central Department of Management, Faculty of Management T.U. This study is concerned in the application and effectiveness of profit planning system in manufacturing establishment with special reference to Himal Cement Company. The time period covered by this research was ten years from FY 2046 to 2056. The data and other necessary information were collected by using secondary as well as primary data. The objectives of manufacturing enterprises are controversial. The major findings are as follows:

- ) Lack of budgeting expertise, skilled planners and entrepreneurship.
- ) Great communication and co-ordination gap between different levels of management and workers.
- ) No any effective programs to achieve desired goals and objectives and to overcome the existing problems and challenges.
- ) No any systematic and effective financial plan.
- ) No any proper practice of segregation cost into fixed, variable and semi variable and it has any any proper records of different cost.

Badu, Madan B. (1999) had conducted a research entitled “*Profit Planning in Dairy Development Corporation;*”. This study is centralized in current practice of profit planning in DDC;” an unpublished master level thesis submitted to Central Department of Management, Faculty of Management T.U. Time period covered by this research is five years from FY 2050 to FY2055. The data and other necessary information were collected from secondary sources of data. The major findings are as follows:

- ) No proper practice of segregation of fixed cost and variable.
- ) No maintenance of periodic performance report systematically.
- ) Lower level participation in planning, decision making is not encouraged.
- ) Plan is prepared in traditional ad-hoc basis.
- ) Inadequate authority and responsibility to planning department.
- ) No proper analysis of environment variables.

Shakya, Manish R. (1999) had conducted a research entitled “*Profit Planning in Lumbini Sugar Mill Limited;*” an unpublished master level thesis submitted to Central Department of Management, Faculty of Management T .U. The research is centralized to examine the application of budget as tools of profit planning in sugar mills limited. Time period covered by the research was seven years from FY 2049 to 2056. The necessary data and other information had been accumulated from primary as well as secondary sources of data. The major findings are as follows:

- ) HMG of Nepal intervenes in setting objectives, goals and strategies.
- ) No systematic plan is developed.
- ) HMG of Nepal plays role in fixing price.
- ) Lack of planning expert in developing budget.
- ) No planning activities for cost reduction.
- ) Variable cost occupied a dominant role in total cost. It occupies 80.16%.

Dangol, P. (2001) had conducted a research in a topic “*Profit Planning in Manufacturing Public Enterprises;*” an unpublished master level thesis submitted to Central Department of Management, Faculty of Management T.U. A case study of Hetauda Cement Industry Ltd”. This study concerned in the application and effectiveness of profit planning system in PEs. The time period covered by this research was five years from FY 2052 to 2056.

The data and other necessary information were collected by using secondary as well as primary data. The major findings are as follows:

- ) No proper application of any effective sales forecasting technique
- ) Planning of budgeting policy of the company is very poor and there is no system of taking corrective action for pre-planning.
- ) Decision making powers are centralized.
- ) There are no clear cut duties and responsibilities of the employees.

**Gunaker Bhatta (2007)**, had made research on “*Profit planning a case study of Nepal Electricity Authority;*” an unpublished master level thesis submitted to Central Department of Management, Faculty of Management T.U. In this study Mr. Bhatta has pointed out following measure finding and recommendation, which are as follows:

- ) Operating profit of NEA is in negative figure. The authority has shown profit after the transfer from evaluation surplus.
- ) The authority fails to maintain its periodic performance report systematically. Goal and objective are limited only to the high ranking officials.
- ) Specific goal and objective are not conveyed to lower level staff and it denotes the absence of MBO principal of management.
- ) Achievements of the authority are more variable than budgeted.
- ) Even the authority is not less from the last few years; the profit is shown only after the transfer from evaluation surplus.

Recommendations:

- ) NEA should improve coordination between various directorates.

- )] NEA should develop efficient system of profit collection.
- )] Budget centers should be regularly monitored.
- )] Leverage of the electricity should be controlled by improving meter reading and meter connection system.

**Laxmi Prasad Regmi (2008)**, had made research on “*planning process and its impact on profitability a case study of Harisiddi Brick and Tiles factory;*” An unpublished master level thesis submitted to Central Department of Management, Faculty of Management T.U. In this study Mr. Regmi has pointed out following major finding and recommendation which are as follows:

- )] HBTF doesn't have a systematic special plan for the formulation and an implementation of comprehensive profit planning.
- )] HBTF has not practiced of participatory management system, the decision making power in HBTF is concerned only with the top level management.
- )] HBTF is unable to define clearly the duty and responsibilities of the employees although it is managed by private section.
- )] The factory cannot meet the breakeven sales; it is running in heavy loss.

**Recommendations:**

- )] HBTF should clearly define its broad objective because objectives are the basic guidelines and these create and maintain optimum enterprises
- )] environment that maximize the interest and motivation of all employees.
- )] It must last and renting of idle land, plants and machinery for extra earning and alternatively uses them in idle time.
- )] Considering the condition of the company, it is advised that HBTF should have in depth analysis of the factory's strength and weakness. It should try to overcome its weakness by using the strengths.
- )] Finally systematic approach should be made towards comprehensive profit planning this can be considerable contribution to increase the profitability and efficiency of the factory. To adopt this approach planning experts
- )] should be hired or existing planners should be well trained

**Sharma (2009)** "*Revenue Planning & Management of Manufacturing Public Enterprises: (A case study of Singh Durbar Vaidya Khana Vikas Samiti);*" An unpublished master level thesis submitted to Central Department of Management, Faculty of Management T.U. Had the following major findings and recommendations.

The main objectives of this study are:

1. To analysis the actual sales and budgeted sales.
2. To examine revenue generate by SDVKVS.
3. To recommendation and suggestion for RDL.

The findings of this study are:

1. SDVKVS has adopted only product/categorized budget. But it has not adopted practice of preparing monthly budget.
2. There is no surprise sale.
3. There are no actual bad debts shown in an account.
4. In the calculation of profit volume ratio, it has shown that its fixed cost is high.
5. The pricing policy needs revision and adjustment of pricing policy organization is not fare.

**Sagar Mishra (2010)** has a significant contribution on the topic "*Profit Planning in Tokla Tea Estate (TTE);*" an unpublished master level thesis submitted to Central Department of Management, Faculty of management. T.U. The data were collected from both primary and secondary sources. The basic objectives of this research paper are to examine how far the different functional budgets are being applied as a tool of profit planning in the estate. Regarding the basic objective, other sub objectives are:

- a. To interpret the trend of profit/loss and cost of the company in the light of profit plan.
- b. To identify the sales plan for the company in the high of strategic and tactical sales plan.
- c. To analyze the production plan and actual production trend of the company.

- d. To review the Tokla tea estate's profit planning on the basis of overall managerial budgeting.

Major finding of Mishra can be enumerated in the following points:

- ) Inadequate evaluation of relevant internal and external variables.
- ) Problems of maintaining the quality of the products.
- ) Inadequate profit and productively due to lack of skilled manpower, excessive fixed cost and inventory.
- ) Unrealistic sales for casts etc.

### **2.3 Research Gap**

There is the gap between the present research and the previous researches. Previous researches conducted on accounting on profit planning and control and management covered only the budgeting practices in the manufacturing companies especially in public enterprises. The previous researcher did not disclose which of the profit planning and control tools are in practice which is not why. Thus to fill up profit planning analysis gap, the current research is conducted. Mainly this research is accounting and financial data analysis types of research. It examines the current practice of Profit Planning analysis, a tool of PPC, in the RASTRIYA BEEMA SANSTHAN. Probably this might be the first research study carried of one private separate company on this topic in Nepal.

## **CHAPTER-III**

### **RESEARCH METHODOLOGY**

#### **3.1 Research design**

The main objectives of this study were analysis the Profit Planning analysis of Rastriya Beema Sansthan (RBS). A researcher has collected the necessary data and information relating to Profit Planning analysis of accomplishes the objectives. It has adopted the descriptive and analytical research design to provide clear picture of RBS with its Profit Planning analysis. It attempted to collect all those facts necessary data and information and analyzed the collected data by using various analytical tools for.

#### **3.2 Population and Sample Size**

There are number of insurance companies in Nepal. Out of these Rastriya Beema Sansthan is taken for the analysis. Rastriya Beema Sansthan is one of the largest insurance companies of Nepal. It has coverage of most of region of the country.

