CHAPTER- 1

INTRODUCTION

1.1 Background of the study

Nepal is located in the south Asia Region. It is landlocked its two large neighbors, India and china. It is a small country with a land area of 147181km2 inhabited by more than 2.3million people .As per united nations criteria, it is a least developed country with a gross national product (GNP) per capita of about US $ 210 in 1997. The country is one of the poorest in the world .Literacy rate was 41% for male and 14% for females in 1995(world bank1998) Eighty nine percent of the population lives in rural areas and agriculture, engaging about 81% of the population contributes 40%of gross domestic product(GDP).

Nepal is a developing country and have economic condition is very poor. ”in the fiscal year 2001/02, the Nepalese economic growth rate was estimated to be 0.8%, which was later revised to -0.6%. IN the fiscal year 2002/03, the economic growth rate had increased to 3.1%. In the fiscal year2003/04, the economic growth had increased to 3.7% (Economic Survey-2004/05).This economic condition shows that economic growth rate is in increasing trends but it is not enough for prosperous economy. Therefore, steps should initiate for the stable and expected economic growth.

Industry, business, trade and commerce development indicates the life state of the people of the country. For the rapid development of Nepal, it is essential to develop the industrial sector. And for the development of the industrial sector there should be adequate industrial infrastructure as well as appropriate technology.

Industries have not been developing to the extent of expectation in Nepal. The reason for it is the lack of dashing entrepreneurs. We can trace the industrial development process in Nepal mainly after establishment of Biratnagar Jute mill and Udhyog Parishad In 1936. People hesitate to invest due to the lack of appropriate knowledge, the lack of skilled manpower and the lack of sufficient investing capital. Unstable political environment is another reason for it. States should effort to encourage people investment and create new investment opportunities with minimum required facilities.

After re-instate of democracy in 2046 B.S. some important changes took place in the field of industry. Some industries were established from the private sector thereafter. The role which manufacturing industry has been playing in the national economy is marginal but gradually; it is in increasing trend and market is also being large due to the increment of consumer needs and desires.

1 .2 Introduction of BNL

1.2.1 An Overview of Company

BNL Balaju, Kathmandu is one of the manufacturing and processing companies. It is established in 1979 A.D. under the company act 1964 A.D.It was initially started as a private enterprise and converted into public enterprise in 1985 issuing shares to public. It was established with the objective producing and bottling soft drinks under the brand name of Coca cola. The company also makes the sales of the soft drinks under the Registered trademarks of Coca cola managed by Dubai based coca cola Syabco Asia Ltd. The company is located at Balaju Kathmandu, in an area the 10,648 square meters of land and the buildings of the company covers 5828 squares meters. The company has been lunching various

types of promotional activities with financial and technical support from the Coca cola Syabco Asia Ltd. Dubai.(Source: BNL)

1.2.2 Share Capital Details of BNL

The BNL was started with an Authorized Capital of Rs.30,25,000. In the initial period its paid up capital was Rs.10,50,000 of Rs.100 per share. Now, the company has authorized capital of Rs.430,00,000, issued capital of Rs.370,00,000 and paid up capital of Rs. 194,889,000. The BNL has 37 shareholders and par value of shares is Rs. 100. (Audit Report: BNL)

1.2.3 Subsidiary company of BNL

Bottlers Nepal (Tarai) Ltd., a subsidiary company of BNL, Balaju, Kathmandu was established in 1986 under the company Act, 1964 with the object of producing and bottling soft drinks under the brand name of Coke, Fanta and Sprite.

The company is situated in Chitwan district is under the management of Coca-Cola Syabco Asia Ltd., Dubai. The installed capacity of plant is 350 bottling per minute.

BN (T) L belong to 92 %(nearly) of equity shares to holding company BNL Balaju. The co. has continuously increased investment in the subsidiary co. by acquiring additional shares from open market. The co.'s equity interest has increase from 91.78% after the new acquisition of shares in BNTL.(source: Audit Report)

1.2.4 Product Line

BNL produces Coke, Fanta and Sprite in returnable glass bottle as well as non-returnable bottles. Upgrading the product lines, the company has

already upgraded its 430 bottles per minute line to produce 175ml. package in returnable glass bottle.

Considering the market demand, the co. has also invested in pet line to produce 1.5 litter packages in non returnable bottles. The lines have commenced production and they have started sales of locally manufactured pet since the previous year. So, the company has been able to increase the production efficiency of the plant giving better outputs as compared to the previous year. The company is able to fulfill the market demand with out any production constraints after the installation of new plant.(Audit Report: BNL)

1.2.5 Profit Position

BNL is one of the tops ten companies listed in the NEPSE in terms of market capitalization. The company produces or bottles soft drink named Coke, Fanta Orange, Fanta Lemon and Sprite.

Several market competition and disturbances in the market due to the external factors, the company of the sales volume has increased only by 1.15% compared to previous year. But, the profit after tax of the company has decreased by 28.14 %. (BNL Audit Report)

1.2.6 Distribution Policy

The company does not have direct distribution to the consumer. The strategic long term plan is used in the company. As mention above, the company uses two types of distribution channel i.e. through the dealer and retailer to consumer. Since the company doesn’t sell from company itself, it uses some kinds of commission system. But, there is not any kind of discounts and incentives. Like, 8% commission on sales price is given

to distributor whereas nearly 13.30% commission on sale is provided for retailer. *(Source: BNL)*

1.3 Statement of the Problem

Cost Volume Profit Analysis involves a study of the interrelationship between the various factor i.e. Price of the products, Volume or level of the activity, per unit variable cost, Total fixed cost and Mix of the products sold.

Cost Volume Profit Analysis is a key factor in many decisions, including choice of product lines, pricing of products, marketing strategy and utilization of productive facilities. The concept is so pervasive in managerial accounting that it touches on virtually everything that a manager does. Because of its wide range of usefulness, CVP analysis is undoubtedly the best tool the manager has for discovering the untapped profit potential that may exist in an organization.

Based on published annual reports, performance of the Nepalese industries is not satisfactory. Some private sector industries performance is satisfactory but not enough with compare to the performance of financial institutions. The causes of poor performance of Nepalese manufacturing industries are poor planning, poor controlling and decision making. The question has risen whether Nepalese managers are enough competent? Do they use CVP analysis tools and techniques to carryout planning, decision making and controlling functions? Because profit does not just happen, it should be well planned and managed.

In the context of poor performance of Nepalese manufacturing industries, BNL performance is satisfactory but not good enough. Through this research I try to find out the of some questions;

- Whether or not Nepalese manufacturing companies are practicing CVP analysis in profit planning?
- What are the major difficulties in application of CVP analysis?

1.4 Objectives of the study

The major objective of this study is to examine the use of CVP analysis to plan the profit in BNL.

The other specific objectives of this study are:

- To study the present application of CVP analysis in BNL
- To study the profitability and financial position of BNL
- To analyze the CVP and its impacts in profitability of BNL
- To make Recommendation

1.5 Significance of the Study

This research work is the study of the practice of CVP analysis of BNL. This study will be useful to various parties in study will be useful to various parties in various ways and those are stated below:

- It examines the application of CVP analysis of the company.
- It provides necessary theoretical as well as contemporary situational conceptions to make appropriate decision for BNL.
- It may also help BNL to take corrective measures to the related department of company.
- It is useful for potential managers, accountant's policy makers, and planners.

- It also provides literature to the researcher, who wants to perform further research in this field.

1.6 Limitation of the Study

The efforts of this research work have been make to present and analyze the facts clearly, truly and within the boundary. More than this the study is confined to CVP analysis as a tool of planning, decision making and controlling.