#### **3.3 Nature and Sources of Data**

This study was based mainly on the secondary source of data. And this case study is relating only with RBS. So, the data relating to Profit Planning analysis of RBS has been collected from Beema Semite and various publications. Mainly the secondary data has been used for the Profit Planning analysis of RBS.

#### **3.4 Method of Data Analysis:**

This study is a descriptive type of study. The available data were analyzed by using financial tools and statistical tools. Some of the method which were used to analyze the data is as follows

##### **3.4.1 Statistical Tools**

Under the statistical tools various technique should be used

### 3.4.1.1 Mean:

Mean is the given set of observation is their sum divided by the number of observation.

$$\text{Mean} = \frac{\sum X}{N}$$

Where X is the variable that is under study like Fixed cost, Total cost, sales or profit. Mean defines the average of the historical data presented and the expected value for the next future period.

### 3.4.1.2 Segregation of cost under Least Square Method:

One of the best and widely used methods for estimating the cost-volume formula is regression analysis. Regression analysis is a statistical procedure for estimating mathematically, the average relationship between the dependent variable (y) and independent variable (x). It includes all the observed data and attempts to find the line of best fit in estimation of variable and fixed cost. Under this method, the following least square formula can be used to estimate cost.

$$Y = a + bX$$

Where,

A = Estimated fixed cost i.e. constant

B = Variable rate i.e. slope of regression line

Y = Dependent variable i.e. estimated total cost

X = Independent variable i.e. Level of activity or units of products, hours etc.

$$a = \frac{\sum X^2 \sum YZ - \sum X \sum XY}{N \sum X^2 - (\sum X)^2}$$

$$b = \frac{N \sum XYZ - \sum X \sum Y}{N \sum X^2 - (\sum X)^2}$$

### 3.4.1.3 Standard Deviation:

Standard deviation shows the risk level of the organization.

$$\text{S.D} = \sqrt{\frac{\sum X^2}{N} - \left(\frac{\sum X}{N}\right)^2}$$

### 3.4.1.4 Coefficient of Variation:

Coefficient of variation shows the risk level per rupee of the profit.

$$\text{CV} = \frac{\text{S.D}}{\bar{X}}$$

### 3.4.1.5 Pearson's Correlation Coefficient (r)

$$r = \frac{\sum xy - \frac{\sum x \cdot \sum y}{n}}{\sqrt{\left[\sum x^2 - \frac{(\sum x)^2}{n}\right] \left[\sum y^2 - \frac{(\sum y)^2}{n}\right]}}$$

Where x and y are the variables of those correlation is being studied. The value of 'r' lies between -1 to +1.

If  $r > 0.5$  High degree of positive correlation is predicted.

If  $r < 0.5$  low degree of positive correlation is predicted. And vice versa for the Negative correlation.

## 3.4.2 Accounting Tools:

Under the accounting tools different types of technique should be used.

### 3.4.2.1 Application of BEP

One point of interest in the profit planning analysis is the break – even point. It is incidental to the broader scope of profit planning and control study. It is defined as the output level which evenly breaks – even the costs and revenues. Break-even sales volume is that level of sales volume in which a company neither makes a profit nor suffers losses. At this level of activity, the sales just cover the total costs, and the profit are zero. In other words, this is a point at which a company breaks the state of loss and enters into profit zone. Break-Even analysis helps the management to know that which sales volume will only recover its costs and after which volume it starts to make profit. At last, BEP is a point at which the firm's total revenue are exactly equal to total cost,

yielding zero income or the point at which losses ceases and profit begins. Breakeven point can be calculate by two methods.

1. Graphical Method
2. Formula Method

### **Graphical Method:-**

A CVP graph is very useful because it highlights of profit planning analysis relationships over ranges of activity and gives managers perspective regarding the cost volumes profit and margin of safety. In other words, it helps to depict the relationship between profit and volume of activity, a cost-volume-profit graph is used Graphical presentation of CVP is preferred where a simple overview is sufficient and where there is a need to avoid a detailed of numerical approach. Such graphing is sometimes referred to as preparing a break even chart.

The following steps are used to prepare CVP graph (sometimes called a break even chart)

1. Draw the axes of the graph: sales revenue and cost are represented by vertical axes and units represented by horizontal axis.
2. Draw a cost and revenue lines: A line for sales revenue and other line for total cost are drawn from left to right to at different level of sales or units produced. The fixed cost line is drawn parallel to the horizontal axis; these costs do not change with activity. The breakeven point is where the total revenue and total cost line cross

### **Formula Methods**

1. Contribution Margin per Unit(CMPU): selling price per unit – variable cost per unit  
=  
= Selling price per unit X PV ratio  
=  
=
$$\frac{\text{Difference in profit}}{\text{Difference in sales unit}}$$
2. Profit Volume ratio =  $1 - \frac{\text{Variable Cost}}{\text{Sales}}$

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

$$3. \quad \text{Breakeven point ( in unit)} = \frac{\text{Fixed Cost}}{\text{CMPU}}$$

$$4. \quad \text{Breakeven point (in Rs.)} = \frac{\text{Fixed Cost}}{\text{PV ratio}}$$

$$5. \quad \text{Required sales to earn desire profit( in units)} = \frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{CMPU}}$$

$$6. \quad \text{Required sales to earn desire profit (in Rs.)} = \frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{PV ratio}}$$

$$7. \quad \text{Profit} = \text{Sales} - \text{Variable cost} - \text{Fixed cost}$$

$$8. \quad \text{Margin of safety} = \text{Actual sales} - \text{break even sales}$$

$$9. \quad \text{In case of Produce Mix?} \frac{\text{Multi Products}}{\text{Sales Mix}}$$

$$10. \quad \text{Overall BEP in units} = \frac{\text{Total Fixed Cost}}{\text{Weighted Average CMPU}}$$

$$11. \quad \text{Overall BEP in Rs.} = \frac{\text{Total Fixed Cost}}{\text{Weighted Average PV ratio}}$$

### 3.4.3.2 Sensitivity Analysis:

As we know, Profit as measured in Accounting terms is the excess of revenue over expenses. Management, however, must look behind the summary figures to the factor which cause revenue and expenses (fixed and variable) to be what they are. What happen to them if any one of them swings? This analysis improves the managerial decision making activities, known as Profit Sensitivity analysis.

## CHAPTER- IV

### PRESENTATION AND ANALYSIS OF DATA

#### 4.1 Revenue Planning in Rastriya Beema Sansthan

The revenue plan is the foundation of profit planning and control. It is the first plan to be prepared. All other planning is based on it. The revenue planning process is a necessary component of PPC because it provides basic management decision about marketing. It is an organized approach for developing a comprehensive revenue plan. If the revenue plan is not pragmatic, most of other component of overall profit plans becomes dogmatic.

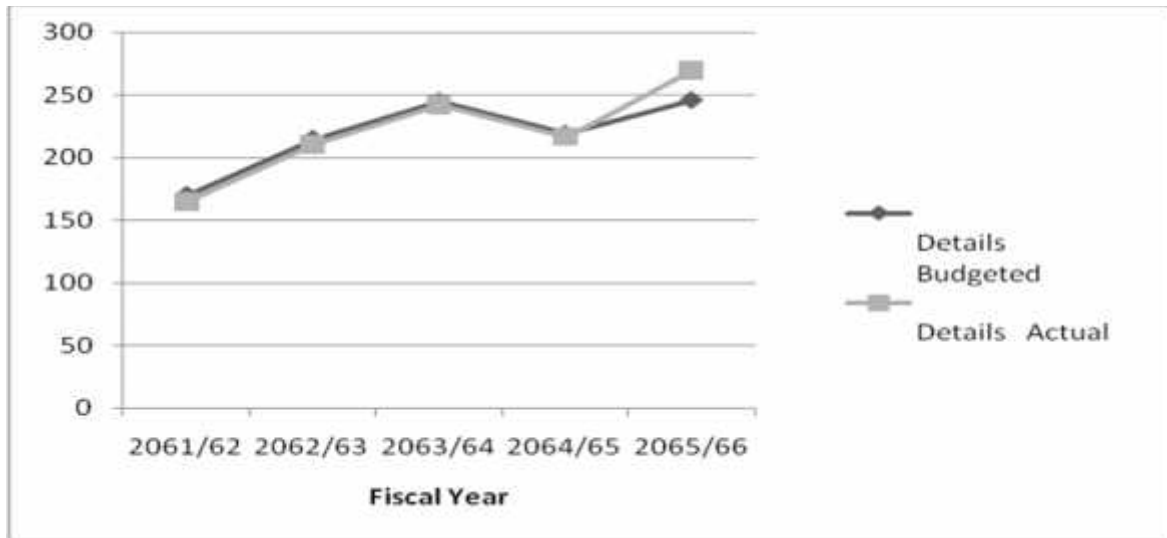
**Table 4.1**

#### Rastriya Beema Sansthan

#### Total Budgeted and Actual Revenue/ Turnover (Rs.in Crore)

Years	Details		
	Budgeted	Actual	%of Deviations
2061/62	170	164	6(U)
2062/63	215	210	5(U)
2063/64	245	241	4(U)
2064/65	220	217	3(U)
2065/66	240	268	28(F)

**Figure No. 4.1**  
**Rastriya Beema Sansthan**  
**Total Budgeted and Actual Revenue/ Turnover (Rs.in Crore)**



The above table and figure discloses that there is acceptable level of deviations between the budgeted and actual revenue. Generally Budgeted Revenue exceeds Actual Revenue except in the fiscal year 2065/66. The volatile trend of budgeted revenue disclosed that management prepared it on the basis of external environment especially political scenario. In order to find out the nature of variability of the budgeted Revenue and Actual Revenue of different years, it is necessary to calculate the Arithmetic mean, Standard Deviation with Coefficient of Variation.

**Table no. 4.2**  
**Rastriya Beema Sansthan**  
**Summary of Statistical Calculation**

Details	Budgeted Revenue (X)	Actual Revenue (Y)
	(Rs. In crore)	(Rs. In crore)
Mean( $\bar{X}$ )	218	220
Standard deviation(† )	26.57	34.61
Coefficient Variation (C.V)	12.19%	15.73%
Correlation ( r )	0.9427	
Probable error of Correlation(P.E)	0.0336	

Source: Appendix I & II

The detail of calculation of Mean, Standard Deviation, Coefficient Variation, Correlation and Probable Error is presented in the **appendix 1 and 2**.

The above table 4.2 shows that, the co-efficient of variation of Budgeted Revenue (C.V.X) and Actual Revenue (C.V.Y). A distribution with similar C.V is said to be more homogeneous or uniform or less variable than other. It shows that the Budgeted Revenue is more homogeneous or uniform or less variable than the Actual Revenue, which indicates low efficiency of planner. The Actual Revenue was more variable than Budgeted Revenue with the high percentage of C.V.

Another statistical tools correlation of coefficient was used to analyze the degree of relationship or association between the budgeted revenue and actual Revenue. There should be closer relationship (Approximately perfect positive Correlation) between Budgeted Revenue and actual Revenue. And hence, the actual Revenue increase with increase in budgeted Revenue and vice versa. To find out the correlation between budgeted figures, the Karl Pearson's co-efficient correlation was used. By calculating 'r' a relationship between Budgeted and Actual Revenue can be examined.

The probable error (P.E) of the correlation co-efficient (r) is the basis of interpretation of its value. In other words the significant is tested with the probable error of 'r'. The value of 'r' is greater than  $6 \times 0.336$  of 'r' (i.e.  $0.97 > 0.0336$ ). It means the value of 'r' is highly significant. So, it can be said that actual Revenue will go on same direction of the budgeted Revenue.

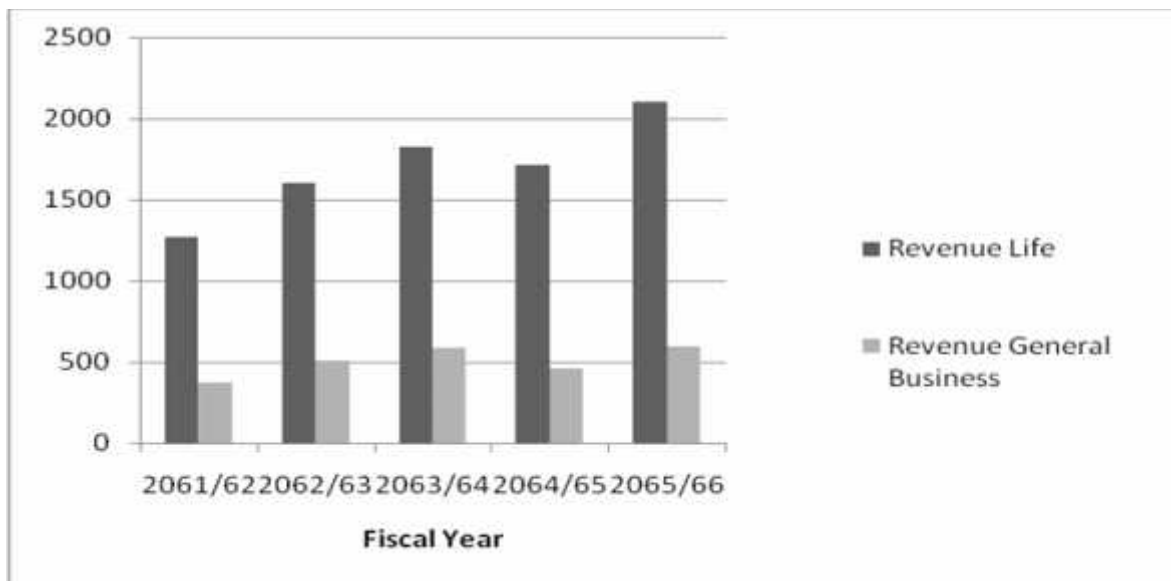
The regression line can also be fitted to show the degree of relationship between budgeted Revenue and actual Revenue and to estimate the possible actual Revenue with given budgeted figures purposes, the actual Revenue have been assumed to be dependent variables and budgeted Revenue as independent.

**Table 4.3**  
**Revenue Analysis**  
**Rastriya Beema Sans than (Rs. In 10 Lakhs)**

Year	Revenue		
	Life	General Business	Total
2061/62	1,269	373	1,642
2062/63	1,599	505	2,103
2063/64	1,821	590	2,411
2064/65	1,713	455	2,168
2065/66	2,096	585	2,681

Source: Appendix- VI

**Figure 4.2**  
**Revenue Analysis**  
**Rastriya Beema Sansthan**



The above figure reveals that Revenue from Life Insurance has been significantly increasing over the five year except in fiscal year 2064/65. In the base year i.e. 2061/62 revenue from Life Insurance is Rs. 1269 million. Similarly it increased by 26%, 14%, (6%), and 22% respectively from year after another year.

Like Revenue from Life Insurance, Revenue from General Insurance is also increasing year after another except in the fiscal year 2064/65. In the base year i.e. 2061/62 revenue from General Insurance is Rs.373 million. It is increasing by 35%, 17%, (23%), 28% respectively from one after another.

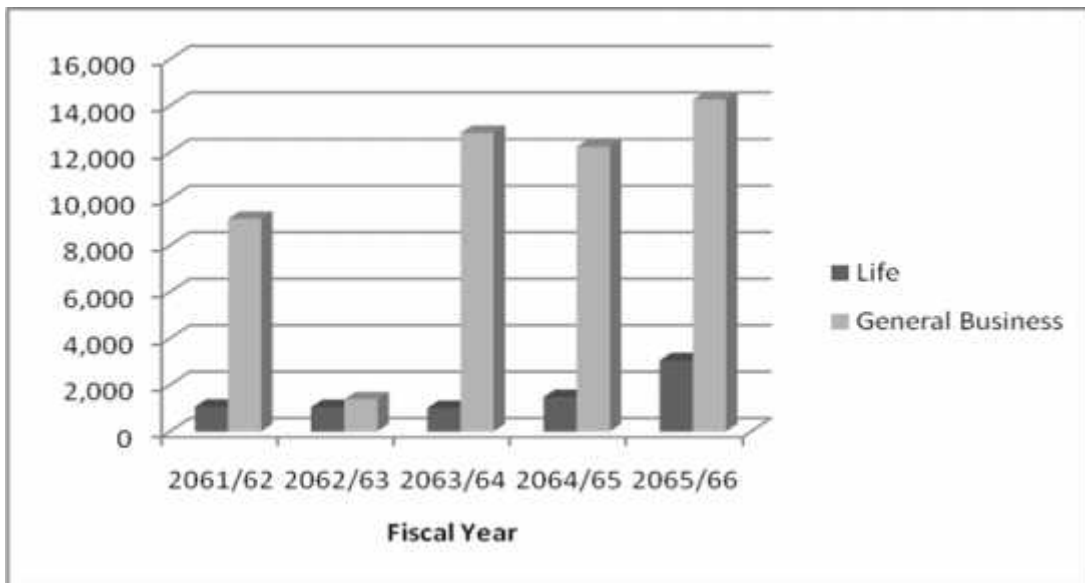
From above figure it can be implied that revenue from Total Insurance is also increasing as revenue from both the Life Insurance and General Insurance are increasing. In the fiscal year 2062/63, 2063/64 it is increased by 28%, 14.65% and decreased in the fiscal year 2064/65 by 10% and again robust by 23.67% in the fiscal year 2065/66