To sum up, this study enlists the following limitations:

- The study covers the CVP analysis of only five years (FY 2059/60 to 2063/64)
- The study is based on primary and secondary data (inclusive of discussion and financial statements collected from the company)
- This report will depend upon the true response and the data provide from the management of BNL.
- The availability of adequate resources may limit the study.

CHAPTER 2

LITERATURE REV1EW

2.1 Conceptual Framework

Conceptual framework and review of the literature is supported to revise the eminent literatures related to the study. Various books, articles, journals, bulletins, reports, news statements, and thesis, etc. are the bases for preparing it. Some philosophers, writers or researchers have given the contribution on it for many years.

Profit planning is the key point of management. Without proper planning profit will not be achieved in the expected extent. Therefore, every enterprise should plan for profits in a systematic way. Various functional budgets are the basic tools for proper planning of profit and control.

Planning and controlling are the primary functions of business. Without planning and controlling any businesses cannot run smoothly in competitive and global environment. Profit planning is a summary of overall planning process of an organization. In fact, it is a managerial technique in written form in which all aspects of business operations for a defined period are included. It is a formal statement of policy, plan, objectives and goals established by the top management. Profit planning

is deciding in advance at present what to achieve in the future. It comprises determination of a desired future and the steps to carry out. It is a process whereby companies reconcile their objectives and opportunities.

Profit planning function of management rests upon some fundamental views that are the conviction that a management can plan the long range destiny of a manufacturing enterprise by making a continuing stream of well conceived decisions. The thrust of the comprehensive profit planning concept goes to the very heart of management that is the decision making process especially for long-range success. The stream of managerial decision must generate plans and actions to provide the essentials inflows that are necessary of support the planned outflows of the enterprise. So, that realistic profits and return on investment are earned. Continuing generation of profits by managerial manipulation of the inflows and outflows provides the substance of profit planning. (Welsch, 1992; 31)

The aggregate meaning of the preparation of various functional annual budgets is known as profit planning. The determination of next year production tends to achieve the sales, which is directly related with revenue generation. The decision on new capital investment and financial borrowing represents profit planning. In all cases the firm is deciding now how it will use its resources i.e. manpower, material, machine and money in the future. A formal profit planning is the key to corporate survival in a world of rapid social change and intense competition. Profit planning can take the best use of firm's opportunities and resources to meet the targeted profit.

2.1.1 Profit

The basic objective of running any business organization is to earn profit. Profit is taken to measure the competency and efficiency of the management. In other words, profit is the primary measurement of successful business in any economy. Profit is a residual income left after the payment to other factors of production. The difference between the outflow of expenses and inflow of incomes is called profit. It is a reward for business activities. Profit determines the strength of financial position of the company.

Profit is the primary measure of successful business of a firm or a company. Generally, profit is a controversial terms and many authors defined it in different ways. Profit is the primary objective of business in view of the heavy investments which is necessary for the success of most enterprise. Profit in the accounting sense tends to become a long term objectives which measures not only the success of product but also the developed market of it. (Kulkami, 1985; 245)

In the opinion of Myers John N. profit is the dominant goal in business and Profit making should be the main objectives in terms of which the general effectiveness of organization is measured. In other words profit is obtained by subtracting the cost from revenue. According to economist, profit is the reward for bearing risk of enterprise, the risk of venturing in business the risk of owing something in hopes of selling in later. Simply, profit is the main objective of any organizations in the world.

Profit is the fundamental factor for success of every enterprise. "Profit planning involves stream lining activities in order to get employees profit minded to secure maximum benefit from-minimum effort and expenditure. Best result seems to be obtained by assessing a profit

planner to investigate the entire factor affecting the profit obtained from the product. The organization, the model of operations, the pricing, the marketing of any other factor of making and selling the product that is in judgment affects profit accruing form that product, the concentration of profit efforts upon one product and to obtain concerned profit budgeting efforts are the fundamental factors that contribute the success of profit planning." (George& Terry, 1968; 62)

Dean Joel clearly distinguishes the views of Accountant Economist about profits in as following ways. The most important point of difference between Economist and accountant approaches centre on. (Joel, 1982; 13)

- The business of cost, i.e. what should be subtracted from revenue to get profit.
- The treatment of capital gains and losses, and perhaps more important
- The meaning of depreciation
- The price level basis for valuation of Assets.

A profit plan is estimation and determination of revenues and expenses that evaluates how much income will be generated in order to meet the financial requirements. it presents a plan for spending income for profit generation. It represents an overall plan of operations for definite period of time and formulates the planning decision of the management.

Profit differs from return on other factors in three respects. (Dewitt & K.K., 1981; 299)

- Profit is residual income and not contractual or certain income as in the case of other factors.

- There is much greater fluctuation in profits than the reward of the other factors.
- Profit may be negative aware, as rent, wage and interest must always be positive.

The term profit in views of management as follows. (Lynch & R.M., 1988:245)

- An intangible expression of the goals it has set for the firm.
- A measure of the performance towards the achievement of its goals.
- A means of maintaining the health growth and continuity of the company.

2.1.2 Planning

Planning assesses the future, makes provision for it and assumes the achievement of predefined goal. Simply, the planning means determination of any work in advance of action. Basically, it is a decision making process that provides a base for economic and effective future course of action. Effective planning sets the stage for integrated action to take place, reduces the number of enforceable crises, promotes to use of more efficient methods and provides the base for the managerial function of the control. Glenn A. Welsch defines management planning as the design of a desired future state for an entity and effective ways of bringing in about. He further explains a fundamental purpose of management is to provide for a feed forward process. The concept of feed forward planning is generally recognized as the most difficult task facing the manager, and it is one on which it is very easy to procrastinate. It clearly indicated that planning is a decision making process of the highest order, it requires management time and dedication and a systematic

approach. The decisions made in the planning process are (Welsch, 1979; 11)

- Anticipatory, since they are made something in advance of action and
- Interrelated, since they comprise broad groups of interdependent choice from alternatives of the government.

Planning is the basic foundation of profit planning and a plan is a projected course of action. Planning is a technique whereby the use pattern of resources is carried out. (Agrawal, 1989; 348)

A planning process includes goal setting, resource evaluating, forecasting by different methods and formulating a master plan. Planning depends upon the organized objectives. For the planning purpose a firm's objectives can distinguish mainly three types: prime, instrumental and specific.

The prime objective is to complete the action. Instrumental objectives are for accomplishment of divisional and individual goal. Specific objectives are that objectives that have been specified as to time and magnitude, which are known as organizational goals. Therefore, company's objectives provide the ultimate criteria for resolving difficulties of company and company objectives are the base for long-range profit planning.

Roy A. Gentles defined the importance of planning as the planning process both short and long-term is the most crucial component of the whole system. It is the foundation for other elements because it is through the planning process that we determine what we are going to do and which is in reason and communication. Planning is the conscious

recognition of the future of present decision. Planning is the feed forward process to reduce uncertainty about future. The planning process is based on the conviction that management can plan its activities and condition that state of the enterprise that determines its density. So, planning is an intellectual process, rational way, a systematic way and the goal oriented task. Primary function of management and planning provides all managerial activities and it is directed towards efficiency. Planning is the sole concept of any business organization. Without proper and effective planning no firm can accomplish its predetermined goals and objectives. Hence, it is the life blood as well as heart of any organization which makes them efficient running towards competitive environment. (Welsch, 1992; 3)

Profit is not a matter of chance but it comes from effective and realistic plan. Planning is deciding in advance that to be done in future. Planning is the process of developing the objectives of enterprise and selecting future course of action to accomplish them. It is the method of thinking about actions and purpose. 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 foundation of profit plans. Planning includes the establishing objectives of enterprises 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 operations terms, planning process involves four stages (Welsch, 1992; 75)

- Objectives: The first stage in the planning and controlling system is setting the objectives, which is defined as the broad and long-range

desired state or position in the future. They are motivational or directional in nature and are expressed in qualitative terms.