**Table 4.4**  
**Profit and Loss Analysis**  
**Rastriya Beema Sansthan**

(Rs. InLakhs)

Year	Profit and Loss		
	Life	General Business	Total
2061/62	1,060	9,140	10,200
2062/63	1,045	1,381	12,426
2063/64	1,006	12,831	13,837
2064/65	1,474	12,237	13,711
2065/66	3,054	14,267	17,321

**Figure 4.3**  
**Profit and Loss Analysis**  
**Rastriya Beema Sansthan**



The above figure 2 disclosed about the profit and loss of the Rastriya Beema Sansthan . In the fiscal year 2061/62 the total profit is Rs. 1060 (Lakh). After the base year the profit is in decreasing trend for next two fiscal years i.e. by 1.5% and 3.75% then again increases rapidly for remaining years i.e. by 46.52% and 107.2% respectively.

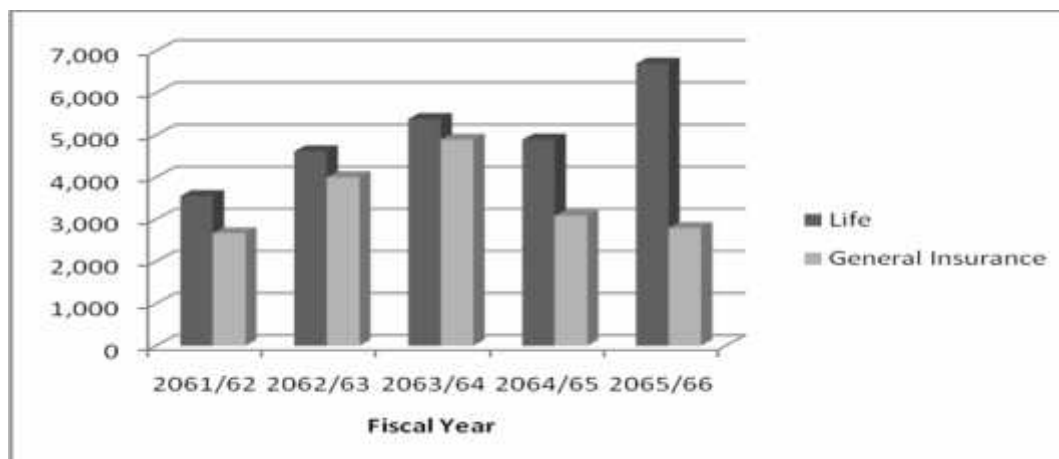
The profit earned from General Insurance business is Rs.9140 lakhs in the fiscal year 2061/62 and then it is increased by 24.52%, 12.74%, (4.63%), and 16.60% respectively in the following fiscal year 2062/63, 2063/64, 2064/65 and 2065/66. The aggregate profit earned by the Rastriya Beema Sansthan is also increasing because both sectors are enjoying growth trend. In the fiscal year 2061/62 the profit is Rs.10200 lakhs, after this year profit is increased by 21.82% and 11.35% in the next two fiscal year and then profit declined by 0.91% in the fiscal year 2064/65 and then again increased by 26.33% in the fiscal year 2065/66.

**Table 4.5**  
**Total Cost Analysis**  
**Rastriya Beema Sansthan**

(Rs. In Lakh)

Year	Total Cost		
	Life	General Insurance	Total
2061/62	3,552	2,667	6,219
2062/63	4,610	3,995	8,605
2063/64	5,379	4,890	10,269
2064/65	4,889	3,082	7,971
2065/66	6,693	2,792	9,485

**Figure 4.4**  
**Total Cost Analysis**  
**Rastriya Beema Sansthan**



Above chart No. 3 disclosed that total cost of the Life Insurance business is in increasing trend except in the fiscal year 2064/65. In the base year 2061/62 it is Rs.3552 lakhs. Total cost are increasing in the fiscal year 2062/63, 2063/64, 2064/65 and 2065/66 by 29.78%, 16.68%, (9.11%) and 36.90% annually.

The Total cost of General Insurance business is also in increasing trend with exception in last two fiscal year. In the fiscal year 2061/62 it is Rs.2667 lakhs and then increased by 49.8%, and 22.40% annually in next two fiscal year. In next two fiscal i.e. 2064/65 and 2065/66 it reduce by 36.97% and 9.41% respectively.

The Total Cost of the Rastriya Beema Sansthan is the summation of total cost of Life Insurance and General Insurance business. So in the fiscal year 2061/62 it is Rs.6219 lakhs. In the next two fiscal year it is increased by 38.37% and 19.34% respectively. Again in the fiscal year 2064/65 total cost reduced by 22.38% and then again it robust by 19% in the fiscal year 2065/66.

## **4.2 Least Square Regression Analysis**

A line fitted to a set of data points to estimate the relationship between two variables is called regression line. In other words, the device used for estimating the value of one variable from the other consists of a line through the points, drawn in such a manner as to represent the average relationship between two variables. Such line is called the line of regression.

One of the best and widely used methods in cost estimating and cost estimating in statistical technique called least square regression analysis. It is a statistical procedure for estimating mathematically the average relationship between dependent variable and independent variable. The regression method does include all the observe data and attempts to find a line of best fit, a technique is called the least square regression analysis. Method of least square is based on the mathematical technique of fitting an equation with the help of a number of observations.

**Table 4.6**  
**Segregation of semi-variable cost of Life Insurance**  
**(Insurance Claim expenses by Least square method)**

Year	Revenue (X)	Administrative(Y)	XY	X <sup>2</sup>
2061/62	12,692	2,771	3,51,69,532	16,10,86,864
2062/63	15,991	3,399	5,43,53,409	25,57,12,081
2063/64	18,210	3,806	6,93,07,260	33,16,04,100
2064/65	17,126	3,291	5,63,61,666	29,32,99,876
2065/66	20,960	4,431	9,28,73,760	43,93,21,600
N=5	84,979	17,698	30,80,65,627	1,48,10,24,521

Source: Appendix (III)

Where, b = variable cost

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

$$= \frac{5 \times 308065627 - 84979 \times 17698}{5 \times 1481024521 - (84979)^2}$$

$$= \text{Rs } 0.19799/\text{unit}$$

$$a = \bar{Y} - b\bar{X}$$

$$= 3539.6 - 0.19779 \times 16995.8$$

$$= \text{Rs. } 175 \text{ (approx)}$$

**Table 4.7**  
**Segregation of semi-variable cost of General Insurance**  
**(Insurance Claim expenses by Least square method)**  
**(InLakh)**

Year	Revenue (X)	Administrative(Y)	XY	X <sup>2</sup>
2061/62	3,727	189	7,04,403	1,38,90,529
2062/63	5,040	523	26,35,920	2,54,01,600
2063/64	5,896	321	18,92,616	3,47,62,816
2064/65	4,556	204	9,29,424	2,07,57,136
2065/66	5,846	290	16,95,340	3,41,75,716
N=5	25,065	1,527	78,57,703	12,89,87,797

Source: Appendix IV

Where, b = variable cost

$$\begin{aligned}
 b &= \frac{N \sum XY - \sum X \sum Y}{N \sum X^2 - (\sum X)^2} \\
 &= \frac{5 \times 7857703 - 25065 \times 1527}{5 \times 128987797 - (25065)^2} \\
 &= \text{Rs } 0.0607/\text{unit}
 \end{aligned}$$

$$\begin{aligned}
 a &= \bar{Y} - b\bar{X} \\
 &= 305.4 - 0.0607 \times 5013 \\
 &= \text{Rs.1 (approx)}
 \end{aligned}$$

Expenses that cannot be categorized as purely fixed or variable is termed as semi variable or mixed cost. Semi-variable costs contain both variable and fixed costs elements. Classification of costs into variable and fixed is very important to plan and control of costs. It helps to determine the volume of operation required to maintain the

desired profitability. In Rastriya Beema Sansthan, account classification method is popular, so cost is classified on the basis of knowledge and experience of accountant of Insurance Industry.

Due to the lack of information about the reliable activities level, even we are not able to classify the identified semi-variable costs by using scientific methods. Here the Insurance Claim expenses of Rastriya Beema Sansthan are classified on the basis of information provided by the company. In the above table 4.6, fixed cost of the year is Rs 175 (in lakh) and the variable rate per unit is Rs 0.198 for Life Insurance business. Similarly in the table 4.7 fixed cost of the year is Rs.1 (in lakhs) and variable rate per unit is Rs.0.0607 for General Insurance business.

**Table 4.8**  
**Details of Fixed cost and Variable cost**  
**Rastriya Beema Sansthan**

**In Lakh**

Year	Life Insurance				General Insurance			
	S	V	FC	TC	S	V	FC	
2061/62	2,771	416	365	3,552	189	2,083	395	2,667
2062/63	3,399	622	589	4,610	523	3,038	434	3,995
2063/64	3,806	804	769	5,379	321	4,195	374	4,890
2064/65	3,291	793	805	4,889	204	2,640	238	3,082
2065/66	4,431	1,219	1,043	6,693	290	2,234	268	2,792

Source: Appendix (III) & (IV)

Where,

TC = Total Cost

S= Semi variable Cost = Insurance Claim

V= Variable Cost = Reinsurance Premium + Agency Commission + Difference in Provision for an unexpired Risk + Beema Samiti Charge

FC= Fixed Cost = Management Expenses

Variable costs are that cost which varies in direct proportion to change in output or activities level, but per unit is constant within one financial year. We are unable to present detail classification of expenses of variable expenses due to in appropriate discloser presented in F/S. Variable cost per unit are varies for different financial years effected by internal and external environment especially due to maoiest problem and the political instability in the country. In the above table, variable cost are fluctuated in both Life as well as in General business.. There is increase in variable cost of Life Insurance in fiscal year 2063/64, 2064/65, and 2065/66. But there is slightly decrease in the fiscal year 2061/62 and 2062/63. But In the General Insurance the variable cost are increase in the fiscal year 2062/63 and 2063/64 and all the other fiscal year are decreasing order respectively.

Fixed cost remains constant in total amount despite the changes in the level of the activity within the fiscal year. That is fixed cost remain unchanged in total as the output level varies within the year, but fixed cost per unit basis decreases as the level of activity increases and vice versa. Fixed cost in total are varies for different fiscal year effected by internal and external environment factors. The above table shows that there is gradually increasing of fixed cost in each fiscal year except in the fiscal year 2065/66 of Life Insurance, where as there is fluctuation in fixed cost in different the fiscal year of General Insurance. The fixed cost of General Insurance business is decreasing in the fiscal year 2063/64, 2064/65, and in 2065/66 with respect with the fiscal year 2061/62. But in the fiscal year 2062/63 there is increase in fixed cost due to the internal and external environment of the company.

### **4.3 Cost-Volume-profit analysis of Rastriya Beema Sansthan**

Cost volume profit analysis is applied specially for break even analysis and profit planning. Business organizations are to earn profit. Profit planning is the fundamental part of the overall management function. Profit planning can be done only when the management has the information about the cost of the product, both fixed and variable

cost and the selling price of the product. The cost volume profit relationship will be established by break even analysis. Therefore, cost volume profit analysis uses for

- Contribution Margin analysis
- Break Even Analysis.
- Profit Volume Analysis.
- Margin of Safety Analysis

#### **4.3.1 Contribution Margin Analysis**

The difference between selling price and variable cost (i.e. the marginal cost) is known as contribution margin or Gross margin. In other words, Fixed cost plus the amount of profit is equivalent to contribution margin. It can be expressed by the following formula: -

$$\begin{aligned}\text{Contribution margin} &= \text{Selling Price} - \text{Variable Cost} \\ &= \text{Fixed Cost} + \text{Profit}\end{aligned}$$

$$\text{Contribution margin ratio} = 1 - \text{P/V ratio}$$

#### **4.3.2 Break Even Analysis**

The point which breaks the total cost and the Revenue evenly to show the level of output or Revenue at which there shall be neither profit nor loss, is regarded as breakeven point. Through contribution margin approach, breakeven point can be expressed as:

$$\text{Breakeven point in amount} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}}$$

#### **4.3.3 Profit Volume Ratio Analysis**

Profit volume ratio establishes a relationship between the contribution and Revenue volume. The two factor profit and volume are interconnected and dependent with each other. Profit depends upon Revenue; selling price to a great extent will depend upon the volume of production. It can be expressed by:

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

#### 4.3.4 Weighted Average CM Ratio

Contribution Margin ratio of a product may not be represent the contribution margin of the firm if it is producing two or more product or providing two or more service. In the case weighted CM ratio or weighted P/V ratio have to be calculated. It represent the average contribution generated from Rs.1 revenue.

For determination of weighted CM ratio in term of Rs.1 revenue.

Step1	To find out sales mix ratio in sales amount
Step2	To find out CM ratio of each product.
Step3	To multiply the sales mix ratio and P/V ratio of each product separately
Step4	To find out overall P/V ratio by adding the product of Step3

#### 4.3.5 Break Even Analysis Under Multiple Products/Services

If two or more than two products are manufactured and sold by the business organization, that is known as sales mix. The relative proportion or ratio of sales units is called sales mix. In the case of multi product, the company wants to know overall breakeven point of the organization. The overall breakeven point can be calculated as below.

$$(a) \text{ Overall BEP (in rupees)} = \frac{\text{Total Fixed Cost}}{\text{weighted Average P/V ratio}}$$

#### 4.3.6 Margin of Safety Analysis

Margin of safety is the excess of budgeted or actual Revenue over the break-even Revenue volume. In other words, it is the different between the budgeted or actual Revenue and the break-even Revenue revenue. It is a position above the breakeven point. It gives management a feel for how close projected operations are to be organization's break-even point. Managers often consider the size of the company's margin of safety when making decision about various opportunities. The larger is the safety margin, the greater is the chances for the company to earn profit (i.e. Larger the margin of safety, safer the company). A high margin of safety is particularly significant

in times of depression when the demand for the company's or the firm's product is falling. A low margin of safety may result for a firm which has a low contribution ratio. When both the margin of safety and the P/V ratio are low, management should think of the possibilities of increasing the selling price, provided it does not adversely affect the Revenue volume or reducing variables costs by bringing improvement in the manufacturing process. Margin of safety can be ascertained by using the following formula

$$\begin{aligned} \text{Margin of safety} &= \text{Actual Revenue value} - \text{Break-even Revenue value} \\ &= \frac{\text{Profit}}{\text{Profit Volume Ratio}} \text{ in amount} \\ &\times \frac{\text{Profit}}{\text{Unit Contribution Margin}} \text{ in Units} \end{aligned}$$

The relation between margin of safety and the actual Revenue is known as margin of safety ratio, which is determined as follows

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

**Table 4.9**

**Profitability analysis from the F/Y 2061/62 to 2065/66 of General Insurance  
Business of Rastriya Beema Sansthan**

(Rs in Lakhs)

Year	2061/62	2062/63	2063/64	2064/65	2065/66
Revenue	3,727	5,040	5,896	4,556	5,846
VC	2,271	3,560	4,515	2,843	2,523
CM	1,456	1,480	1,381	1,713	3,323
FC	396	435	375	239	269
Profit	1,060	1,045	1,006	1,474	3,054
CM ratio	0.39	0.29	0.23	0.376	0.57
VR ratio	0.61	0.71	0.77	0.624	0.43
BEP sales	1,015.38	1,500	1,630.43	635.64	471.93
MOS	2,711.62	3,540	4,265.57	3,920.36	5,374.07

Source: Appendix (IV)

Here, contribution margin are increasing from Rs.1456 lakhs in the fiscal year 2061/62 to Rs.3323 lakhs in the fiscal year 2064/65 except in the fiscal year 2063/64 it remains in Rs.1381 lakhs. CM ratio is in fluctuating trend. In the first three fiscal year it is in decreasing trend and at the last two fiscal year it is improving rapidly. As we know VC ratio has inverse relationship with CM ratio, so VC ratio is also fluctuating due to unstable trend in CM ratio.

Fixed Cost is volatile during the period of study as it indicates that management is trying to control it. So it is decreased from Rs.396 lakhs to Rs.269 lakhs during the period of study. As we know that BEP in Rs. Means fixed cost divided by CM ratio. Above table reveal that CM ratio and Fixed Cost both are fluctuating. So BEP in value are also increasing for first three year and again it starts to decrease.