- Goals: The second stage in planning process is specifying the goals. The term goals as an element in planning represent targets. specified in quantitative terms to be achieved in a specific period of time
- Strategies: the next step involves laying down the strategies. Strategies devote specific methods or course of actions 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.
- Budgets/Plans: 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

2.1.3 Profit Planning

Profit planning is the primary function of management - any organization. A company always wants to earn maximum profit through the optimum utilization of available resources. Profit planning measure's the access of any organization. Various budgets are major elements of profit planning. It is a key, which helps to predict the future, minimizes risks estimates output from the scarce resources and helps for various managerial decision making processes.

Profit planning is a comprehensive statement of intentions expressed in financial terms for both short and long term operation of the firm. It is a plan for the accomplishment or organizational expectations. It is a base for measuring the variation between planned and actual performances. The

success of each organization will be determined by reaching or exceeding those targeted plans.

Profit planning is one of the comprehensive approaches that have been developed to facilitate effective performance of the management process. It is a systematic and formalized approach for performing significant phases of management planning and control functions. It includes following activities;

- Development and application of broad and long term objectives of organization.
- Specification of organizational goals.
- Development of long-run profit plan in broad terms.
- Development of short-run profit plan detailed by assigned responsibilities.
- System of periodical performance report detailed by assigned responsibilities.
- Follow up the procedure.

The main aim of profit planning is to forecast about future. So it plays the vital role in the development of organization. It is the most important tool in the field of managerial decision making in the enterprises. Main purposes of profit planning and control are as follows (Welsch, 1992; 44)

- To state the firms expectations (goals) in clearly format terms to avoid confusion and facilitate their attainability.
- To communicate expectation to all concerned with management of the firms so that they are understood, supported and implemented.
- To avoid a detailed plan of action for reducing uncertainty and for its proper direction of individual and group efforts to achieve goals.

2.2 Process of Profit Planning

A profit-planning programme includes more than the traditional idea of a periodic or master budget. The term comprehensive means:

- The application of the broad concept of profit planning and controlling to all phase of operation in an enterprise.
- The application of a total system approach.

The profit planning process should involve periodic consistent and in-depth re-planning so that all aspects of operation are carefully re-examined and re-evaluated.

The steps of profit planning are explained below:

2.2.1 Identification and Evaluation of External Variables

The phase of identification of variable of PPC process focuses on

a. Identifying
b. Evaluating their effects

Identification also involves separate consideration of variables that are non-controllable and those that are controllable. This means; management planning must focus on how to manipulate the controllable variables. Moreover there must be managerial planning of how to work with the non-controllable variables. By relevant variables we mean those that will have a direct and significant impact on -the enterprise. For long business with a national market, the relevant variables would be broad in scope, whereas a small business would be concerned primarily with regional and local variables operating within the narrow environment of the enterprise. Analysis and evaluation of the environmental variables must be a continuing concern of management. This activity should involve all executive managers, who in turn should expect various staff groups to

provide data and recommendations. A particular significant phase of this analysis includes an evaluation of the present strength and weakness of the enterprise. (Welsch, 1992; 75)

2.2.2 Development of the Broad Objectives for the Enterprise

On the basis of evaluation of the enterprises and practical assessment of strength and weakness of the enterprises management is in a position to develop the realistic objective of the enterprises.

Development of the broad objectives of enterprises is a relevant variable and an assessment of the strength and weakness of the organization executive management can specify this phase of profit planning. The statement of broad objectives should express the mission, vision and ethical tone of the enterprises. It tends to provide enterprise identify continuing of purpose and definition. (Welsch, 1979; 65)

2.2.3 Development of Specific Goals for the Enterprise

It should express the mission, vision and ethical character of the enterprises. It is a responsibility of executive management and also can specify or restate this of profit planning process on the basis of evaluated variables and an assessment of the strong and weakness of the organization. The purpose of phase is to provide enterprise identifying, continuing of purpose and definition. (Welsch, 1992; 73)

2.2.4 Development and Evaluation of Company Strategies

The strategies are the basic thrust and tactic that will be used to attain planned objectives and goals. A particular strategy may be short or long term purpose of development of strategies is to find the best alternatives for planned broad objectives and specific goals. It focuses on how to Here are some examples of basic strategies. (Welsch, 1992; 77)

- Increase long term market penetration by using technology to develop new products and improve current products.
- Emphasize produce quality and price for 'top" of the market.
- Price of products with low market price to expand sales volume.
- Use both industrial and local advertising programs to build market.
- Improve employee moral and productivity by initiating a behavioural management programme.

2.2.5 Executive Management Planning Instructions

The phase involves communication of the substantive plan and lower management levels. It explains the broad objectives, enterprise goals, enterprise strategies, and any other executive management instructions needed to develop the strategic and tactical profit plans. It is also called the statement of planning premises or the statement of planning guideline.

The executive planning instructions issued by top management communicate the planning foundation that is necessary for the participation of all levels of management in the development of the strategic and tactical profit plans for the upcoming budget year. Executive leadership is fundamental in developing and articulating this planning foundation, including the formulation of relevant strategies. Consequently, at this point in the planning process, the foundation has been established to articulate the broad specific objectives of the enterprises and the strategies that facilitate their attainment. (Welsch, 1992; 79)

2.2.6 Preparation and Evaluation of Project Plans

Periodic and project plans are different in nature and function, project plan encompass variable time horizons because each project has a unique

time dimension. Project plans encompass such items far improvement of present production, new and expanded physical facilities etc. the nature of project is such that they must be planned as separate units. In planning for a project the time span considered most normally is the anticipated life span of the project. The preparation and evaluation of current and future project plans are essential a formal basis of the planning phase. (Welsch, 1992; 79)

2.2.7 Development and Approval of Strategic and Tactical Profit Plans

When the managers of the various responsibility centers in the enterprise receive the executive management planning instructions and the project plans they can begin intensive activities to develop their respective strategic and tactical profit plans. The strategic long-range plan and the tactical short-range profit plan are usually developed concurrently. It is possible that executive management or the chief financial executive will develop the strategic and tactical profit plans. This approach is seldom advisable because it denies full participation in the planning process by middle managers. Lack of participation can cause unfavorable behavioral effects. (Welsch, 1992; 80)

2.2.8 Implementation of Profit Plans

Implementation of management plan that have been developed and approved in the planning process the manager function of leading subordinates in attaining enterprise objectives and goals. Thus effective at all levels requires that enterprise objectives, goals, strategies and policies be communicated and understood by subordinates. There are many facts involved in management leadership. However, a comprehensive profit planning program may subordinate performing this function, plan strategies and policies developed through significant participation,

establish the foundation for effective communication. The plan should have been developed with the managerial convention that they are going to be met or exceeded in all major respects. If these principles are effective in the development process various executive and supervisor will have a clear understanding of their responsibilities and the expected level of performance. (Welsch, 1992; 84)

2.2.9 Use of Periodic Performance Reports

As profit plans are being implemented during the period of time specified in the tactical plan, periodic performance reports are needed. These performance reports are prepared by the accounting department on a monthly basis, also some special performance reports are prepared more often as per need.

A clear distinction must be made between external and internal financial reports. Internal reports can be further classified as. (Welsch, 1992; 85)

- Statistical reports that give the basic quantitative internal statistics about the operation of the enterprise.
- Special managerial reports about nonrecurring and special problems.
- Periodic performance reports. These reports focus on dynamic and continuous control tailored to assigned managerial responsibilities

2.2.10 Use of Flexible Expenses Budgets

The flexible expenses budgets are also referred to as the variable budget sliding scale budget; expenses control budget and formula budget. Flexible budget gives realistic information about expenses that makes it possible to compute budget amounts for various output volumes or rates of in each responsibility centre. The formula given the relationship of

each expense to output in the centre and each formula includes a constant expense factor and a variable expense rate.