Actual revenue is increasing in all fiscal year except in the fiscal year 2065/66 MOS is the excess of Actual revenue over BEP sales. Here, MOS is also in progressing trend with huge amount except in the fiscal year 2064/65.

**Table 4.10**  
**Profitability analysis from the F/Y 2061/62 to 2065/66 of Life Insurance**  
**Business of Rastriya Beema Sansthan**

(Rs in Lakhs)

Year	2061/62	2062/63	2063/64	2064/65	2065/66
Revenue	12,692	15,991	18,210	17,126	20,960
VC	3,012	3,846	4,435	3,909	5,475
CM	9,680	12,145	13,775	13,217	15,485
FC	540	764	944	980	1,218
Profit	9,140	11,381	12,831	12,237	14,267
CM ratio	0.76	0.76	0.76	0.77	0.74
VR ratio	0.24	0.24	0.24	0.23	0.26
BEP sales	710.53	1,005.26	1,242.1	1,272.73	1,645.95
MOS	11,981.47	14,985.74	16,967.9	15,853.27	19,314.05

Source: Appendix III

Here, Contribution Margin is increasing at all the year except in the fiscal year 2064/65 in which it is slightly reduced. CM ratio or P/V ratio are constant for three fiscal year and then slightly improved in the fiscal year 2064/65 and then again reduced slightly in next year. As we know that VC ratio have inverse relationship with CM ratio so VC ratio is also constant for the three fiscal year and at last fiscal year it has been increased.

Fixed cost are increasing from Rs. 540 in the base year 2061/62 to Rs. 1218 in the fiscal year 2065/66 From this it reveals that fixed costs are becoming uncontrollable by the management and it has detrimental the firm's profitability.

Simply BEP in Rs. Means fixed cost divided by CM ratio. Above table disclosed that CM ratio is fluctuating and fixed cost is increasing from the fiscal year 2061/62 to 2065/66. That's why BEP in value is increasing from the fiscal year 2061/62 to 2065/66.

Actual Revenue is highly improving during the period of study except in the fiscal year 2064/65. MOS is the different between Actual Revenue and BEP Revenue. There is huge MOS which is also in increasing trend except in the fiscal year 2064/65.

**Table 4.11**  
**Profitability analysis from the F/Y 2061/62 to 2065/66 of Total Revenue**  
**Rastriya Beema Sansthan**

(Rs in Lakhs)

Year	2061/62	2062/63	2063/64	2064/65	2065/66
Revenue	16,419	21,031	24,106	21,682	26,806
VC	5,283	7,406	8,950	6,752	7,998
CM	11,136	13,625	15,156	14,930	18,808
FC	936	1,199	1,319	1,219	1,487
Profit	10,200	12,426	13,837	13,711	17,321
Proportion of life Insurance	0.773	0.76	0.755	0.79	0.782
Proportion of General Insurance	0.227	0.24	0.245	0.21	0.218
Weighted CM ratio	0.68	0.65	0.63	0.69	0.70
Weighted VR ratio	0.32	0.35	0.37	0.31	0.30
Weighted BEP sales	1,376.47	1,844.62	2,093.65	1766.67	2,124.29
MOS	15,042.53	19,186.38	22,012.35	19,915.33	24,681.71

Source: Appendix (V)

Contribution Margin is in increasing trend except in the fiscal year 2064/65. Here weighted average CM ratio is in decreasing trend for first three fiscal year and again start to increase in next two fiscal year. The volatility of weighted average CM ratio is due to fluctuation in relative proportion of revenue and CM ratio of Life Insurance and General Insurance business. The variability of weighted average VC ratio is due to instability of weighted average CM ratio in various fiscal years.

Total Fixed Cost is in increasing trend except in the fiscal year 2064/65. from this it can be conclude that management are becoming failure to control the fixed cost and it may have negative consequence in firms profitability in long run

In general, BEP in Rs means. Total Fixed Cost divided by weighted average CM ratio. Above table disclose that weighted average CM ratio is fluctuating and total Fixed Cost

is in increasing trend except in the fiscal year 2064/65. That's why BEP in value is in increasing trend except in the fiscal year 2064/65 in which it is reduced.

Actual revenue is improving during the period of study except in the fiscal year 2064/65 where it is decreased. MOS is also very high due to huge Actual revenue over BEP revenue and it is in increasing trend with an exception in the fiscal year 2064/65.

#### **4.4 Sensitivity Analysis**

As we know, Profit as measured in Accounting terms is the excess of revenue over expenses. Management, however, must look behind the summary figures to the factor which cause revenue and expenses (fixed and variable) to be what they are. What happen to them if any one of them swings? This analysis improves the managerial decision making activities, known as Profit Sensitivity analysis.

By determining the profit multiplier profile of a business it becomes possible to measure the extent of the impact (sensitivity) of changes in key factors (such as price, volume, variable cost, fixed cost and combination of factors which shows proportionate relationship, positive relationship, inverse relationship and no relationship) on profit. With this technique the management teams are not only able to obtain a numerical expression of their business orientation, but in addition, are able to assess a range of issues relating to product and service profitability, profit improvement and the effectiveness of alternative accounting procedures, control strategies and budget preparation methods. The following table provides the insights into the “what-if analysis”.

#### **4.5 Major Findings of the Study:**

On the basis of various types of analysis, observation and informal conversation, the following major findings have been outlined,

- ) Rastriya Beema Sansthan revenue achievement is higher than Revenue target in the fiscal year 2065/66 the correlation between target and actual Revenue is positive. It reveals that the company is able to meet its global goal as specified in annual report. The company tried to apply effective

environmental scanning technique. If it able to upsurge both budgeted and actual Revenue except in the fiscal year 2064/65

- ) Cost trend of Rastriya Beema Sansthan is increasing year by year except in the fiscal year 2064/65
- ) The company is experiencing unmanageable expenses plan. The fixed, variable and mixed expenses plan is the necessary elements for profit planning and control.
- ) The cost of Rastriya Beema Sansthan is classified into fixed and variable. There is no practice of identifying semi-variable cost and their segregation into variable and fixed by using scientific method.
- ) The proportions of fixed cost are lower than variable cost in total cost structure, which normally indicates low risk.
- ) Variable cost volume of Rastriya Beema Sansthan is nearly 33% on average. It means that the contribution margin of the company is about 77% of total revenue.
- ) Financial position of the company is good. The company is becoming successful in exceeding BEP every year with huge margin of safety.
- ) Company's CM ratio is increasing so a rupee increase in Revenue, CM will also increasing by the same ratio.
- ) Break Even Points are increasing it due to the increase in contribution margin ratio and increase in fixed cost.
- ) As the company has high MOS, the company might be at minimal risk.

## CHAPTER V

### SUMMARY, CONCLUSION AND RECOMMENDATION

#### 5.1 Summary

Every organization effectively achieves organizational objectives through the efficient use of scarce resources. Future is uncertain which creates risk and to reduce risk, systematic management is essential. Profit planning analysis is an analytical technique for studying the relationship between volume, costs, prices, and profit which helps to manage future cost and profit. Profit planning is a management technique and it is a written plan in all aspects of the business operation for specific period. Profit planning analysis is a device used to determine the usefulness of profit planning process of the firm. In fact, the entire field of profit planning has become associated with the Profit Planning inter relationship.

The main objective of the present research is to examine cost-volume-profit analysis as a tool to measure effectiveness of profit planning of Rastriya Beema Sansthan So, this study was undertaken to evaluate profit planning analysis of the company. It has observed that Rastriya Beema Sansthan has succeeded in living up to the expectation of insured mainly life insured and general insured like vehicle, fire, marine, aviation, engineering and miscellaneous insured etc. As per the nature of the study, the secondary data with descriptive and analytical approach for revenue analysis, Cost Analysis, Profitability Analysis, Contribution Margin Analysis, P/V Ratio Analysis, BEP Analysis and CVP Analysis under uncertainty, etc are used. And to support the study, primary data are collected informally from the staff of the company.

From the analysis, the profit planning analysis shows that the company has high contribution, high P/V ratio, low BEP and positive margin of safety. The sensitivity test of profit planning analysis shows that costs increases (i.e. variable and fixed cost) , the BEP will also increase and when the cost decrease the BEP also decrease. But at the time of profit increases much more times than revenue increase due to its low fixed cost. Company's profit conditions are not excellent as due to successful in exceeding

BEP revenue. Lack of detail information on scientific cost analysis and extra cost burden and less emphasis on the analysis as the company is in loss are the main reason behind not practicing effectively and efficiently profit planning tools like profit planning Analysis.