In the cost of fixed expenses, the variable rate is zero. in the case of variables expenses, the content factor is zero and in the case of semi-variables expenses, there is a value for both the constant factor and the variable rate. To apply the concept in a department, then each expense must be classified into three categories. (Welsch, 1992; 86)

- Fixed expenses: that remains essentially constant in the short run, regardless of changes in output or volume of activity.
- Variable expenses: that very directly proportional with changes in output.
- Semi-variable expenses: that are neither fixed nor variables but have both a fixed and a variable component.

2.2.11 Implementation of Follow-Up

Performance reports are the bases for effective follow up action. This is a part of effective control. It is important to distinguish between cause and effect. The performance variations effect, the management must determine the underlying cause, the identification of causes is primarily a responsibility of line management. Analysis to determine the underlying causes of both favorable and unfavorable performance variances, after identifying the basic causes, as opposed to the results, an alternative for corrective action must be selected. Then the corrective action must be implemented. In the case of favorable performance variances, the underlying causes should also be identified. (Welsch, 1992; 88)

2.3 Elements of Profit Planning

The basic elements of profit planning are as follows:

2.3.1 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 complied or co-ordinate and it is done by profit planning. So before preparing a profit planning, all the departments have to be complied and that budget is known as comprehensive budget or profit planning.

2.3.2 Expressed in Financial Terms

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

2.3.3 Plan for Operational Resources and Expenses

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

2.3.4 Future Plan

It is a plan for specific period. Time dimension must be added to a budget. A budget is meaningful only when it is related to a specific time. The budget estimates will be relevant only for some specific period.

2.4 Components of Profit Planning

Profit planning and control is a systematic and formalized approach for accomplishing the planning, co-ordination and control responsibilities of management. Components of PPC are bones of a business or an enterprise, which help it operate properly, efficiently and effectively. The components of PPC are as follows. (Welsch, 1979; 74)

2.4.1 The Substantive Plan

This plan represents the following:

- Broad objective of the enterprise
- Specific enterprise goals
- Enterprise strategies
- Executive management planning instructions

The broad objectives, strategies, specific plans, and programmes of the organization and represent it by the concurrent commitment of management to long range accomplishment of these objectives and plans. The substantive plan may be characterized as the 'prose part' of the plan rather than the 'number part' of the plan.

2.4.2 The Financial Plan

The financial plan quantifies the planned financial results of implementing managerial objectives, strategies, plans and policies. The financial plan then represents a translation into financial terms of objectives and strategies of management for specific period of time. The financial plan includes:

a. Strategic long-range profit plan

- Sales, costs and profit projections
- Major projects and capital additions
- Cash flow and financing
- Personnel requirements

b. Tactical short-range (annual) profit plan;

(i) Operating plan:

- Planned income statement
- Sales plan
- Production (or merchandise purchase) plan
- Administrative expenses budget
- Distribution expenses budget
- Appropriation-type budget (e.g. research and development, promotion, advertising)

(ii) Financial position plan

- Planned balance sheet
- Assets
- Liabilities
- Owners' equity

(iii) Cash flow plan

- Planned cash flow statement
- Flows from operating activities
- Flows of from investing activities
- Flows from financing activities

c. Variable expenses budgets:

- Output expenses formulae

d. Supplementary data:

(E.g. cost volume profit analysis. ratio analysis)

e. Performance reports-each month and as per need

f. Follow-up, corrective action and re-planning report

2.5 Major Tools Used in Profit Planning and Control

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

2.5.1 Operating Budget

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

a. Sales Budget

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

Sales budget is prepared from sales forecast where as a sales forecast encompass potential sales for the entire industry as well as potential sales for the firm preparing the forecast. Sales results from prior years are used as a starting point in preparing a sales forecast. (Welsch, 1992; 173)

b. Production Budget

After the sales budget has been prepared, the production requirements for the forthcoming budget period can be determined and organized in the form of a production budget sufficient goods will have to available to meet sales need and provides for the desired ending inventory. A portion of these goods will already exist in the form of beginning inventory. The remainder will have to be produced. Thus, production necessity can be determined by adding budgeted sales units to the desired ending inventory and deducting the beginning inventory from the total. (Homgreen, et. al., 1999; 182)

c. Purchase Budget

In case of non-manufacturing concern it would prepare a merchandise purchase budget to plan the amount of goods to be purchased during the period. The merchandise purchase budget is in the same basis format as the production budget. It shows goods to be purchased but it doesn't show the goods to be produced.

d. Direct Material Budget

After the production plan, a direct material budget is prepared to show the materials that will be required for the production. Sufficient materials will have to be available to meet production needs and to provide for the desired ending raw material inventory for the budget period. A part of this raw material will exist in the form of a beginning raw material inventory. The remainder will have to be purchased from supplier.

e. Direct Labor Budget

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

f. Manufacturing Overhead Budget

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

g. Selling and Administrative Overhead Budget

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

2.5.2 Financial Budgets

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

a. 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 forth-coming period. After it has been prepared, it stands as a benchmark against which subsequent company performance can me measured (Gamosn, 1985; 313)

b. Cash Budget

Cash budget is the detail showing cash receipt, cash disbursement and the balance cash. The cash budget is composed of four major sections: the receipts section, the disbursements section, the cash excess or deficiency section, and the financing section. The receipts section consists of the opening balance of cash 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 total and the cash disbursement section total. The financing section provides a detailed account of the borrowing and repayments projected to take place during the budget period. It is also includes a detail payment that will due on money borrowed.

c. 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 budgets.

2.5.3 Appropriation Budget

The appropriation budget covers all types of expenditure on advertising and research sectors.

Apart from above budgets, PPC also has relationship with following additional budgets, CVP analysis, and completion of profit plan and performance reports:

a. 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.

b. 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 capital expenditure budget are cash out flow and cash in-flows. Cash out-flow includes the cost of the project as cash out lays at different times during the life of a project. The cash out-flows are affected by the provision of residual value of old equipment, tax position, addition working capital needed, etc. cash in-flows are expected cash revenue during the life of a project. The non-cash expenses like depreciation and tax position can affect the cash in-flows.

c. Zero-Based Budgeting

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

d. Activity-Based Budgeting

Activity based costing can lead to improved decision-making which principles extend budgeting. Activity based budgeting focuses on the lose of activities to produce and sell products and services. It separates' indirect costs into separate homogeneous activity cost pools. Management uses the cause and effect criterion to identify to cost drivers for each of these indirect cost pools.

e. 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 volume, cost, price and profit. Cost-volume-profit analysis is great in managerial decision-making. Specially, cost control and profit planning is possible with the help of cost-volume-profit analysis.

f. Completion of Profit Plan

The principal 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.

g. Performance Reports

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 objectives are attained. Performance reports deal with control aspect 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 word, 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 one of the vital tools of management to exercise its control function effectively.

2.6 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 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 examine the relationship among revenues, costs and profits for a relevant range of activity and for a particular time frame. Basically, CVP analysis involves finding the most favorable combination of variable costs, fixed cost, selling price, sales volume and mix of products sold. CVP analysis provides powerful tools to identify the courses of action that will 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 price of product and units sold. The entire gamut of profit planning is associated with CVP inter-relationships. CVP analysis is the technique explores the relationship, which exists, between costs, revenue, output level and resulting profit. Cost-volume-profit analysis can be extended to cover the effects on profits of changes 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. CVP analysis provides the management with a comprehensive overview of the effects on revenue and cost of all kinds of all kinds of short-run financial changes. It is related to profit, sales volume and cost.

Generally cost-volume-profit analysis provides information regarding (Munakarmi, 2003; 124)

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

Cost-volume-profit analysis is the most important and the most difficult to prepare or calculate. Cost-volume-profit analysis

provides information for the management decisions about effective budgeting of a company. It is an organized approach for planning, appraisal or coordination and control.

2.6.1 Use of CVP Analysis in Profit Planning

Planning, controlling and decision-making are the essential managerial functions. Cost-volume-profit analysis helps the managers to plan for profit, to control cost and make decision. As such it helps (Munakarmi & S.P., 2003; 123)

- To determine the break-even point in terms of unit or sales value
- To ascertain the margin of safely
- To estimate profits or losses at various level of output
- To help management to find the most profitable combination of costs and volume (units)
- To determine the optimum selling price
- To determine the sales volume at which the profit goal of the firm will be achieved
- To determine the maximum sales volume to avoid losses
- To determine most profitable and least
- To determine new break-even point for changes in fixed or variable cost
- To assess the likely effect of management decisions such as an increase or a decrease in selling price adoption of new method of production to direct Labor and increase output.

2.7 Application of Cost-Volume-Profit Analysis

Cost-volume-profit analysis is applied specially for break-even analysis and profit planning. Business organizations are run to earn to run 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 (Maheshwari, 2000; 174)

- Contribution Margin Analysis
- Break-even Analysis
- Profit-volume Analysis

2.7.1 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:

Contribution Margin = Selling Price – Variable Cost

= Fixed Cost + Profit

We can derive from it that profit cannot result unless contribution other words, the point of no profit no loss shall be arrived at where contribution is equal to fixed costs. (Maheshwari, 2000; C.176)

CVP Analysis is the amounts of contribution margin available from the volume of absorb fixed cost and also contribute towards company profit 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.

$$CMR \text{ X} \frac{CM}{Sales}$$

$$CMR \text{ X1 Z} \frac{VC}{SP}$$

Where, CMR = Contribution Margin Ratio,

CM = Contribution Margin

VC = Variable Cost, and

SP = Selling Price

2.7.2 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 of 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 gnomes of profit planning, while break-even analysis is 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. (Maheshwari, 2000; C 175)

2.7.2.1 Break-Even Point

The point, which breaks the total cost and the selling price evenly to show 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 of 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

BE sales value = FC + VC $\pm$ Profit

Or, (BE sales unit x SPPU) = FC $\pm$ (BE sales unit x VCPU)

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:

$$\text{BEP in units } X\frac{\text{Fixed Cost}}{\text{CMPU}} \quad X\frac{\text{Fixed Cost}}{\text{SPPU - VCPU}}$$

$$\text{BEP is amount } X\frac{\text{Fixed Cost}}{\text{PV Ratio}} \quad X\frac{\text{Fixed Cost}}{\text{CMPU}} \mid \text{SPPU}$$

At break-even point, the desired profit is zero. In 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.

2.7.2.2 Cash Break Even Point

It is the point where cash breaks even (i.e. the value of sales where cash realization on account of sales will be just sufficient to meet immediate cash liabilities). While the calculating this point cash fixed cost (i.e. excluding depreciation and deferred expenses) and cash contribution

(i.e. selling price variable costs) are considered. The point helps the management in determining the level of activity below which there are chances of insolvency on the firm's inability to meet cash obligations unless alternative arrangement are made *(Maheshwari, S. N., 2000:C.178):*

$$\text{Cash BEP in units } X\frac{\text{Cash Fixed Cost}}{\text{Cash CMPU}}$$

2.7.2.3 Composite Break-Even Point

In case a concern is dealing in several products, a composite break-point can be computed according to the following formula. (Maheshwari, 2000; C.179)

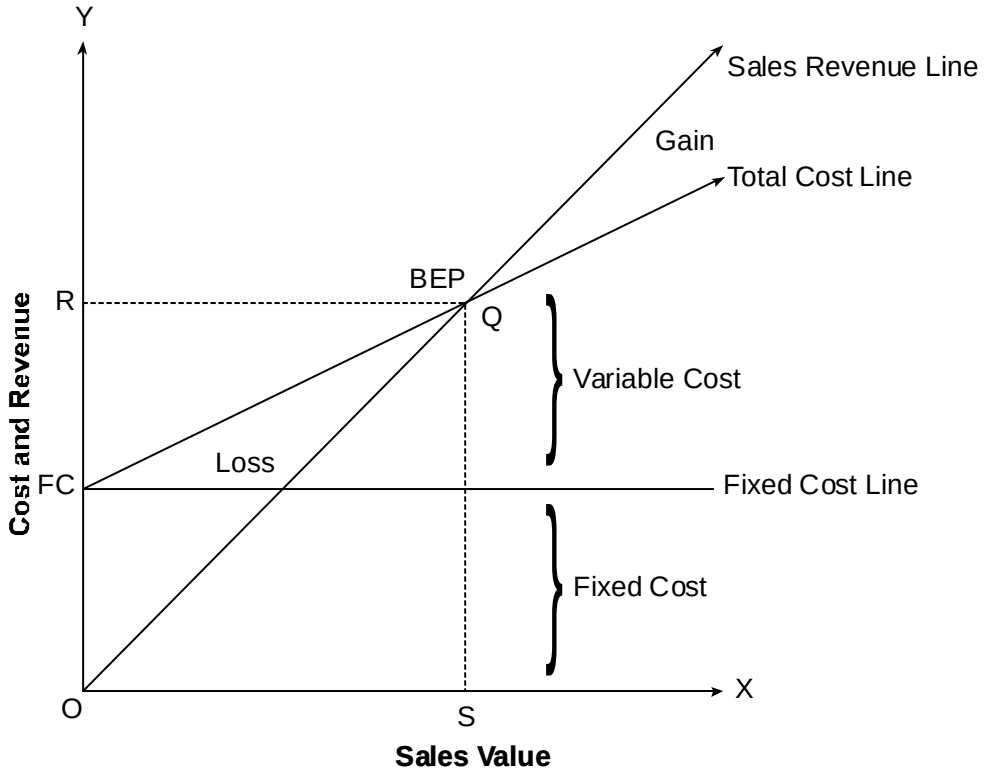
$$\text{Composite BEP in amount } X\frac{\text{Total Fixed Cost}}{\text{Composite PV Ratio}} X\frac{\text{Total Fixed Cost}}{\text{TCM}} \mid TS$$

2.7.2.4 Cost Break-Even Point

It 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. (Maheshwari, 2000; C.179)

2.7.2.5 Break Even Chart

The relationship between 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 different levels of activities. (Maheshwari, 2000; C.181)



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 organization will earn profit and if the actual sales is less than the break-even sales, the organization will suffer from loss.

2.7.2.6 Applications of Break-Even Analysis

Break-even concept can be used to formulate different policies in a business enterprise. Some of these applications are. (Maheshwari, 2000; C.182)

- Determination of profit at different levels of sales and margin of safety
- To find the level of output to get the desired profit

- Effect of price reduction on sales volume and changes in sales mix
- Effect of fixed cost or variable cost changes on sales volume
- Selections of most profitable alternative and make or buy decisions and drop and/or add decisions

2.7.2.7 Assumptions of Cost-Volume Analysis

Contribution analysis and Break-even analysis are based on a specific set of assumptions that should be clearly understood. These underlying assumptions are (Maheshwari, 2000; C.182)

- 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
- 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 arc productivity per person will remain essentially uncharged in the short run.

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

2.7.2.8 Limitations of Cost-Volume 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 interpretation. Some of these can be listed as (Maheshwari, 2000; C.183)

- 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 depend 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.

2.7.3 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 amount profit planning is associated with cost-volume-profit inter-relationship.