## **5.2 Conclusion**

Different types of profit planning tools, which are used in the academic field and in multinational companies of developed nation, are not found applied by Rastriya Beema Sansthan It reveals, the gap between the theory and practice. Profit planning analysis is not effectively applied by Rastriya Beema Sansthans, because of no implementation of scientific method of segregating cost into fixed and variable, which is the hardcore of profit planning Analysis. The company has not established implemented costing and cost classification policy. Due to this reason the accumulation and apportion of cost on the basis of responsibility centre (i.e. cost centre) is not done by the company. That's why it becomes practically difficult to define cost on the basis of activity and to classify it on the basis of variability. Therefore, Rastriya Beema Sansthan has not been able to use efficiently and effectively profit planning analysis and make the realistic and smart budget.

As the title variation in targeted revenue and actual revenue proves that the Revenue planning of the company is scientific. Profit pattern of the company shows that the company is effective in the profit planning and its implementation. The cost structure of Rastriya Beema Sansthan disclose appropriate variable cost and low fixed cost so this cost structure indicates the low risk because its fixed cost are low and it will generate huge net profit as smartly as revenue grow rapidly. Even if the company has low fixed cost it can be categories a "Capital intensive" because it provides financial security to those who are in financial risk from unforeseeable event. The profit planning analysis exhibit that the variable cost ratio is decreasing which means the company's CM is in increasing more than the revenue increases. BEP of the company has also increased its main reason is due to increase in fixed cost. As the lower BE revenue, the business of the company is in low risk, and so further investment in this condition is considered to be safe. The "what- if" analysis shows that the changes in either revenue or variable

cost alter the CM, CM ratio or BEP where as response of change in fixed cost are highly stimulus. The MOS of the company is positive so a percentage decrease in revenue, the financial health of company can be jeopardized. The fixed cost of the company is slowly increasing however, if management failed to control the fixed cost of Rastriya Beema Sansthan which may unable to leverage the profit significantly in long run. The company's aim seems to cover the market share rather than to obtain reasonable profit and cost management. The profitability of maximizing the revenue is not more possible under this circumstance unless management has revised their cost during decision making process while considering risk calculation for achieving objective. Finally, CVP analysis is useful as a framework of reference, as a vehicle for expressing overall managerial performance, and as a planning device via break even technique and what-if scenarios. The following points highlight the analytical usefulness of CVP analysis as a tool of PPC.

1. A change in either the revenue or the variable cost per rupee alters CM ratio and BEP.
2. As revenue exceed the BEP, a higher unit of CM or CM ratio will result in greater profit than a small unit CM or CM ratio.
3. The lower the BE revenue, the low risky the business and the investment is save, other things being equal.
4. A positive MOS means low operating risk, since a small decrease in revenue doesn't makes business failure and also provide enough playground to implant restructuring programmed in the company
5. Using CM income statement model and a spreadsheet program such as EXCEL, a variety of what-if planning and decision scenarios can be evaluated.
6. Better CVP analysis indicate i.e. trend of fixed cost and CM ratio; the company is finally healthy or sick.
7. Better CVP analysis provides vision for planning, decision making and controlling process in profit planning.

### 5.3 Recommendations

On the basis of the study of profit planning Analysis as a tool to measure effectiveness of PPC of Rastriya Beema Sansthan, it seems necessary to develop, implement and improve the process of profit planning analysis from beginning to end with PPC. Nepal is stepping toward globalization with membership of WTO. Nepalese companies should integrate with the global environment with best fit managerial strategies development. As the competition is very high in the context of liberalization, company should provide attention toward cost minimization and capturing market share rather than profit maximization. For this, profit planning analysis tools can be great help. Thus, the following recommendations based on the finding of research study are:

- ) Cost planning and controlling should focus on the relationship between cost and benefits derived from those cost rather than increasing cost in order to boost revenue.
- ) Classification of cost as variable and fixed or controllable and non controllable must be made within specific framework of responsibility centre and time.
- ) Rastriya Beema Sansthan should consider profit planning analysis while preparing revenue plan, production plan and setting price of its services.
- ) Separate cost control department should be established for the effective management of cost.
- ) The company must increase revenue rapidly in order to enjoy huge profit, because low fixed cost can forward the company to approach towards new technology
- ) Systematic and periodicals performance reports should be strictly followed to be conscious about poor performance and take corrective action immediately and timely.
- ) A systematic approach should be made toward comprehensive profit planning.

This can considerably contribute to the increase in profitability of Rastriya Beema Sansthan. Since separating semi variable costs into their fixed and variable elements is at the heart of profit planning analysis, all decision makers sought to be fully aware of and understand, the cost structure of their operation, otherwise profit planning analysis will provide meaningless information.

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**Appendix 1**  
**Calculation of Mean, Standard Deviation**  
**and Coefficient of Variation of Actual Sales and budgeted sales**

Year	Budgeted Sales (X)	(X- $\bar{X}$ )	(X- $\bar{X}$ ) <sup>2</sup>	Actual Sales (Y)	(Y- $\bar{Y}$ )	(Y- $\bar{Y}$ ) <sup>2</sup>
2061/62	170	-48	2304	164	-56	3,136
2062/63	215	-3	9	210	-10	100
2063/64	245	27	729	241	21	441
2064/65	220	2	4	217	-3	9
2065/66	240	22	484	268	48	2,304
<b>Total</b>	<b>1,090</b>		<b>3,530</b>	<b>1,100</b>		<b>5,990</b>

bv

$$\begin{aligned} \text{Mean } (\bar{X}) &= \frac{X}{N} & \text{Mean } (\bar{Y}) &= \frac{Y}{N} \\ &= \frac{1090}{5} & &= \frac{1100}{5} \\ &= 218 & &= 220 \end{aligned}$$

$$\begin{aligned} \text{Standard Deviation of X } (\dagger) &= \sqrt{\frac{1}{N} \sum X^2 - \bar{X}^2} \\ &= \sqrt{\frac{1}{5}(3530) - 218^2} & &= 26.57 \end{aligned}$$

$$\begin{aligned} \text{Standard Deviation of Y } (\dagger) &= \sqrt{\frac{1}{N} \sum Y^2 - \bar{Y}^2} \\ &= \sqrt{\frac{1}{5}(5990) - 220^2} & &= 34.61 \end{aligned}$$

$$\begin{aligned} \text{C.V of X} &= \frac{\dagger}{\bar{X}} \times 100 & \text{C.V of Y} &= \frac{\dagger}{\bar{Y}} \times 100 \\ &= \frac{26.57}{218} \times 100 & &= \frac{34.61}{220} \times 100 \\ &= 12.19\% & &= 15.73\% \end{aligned}$$

**Appendix 2**  
**Calculation of Correlation and Probable Error of Correlation of**  
**Rastriya Beema Sansthan**

Year	X	Y	XY	X <sup>2</sup>	Y <sup>2</sup>
2061/62	170	164	27,880	28,900	26,896
2062/63	215	210	45,150	46,225	44,100
2063/64	245	241	59,045	60,025	58,081
2064/65	220	217	47,740	48,400	47,089
2065/66	240	268	64,320	57,600	71,824
<b>Total</b>	<b>1,090</b>	<b>1,100</b>	<b>2,44,135</b>	<b>2,41,150</b>	<b>247990</b>

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

$$= \frac{5 \times 244135 - 1090 \times 1100}{\sqrt{5 \times 241150 - (1090)^2} \sqrt{5 \times 247990 - (1100)^2}}$$

$$= 0.9427$$

$$P.E = 0.6745 \frac{1 - r^2}{\sqrt{n}}$$

$$= 0.6745 \frac{1 - (0.9427)^2}{\sqrt{5}}$$

$$= 0.0336$$

**Appendix 3**  
**Segregation of cost of different fiscal years**  
**Of Life Insurance**

**Rs In Lakh**

<b>Year</b>	<b>2061/62</b>	<b>2062/63</b>	<b>2063/64</b>	<b>2064/65</b>	<b>2065/66</b>
(A) Semi-Variable	2,771	3,399	3,806	3,291	4,431
Component of Fixed Cost included in Semi-Variable Cost	175	175	175	175	175
Fixed Cost	365	589	769	805	1,043
(B) Total Fixed Cost	540	764	944	980	1,218
Component of Variable Cost included in Semi-Variable Cost	2,596	3,224	3,631	3,116	4,256
Variable Cost	416	622	804	793	1219
(C) Total Variable Cost	3,012	3,846	4,435	3,909	5,475
(D) Revenue	12,692	15,991	18,210	17,126	20,960
VC ratio(C/D)	0.24	0.24	0.24	0.23	0.26
CM ratio(1- VC ratio)	0.76	0.76	0.76	0.77	0.74
Total Cost (B+C)	3,552	4,610	5,379	4,889	6,693