2.7.3.1 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 (Maheshwari, 2000; C.184)

$$\text{PV Ratio X}\frac{Contribution}{Sales}\text{ X}\frac{S\text{ Z}VC}{S}\text{ X1 Z}\frac{VC}{S}$$

This ration can also be called as contribution margin ration. This ratio also is 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 levels of production. Thus *(Maheshwari, 2000; C.185)*

$$\text{PV Ratio X}\frac{\text{Changes in Contribution}}{\text{Changes in Sales}}\text{ X}\frac{\text{Changes in Profit}}{\text{Changes in Sales}}$$

This ratio would remain constant at different levels of production since variable costs as a production to sales

remain constant at various levels. This 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 variables cost can be expressed as under:

VC = Sales (1 – P/V Ratio)

Comparison of different P/V ratios is usually made by the management to find cut which product is more profitable. Management tries to increase the value of the ratio by reducing the variable cost or by increasing the selling prices.

2.7.3.2 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 difference 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 decisions about various business opportunities. The larger is the safety margin, the greater is the chances for the company to earn profit (i.e. larger the margin of safer the company). A high margin of safety is particularly significant in of depression when the demand for the company or 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 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 (Munakarmi, 2003; 127)

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

$$\text{Margin of Safety (in amount)} = \frac{\text{Profit}}{\text{PV Ratio}}$$

$$\text{Margin of Safety (in unit)} = \frac{\text{Profit}}{\text{CMPU}}$$

The relationship between margin of safety and actual sales is known as margin of safety ratio, which is determined as follows *(Munakarmi, 2003; 127)*

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

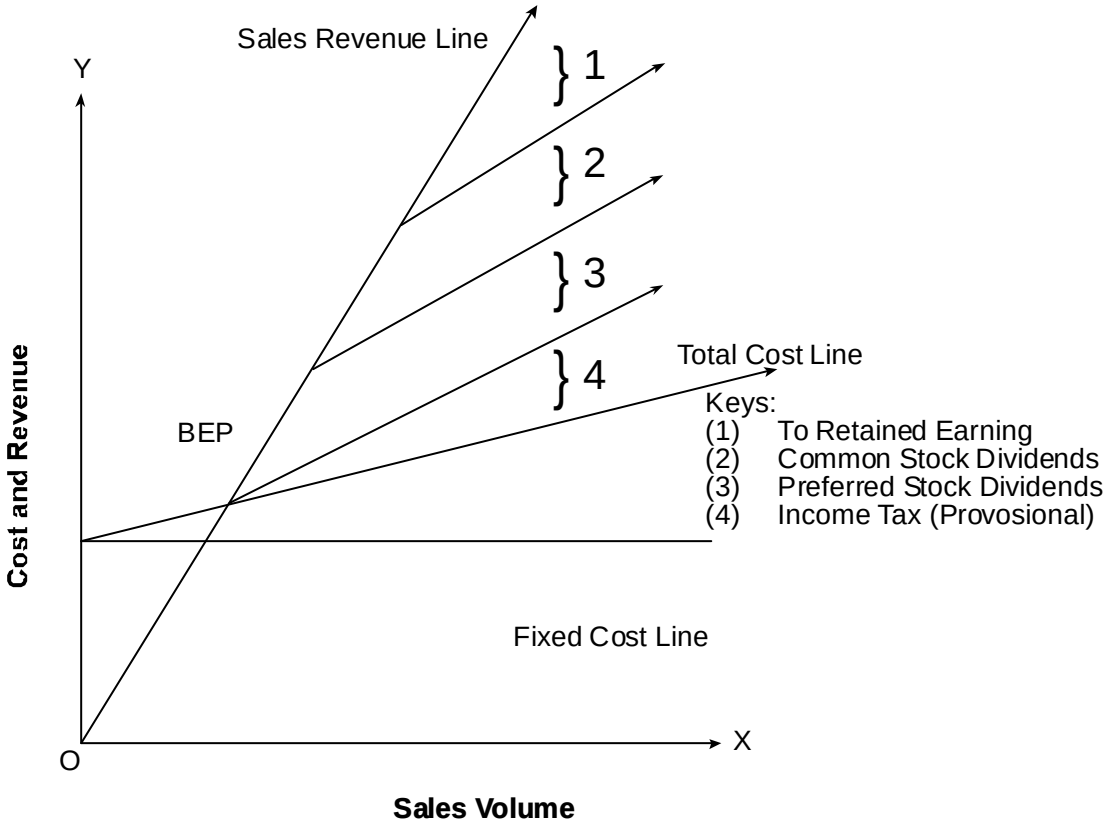
The following steps are needed to rectify margin of safety:

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

2.8 Economic Characteristics of Cost-Volume-Profit Analysis

Where cost-volume-profit analysis are reasonable accurate, they can help management decision-making. Essentially, CVP analysis offers greater insight into the economic characteristics of a company and may be used to determine the approximate effect of various alternatives. CVP analysis is based on estimates, however, and the arithmetical manipulations

generally involve averages; hence the results should never be interpreted as precise. Rather, the analysis may be characterized appropriately as a 'slide-rule' approach that may be used to develop and test, with a minimum of effort, the approximate effect on costs and profits of several types of management decisions. (Welsch, 1979; 467)



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

- Fixed costs, variable costs and total costs at varying volumes
- The profit and loss potential, before and after income taxes, at varying volumes
- The margin of safety-the relationship of budget volume to break-even volume

- The break-even point
- The preferred dividend or danger point- the point below, which preferred dividends are not, earned
- The dead point-the point where management earns only the 'going' rate on the investment
- The common dividend or unhealthy point- the point below which earnings is insufficient to pay the preferred dividends and the expected dividend on the common stock.

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

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

The relative proportion 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 products 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 riot affect the firm's break-even point and profit if each product has the same PA/ ratio. However, a change in the product mix will change the break-even point and profit when products have unequal P/V ratios. (Maheshwari, 2000; C.187)

2.10 Break-Even Point for Multi-Product 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. *(Munakarmi, 2003)*

- Calculate contribution Margin or Profit Volume Ratio for each product.
- Calculate proportion of Sales mix in Units or values as follows:

$$\text{Sales Mix X} \frac{\text{Individual Product's Sales unit or value}}{\text{Total of all products sales units or value}}$$

- 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]

- Calculated Break Even Point (BEP)

$$\text{BEP X} \frac{\text{Fixed Cost}}{\text{Weighted Average}}$$

2.11 Cost Volume Profit Analysis and Limiting Factors

CVP Analysis is helpful in profit planning and a company will be able to produce any member of output of its choice (desires). But in 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.

2.12 CVP Analysis with a Single Constraint

Scarce resources should be efficiently allocated in order to maximize the contribution margin. A particular simple and instructive situation arises when there is only one constraining resources. 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 resources constraint arises, if the firm's products are all produced with only one material and output is limited by quantity available for those materials. When there is a constraint for scarce resources to have alternative uses, the contribution per unit should be calculated for each of these uses. Then, the available capacity for such scarce resource should be allocated to the alternative uses on the basis of contribution per scarce resource. (Munankarmi, 2003; 146)

2.13 CVP Analysis with a Multiple Constraint

Where more than one scarce resource exists, the optimum production programme cannot easily be established by the simple process applied in single resources constraint. Under the circumstances simple allocation of resources or the basis of contribution margin per unit is neither feasible not desirable. Contribution margin per nit 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 techniques may be used to optimize product mix. The Linear Programming formulation is required to determine a production plan that maximized 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 technique to optimize

the allocation of scarce resources in product mix problems which provides a valuable extension to cost volume profit analysis. (Munankarmi, 2003; 148)

2.14 CVP Analysis Under Condition of Uncertainty

CVP Analysis has 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 and it also explains 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 distribution theory normally suggests for postulation of various possibility of happening of the event in consideration. This may be done either taking into consideration of the experience in the past or may be done by considering the personal intuition of the persons 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 an analysis. (Pandey, 200 3; 17)

2.15 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 jumps once (i.e. step fixed) then it is required to consider a different amount of fixed costs corresponding to each step. As such, BEP is computed for each level of fixed costs. Some of these compute 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. (Munankarmi, 2003; 136)

2.16 Special Problems in CVP Analysis

CVP analysis is applied to individual products or parts of a business and all the products or activities combined. In the later cases, there are the three special problems may be encountered. (Welsch, 2001; 513)

a. The activity base

When two or more products or activities are combined for breakeven analysis, the activity base is usually in amount. Product unit is used for single product. The activity base must be in multiple products. Therefore, for the company as a whole, net sales amount are usually the only satisfactory common denominator because manufacturing, selling and administrative activities are expressed in combination.

b. The change in inventory

Usually the budget changes in inventories (i.e. finished goods and work in progress) are immaterial in amount and thus may be

disregarded in cost volume profit analysis. On the other hand, when the change in budgeted inventory is significant, it should be included in the analysis. Including the effect of inventory changes in cost volume profit analysis requires subjective judgments about what management might do (about making inventory changes) at different volume levels and the conceptual precision that is desired. Management considers two practical approaches or policies in inventory changes often used: (a) Disregard the inventory changes (b) Include the inventory changes.

c. The non operating incomes and expenses

Non operating incomes and expenses and extra ordinary gains and losses, if material in amount, cause another problem in CVP analysis. The basis 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:

- Include the Non Operating income and expenses.
- Exclude the non operating income and expenses.

2.17 Cost Structure

Cost structure refers to the relative proportion of fixed and variable cost in an organization. The relationship of a company 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 relatively 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. (Munankarmi, 2003; 145)

There are three types of costs from their nature of variability. They are:

- **Variable Cost**

  Variable Cost is that cost which is directly affected by change in the activity level. Per unit variable cost is always constant. If the activity level is decreased, the variable cost also increases. 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 decreased but it helps to increase BEP.

- **Fixed Cost**

  Fixed cost remains constant in total amount despite the changes in the level of activities. It means the fixed costs remains unchanged in total as the activity levels vary. When other factors remain unchanged, the change in fixed cost effects to BEP and net income. When the fixed cost is increased, the volume of BEP increases but the net income decreases or vice versa. Fixed cost is also called capacity cost.

- **Semi Variable Cost**

  Expenditures that cannot be categorized as purely fixed or variables are termed as mixed cost or semi variable cost. Mixed cost contains both variables and fixed cost elements. Repair and maintenance, supervision, telephone, electricity charge are some examples of mixed cost. It should be separated into the variable

and fixed elements for profit planning, cost control and decision making.

2.18 Segregation of Semi Variable (Mixed) Costs

Cost Volume Profit analysis requires segregation of all costs between two parts: fixed and variable. This means that the semi variable cost will have to be segregated into fixed and variable elements. This may be done by any one of the following methods. (Maheshwari, 2000; 162)

a. Levels of output compared to levels of expenses method

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

$$\text{Variable Elements } X \frac{\text{Changes in amount of expenses}}{\text{Change in activity}}$$

b. Range Method

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

Step I – The highest pair and the lowest pair are selected.

Step II – The variable rate 'b' computed by using the following formula:

$$\text{Variable Rate } X \frac{\text{Difference in Cost}}{\text{Difference in activity}}$$

Step III – The fixed cost portion is computed as:

(Fixed cost portion = Total semi variable cost – variable cost)

c. 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 other may have 70 % variability. The method is easy to apply but difficulty is faced in determining the degree of variability.

d. 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 a graph paper and line of best fit is drawn, whereas semi variable expenses is plotted on the vertical axis (Y-axis) activity measure is plotted on the horizontal axis (X-axis). The method is explained below:

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

The scatter graph method is relatively easy to use and simple to understand. However, it should be used with extreme caution

because it does not provide any objective test for assuring that the regression line drawn is the most accurate fit for the underlying observations.

e. Method of least squares

One popularly used method for estimating the cost volume formula is regression analysis. It is a statistical procedure for estimating mathematically, the average relationship between the dependent variable (y) and the independent variable (x). The regression method includes all the observed data and attempts to find a line of best fit. To find a 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 will be,

$$y = a + b \quad x$$

$$xy = a \quad x + b \quad x^2$$

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 constant parameters a, b and c will be:

$$y = na + b \quad x^2$$

$$xy = a \quad x + b \quad x^2 + c \quad x^3,$$

$$x^2y = a \quad x^2 + b \quad x^3 + c \quad x^4$$

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

Computation of the per unit cost (b) and fixed cost (a)

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

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

Where, y = total cost, b = variable cost per unit, n = no. of series, a = fixed cost, and x = production units.

2.19 Financial Statement Analysis

Financial statements at least refer to the two statements which are prepared by a business concern at the end of the year. These are:

- **Income Statement or Trading and Profit & Loss Account:** It is prepared by a business concern in order to know the profit earned and loss sustained during a specified period.
- **Position Statement or Balance Sheet:** It is prepared by a business concern on a particular date in order to know its financial position.

The above mentioned statements are collectively called financial statements of a company. (Jain, 1991; VI/1)

Analysis is the process of critically examining in detail accounting information given in the financial statement. For the purpose of analysis, individual items are studied; their interrelationships with other related figures established, the data are sometimes rearranged to have better understanding of the information with the help of different techniques or tools for the purpose. Financial analysis is helpful in assessing the financial position and profitability of a concern. This is done through the comparison of ratios over the period. (Jain, 1991; VI/4)

Absolute figures are valuable but they standing alone convey no meaning

unless compared with another. Accounting ratios show interrelationships which exist among various accounting data. When relationships among various accounting data supplied by financial statements are worked out, they are known as accounting ratios.

Ratios may be classified in a number of ways keeping in view the particular purpose. Ratios indicating profitability are calculated on the basis of the profit and loss account are called profitability ratios and those ratios indicating financial position are calculated on the basis of the balance sheet are called financial ratios.

2.19.1 Profitability Ratios

Profitability ratios are of utmost importance for a concern. These ratios are calculated to enlighten the end results of business activities which are the sole criterion of the overall efficiency of a business concern. The following are the important ratios. (Jain, 1991; VI/28)

a. **Gross Profit Ratio:** This ratio tells gross margin on trading and is calculated as under:

$$\text{Gross Profit Ratio } X \frac{\text{Gross Profit}}{\text{Net Sales}} \mid 100\,\%$$

b. **Operating Profit Ratio:** This ratio establishes the relationship between operating profit and sales and is calculated as follows:

$$\text{Operating Profit Ratio } X \frac{\text{Operating Profit}}{\text{Net Sales}} \mid 100\,\%$$

c. **Net Profit Ratio:** This ratio is very useful to the proprietors and prospective investors because it reveals the overall profitability of the concern. This is the ratio of net profit after taxes to net sales and is calculated as follows:

$$\text{Net Profit Ratio } X \frac{\text{Net Profit after Tax}}{\text{Net Sales}} \mid 100\,\%$$

d. **Return on Shareholder's Investment Ratio:** The ratio, also called return on proprietors' funds, is a measure of the percentage of net profit to shareholder's funds. The ratio is expressed as follows:

Return on Shareholder's Investment Ratio

$$X\frac{\text{Net Profit after Tax, Interest and Preferrence Dividend}}{\text{Equity Shareholder's Funds}} \mid 100\,\%$$

Equity Shareholder's Fund = Equity Share Capital + Capital Reserves + Revenue Reserves + Balance of Profit and Loss Account – Fictitious Assets.

e. **Return on Total Assets:** The ratio is calculated to measure the profit after tax against the amount invested in total assets to ascertain whether assets are being utilized properly or not. It is calculated as under:

$$\text{Return on Total Assets}\,X\frac{\text{Net Profit after Tax}}{\text{Total Assets}} \mid 100\,\%$$