**Appendix 4**  
**Segregation of cost of different fiscal years**  
**Of General Insurance**

**Rs in Lakh**

<b>Year</b>	<b>2061/62</b>	<b>2062/63</b>	<b>2063/64</b>	<b>2064/65</b>	<b>2065/66</b>
(A) Semi-Variable	189	523	321	204	290
Component of Fixed Cost included in Semi-Variable Cost	1	1	1	1	1
Fixed Cost	395	434	374	238	268
(B) Total Fixed Cost	396	435	375	239	269
Component of Variable Cost included in Semi-Variable Cost	188	522	320	203	289
Variable Cost	2,083	3,038	4,195	2,640	2,234
(C) Total Variable Cost	2,271	3,560	4,515	2,843	2,523
(D) Revenue	3,727	5,040	5,496	4,556	5,846
VC ratio(C/D)	0.61	0.71	0.82	0.62	0.43
CM ratio(1- VC ratio)	0.39	0.29	0.18	0.38	0.57
Total Cost (B+C)	2,667	3,995	4,890	3,082	2,792

**Appendix 5**  
**Segregation of cost of different fiscal years**  
**Of Total Insurance**

**Rs In Lakh**

<b>Year</b>	<b>2061/62</b>	<b>2062/63</b>	<b>2063/64</b>	<b>2064/65</b>	<b>2065/66</b>
(A) Semi-Variable	2,960	3,922	4,127	3,495	4,721
Component of Fixed Cost included in Semi-Variable Cost	176	176	176	176	176
Fixed Cost	760	1,023	1,143	1,043	1,311
(B) Total Fixed Cost	936	1,199	1,319	1,219	1,487
Component of Variable Cost included in Semi-Variable Cost	2,784	3,746	3,951	3,319	4,545
Variable Cost	2,499	3,660	4,999	3,433	3,453
(C) Total Variable Cost	5,283	7,406	8,950	6,752	7,998
(D) Revenue	16,419	21,031	24,106	21,682	26,806
VC ratio(C/D)	0.32	0.35	0.37	0.31	0.30
CM ratio(1- VC ratio)	0.68	0.65	0.63	0.69	0.70
Total Cost (B+C)	6219	8605	10269	7971	9485
Profit	10,200	12,426	13,837	13,711	17,321

## Appendix 6

### Statement Showing Revenue from General Insurance

Year Particular	2061/62	2062/63	2063/64	2064/65	2065/66
<b>Gross Premium</b>	30,00,28,351	39,63,15,030	53,76,86,220	37,50,59,732	52,16,57,350
<b>Investment and other Income</b>	7,26,35,961	10,76,82,614	5,19,06,055	8,05,16,515	6,29,28,943
<b>Gross Revenue</b>	37,26,64,312	50,39,97,644	58,95,92,275	45,55,76,247	58,45,86,293

### Statement Showing Revenue from Life Insurance

Year Particular	2061/62	2062/63	2063/64	2064/65	2065/66
<b>Gross Premium</b>	81,57,17,376	83,46,25,051	1,00,50,00,000	1,09,42,00,000	1,34,63,50,000
<b>Investment and other Income</b>	45,34,52,005	76,44,44,255	81,59,90,974	61,84,41,927	74,96,32,483
<b>Gross Revenue</b>	1269169381	1599069306	1820990974	1,71,26,41,927	2,09,59,82,483

### Statement Showing Gross Revenue from Total Insurance

Year Particular	2061/62	2062/63	2063/64	2064/65	2065/66
<b>Gross Premium</b>	1,11,57,45,727	1,23,09,40,081	1,54,26,86,220	1,46,92,59,732	1,86,80,07,350
<b>Investment and other Income</b>	52,60,87,966	87,21,26,869	86,78,97,029	69,89,58,442	81,25,61,426
<b>Gross Revenue</b>	1,64,18,33,693	2,10,30,66,950	2,41,05,83,249	2,16,82,18,174	2,68,05,68,776

## Balance Sheet (Unaudited)

All Amounts are in NRS	2061/62	2062/63	2063/64	2064/65	2065/66
<b>Capital and Liabilities</b>					
<b>Shareholders Capital</b>					
Authorised Capital:					
( 10,00,000 Equity Shares of Rs. 100 each)	1,00,00,000	1,00,00,000	1,00,00,000	1,00,00,000	1,00,00,000
Issued and Paid up Capital:	9,21,99,900	9,21,99,900	11,52,49,875	14,40,62,344	18,00,77,930
Share Premium					
Life Assurance Fund	49,37,62,235	22,32,59,014	27,90,73,768	34,88,42,209	43,60,52,762
<b>Current Liabilities &amp; Provisions:</b>					
a) Current Liabilities:					
Estimated liabilities for Claim intimated	8,18,055	5,85,961	7,32,451	9,15,564	
11,44,455					
Outstanding against Annuities					
Re-insurance Premium Payable	2,62,797	3,72,552	4,65,690	5,82,113	
7,27,641					
Re-insurance Premium Reserve					
Service Fee Payable To Insurance Board	24,13,923	18,97,317	23,71,646	2,96,45,58	37,05,697
Agent Commission Payable	75,05,706	36,63,479	45,79,349	57,24,186	
71,55,232					
Short term loans (Secured)	21,83,25,000	11,30,25,000	14,12,81,250	17,66,01,563	22,07,51,953
Other Current Liabilities	20,84,248	19,60,319	24,50,399	30,62,998	
38,28,748					
b) Provisions:					
<b>Total</b>	<b>81,73,71,864</b>	<b>43,69,63,542</b>	<b>5,46,204,428</b>	<b>68,27,55,534</b>	
<b>85,34,44,418</b>					
<b>Assets and Properties</b>					
Fixed Assets ( Cost less, depreciation)	8,84,46,986	5,900,029	73,75,036	92,18,795	1,15,,23,494
<b>Investment and Loans:</b>					
a) Investment (at cost)					
Government Securities (6.75% Dev. Bond 2070)	1,30,25,000	1,30,25,000	1,62,81,250	2,03,51,563	2,54,39,453
Government Securities (5 % Dev. Bond 2071)	10,53,00,000				
Government Securities (5 % Special Debt)	98,73,609				
Fixed Deposit in Banks	502200000	35,22,00,000	44,02,50,000	55,03,12,500	
68,78,90,625					
Shares (Govt. and Non-Govt.)					
Debentures(8.5% Deb. Of HBL)	2,00,00,000	2,00,00,000	2,50,00,000	3,12,50,000	
3,90,62,500					
Debentures(7.5% Deb. Of NIBL)	2,50,00,000				
Real Estate					
Other Investment					
b) Loans					
Current Assets:					
Cash and Bank Balance	20,25,999	1,40,06,179	1,75,07,724	2,18,84,655	2,73,55,818
Short term Investment	4,53,65,517	2,78,84,498	3,48,55,623	4,35,69,528	5,44,61,910
Deposits	1,51,550	1,08,000	1,35,000	1,68,750	
2,10,938					
Loans and Advances	30,86,875	3,70,465	4,63,081	5,78,852	7,23,564
Miscellaneous Stock	3,339	3,339	4,174	5,217	
6,521					
Sundry Debtors	4,07,680	5,00,600	6,25,750	7,82,188	9,77,734
Miscellaneous Expenditure (to the extent not written off)					
Deferred Expenses	7,67,973	19,67,254	2,459,068	30,73,834	38,42,293
Preliminary & Pre-Operating Expenses	1,50,554	2,25,830	2,82,288	3,52,859	4,41,074
Leasehold Improvements	15,66,782	7,72,348	9,65,435	12,06,794	15,08,492
<b>Total</b>	<b>81,73,71,864</b>	<b>43,69,63,542</b>	<b>54,62,04,428</b>	<b>68,27,55,534</b>	<b>85,34,44,418</b>