2.19.2 Financial Ratios

These ratios are calculated to judge the financial position of the concern from long term as well as short term solvency point of view. The following are the ratios which are calculated in this respect. (Jain, 1991; VI/39)

a. **Current Ratio:** This is the most widely used ratio. It is ratio of current assets to current liabilities. It is expressed as follows:

$$\text{Current Ratio}: X\frac{\text{Current Assets}}{\text{Current Liabilities}}$$

b. **Quick Ratio:** This is the ratio of liquid assets to liquid liabilities. 1:1 ratio is considered ideal ratio for a concern because it is wise to keep the liquid assets at least equal to

the liquid liabilities at all times. Liquid assets are those assets which are readily converted into cash and will include cash balances, bills receivable, sundry debtors and short term investments. Inventories and prepaid expenses are not included in liquid assets. Quick ratio is calculated as follows:

$$\text{Quick Ratio } X \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

c. Fixed Assets Ratio: This ratio is calculated as under:

$$\text{Fixed Assets Ratio } X \frac{\text{Fixed Assets}}{\text{Capital Employeed}}$$

Capital Employed = Equity Share Capital + Preference Share Capital + Undistributed Profit + Reserve and Surplus + Long Term Liabilities – Fictitious Assets

This ratio gives an ideas as to what part of the capital employed has been used in purchasing the fixed assets for the concern. If the ratio is less than one it is good for the concern.

d. Ratio on Current Assets to Fixed Assets: This ratios is worked out as:

$$\text{Ratio on Current Assets to Fixed Assets } X \frac{\text{Current Assets}}{\text{Fixed Assets}}$$

e. Debt to Equity Ratio: This ratio is calculated to measure the relative proportions of outsiders' funds and shareholder's funds invested in the company. This ratio is also known as external internal equity ratio and is calculated as follows:

$$\text{Debt to Equity Ratio } X \frac{\text{Long Term Debts}}{\text{Shareholder's Fund}}$$

f. Proprietary Ratio: A Variant of debt to equity ratio is the Proprietary Ratio which shows the relationship between

shareholder's fund and total assets. The ratio is worked out as follows:

$$\text{Proprietary Ratio } X \frac{\text{Shareholder's Fund}}{\text{Total Assets}}$$

2.20 Impact of Changes on Profit

Profit is the function of factors. It is affected by changes in volume, cost and prices. Profits may be affected by the changes, (increases or decreases), in the following factors. (Pandey, 1999; 203)

a. Effect of Price Changes

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

b. Effect of Volume Changes

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

c. Effect of Price and Volume Changes

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

Similarly, a price rise may reduce profits if there is material fall in volume.

d. Effect of Changes in Variable Costs

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

e. Effect of Change in Fixed Cost

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

f. Effect of Changes in a Combination of Factors

The financial manager or the management account, evaluating the profit plans or budgets, must realize that a change in one factors lead to a change in another factors. Therefore, all such changes should be carefully visualized and their net impact on profit must be seen.

2.21 Review of Previous Research

Many studies have been conducted in the profit planning in the context of Nepalese business firms. But in the most, CVP analysis has given less priority than others or it can be said that only few studies are mainly focused on CPV analysis. And whatever few researchers have been made,

are hot also in depth. Mostly CPV analysis is done only under the heading of profit planning and control in Nepal. Few master's level dissertation related to this study have been reviewed below.

1. **Mr. Khagendra Prasad Ojha (1995)** had conducted a research in the topic “Profit Planning in Manufacturing Public Enterprises: A case study of Royal Drug Limited and Herbal Production and Processing Company Limited.”

The major objectives of the study.

- The main objective of this study is too focused on the current of profit planning and its effectiveness in royal drug limited and herbal production and processing company limited.
- To study various costs and pricing system for the profitability and financial position of the company.

The major findings of the study.

- Inadequate planning's of profit due to lack of skilled planner.
  Inadequate authority and responsibility to planning deportment.
- Various costs are not diagnosed as controllable and non controllable expenses and pricing system is not scientific.
- Lack of entrepreneurships and commercial concepts in overall operations of the enterprises.

Recommendation of the study.

- The company should have skilled planner for better utilization of limited resources and achieve goal for advance profit planning and control.
- The company should utilize proper account and analysis various costs.

2. **Ms. Indira Ghimire (2004)** had conducted a research entitled "profit planning in manufacturing company in Nepal; A case study of Bottlers Nepal Ltd."

The major objectives of the study.

- The main objective of this study is to examine the practice of profit planning and control in the manufacturing companies in Nepal.
- To study the overall financial and profitability position of Bottlers Nepal Ltd.

Major findings of the study.

- Variables are not fully explored. Cost classification is not systematic. There is no practice of segregating semi-variable cost.
- Enterprises have no financial plan they have only sales and production forecast. There are no any proper criteria for performance evaluation for financial fools.

Recommendation of the study.

- The company should have to maintain the broad and long range objectives and periodic report.
- The company should follow the cost classification in systematic way and make a practice of segregation of semi variable cost.
- The company should follow complete profit planning programmed to generate more profit.

3. **Mr. Madhav Rijal (2005)** had conducted a research entitled "cost volume profit analysis as a tool to measure effectiveness of profit planning and control: A case study of NEBICO Pvt. Ltd."

Major objectives of the study.

- To examine the practice of CVP in the manufacturing companies in Nepal.
- To study and analyze the present application of CVP analysis in NEBICO Pvt. Ltd.

Major findings of the study:

- The company has no detailed any systematic expenses plan. The fixed, variable and mixed expenses plan is the necessary elements for profit planning and control.
- The goal and objective of the company are not clearly communicated to operating level of management.
- The company does not any appropriate and effective sales forecasting techniques and there is no effective use of CVP analysis.
- There is not proper co-ordination among production, administration, distribution, inventory and sales department.

Recommendation of the study.

- the company should apply budgetary control system and proper account and should analyze various of costs.
- the company should use systematic and complete profit planning programmed.
- the company should use CVP analysis programmed.

4. **Mr. Dhiraj Rijal (2009)** has conducted the research entitled "Cost Volume Profit Analysis of Diary Development Corporation (DDC).

Main objectives of the study.

- Examine the variance between target and actual sales plan of DDC.
- Analyze the effectiveness of Cost-Volume-Profit analysis on profitability.
- Examine the sensitivity analysis.

Major findings of the study.

- The DDC actual sales trend has fluctuated during the five year period but not satisfactorily fluctuating to meet the budgeted sales. There is less difference between budgeted sales and actual sales achievement.
- The DDC does not apply any appropriate and effective sales forecasting technique, no any plan to reduce cost. So there is no effectiveness of CVP analysis.
- There is no sensitivity analysis technique to measure the effect of change in one variable to another variable.

Recommendation of the study.

- DDC should consider CVP analysis while preparing sales plan and setting the price of its product.
- DDC should consider about the product line to improve its profit. Market studies on demand, supply and pricing of its milk product

should be carried out and loss oriented cost should be identified and controlled.

- To measure strength and competitiveness of the organization, CVP analysis tools should be used. It is recommended to analyze cost and benefit of the tools.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Research Design

Research design provides the overall framework or plan for the activities be undertaken during the research study. Since, this study revolves around the relationship between cost, volume, and profit, intensive analysis of historical and descriptive research design is used to analyze the performance of past five years from FY 2059/60 to 2063/64. To fulfill the objectives of this study, primary and secondary data are used. It also focuses on the effect of profit due to change in volume and cost.

3.2. Sources of Data

The source of data is both primary and secondary collected from the Central Office of BNL. The primary data are collected through discussion with the concern authority. The secondary data are taken from annual reports, auditor's reports, balance sheet and profit and loss accounts, cost sheets, and unpublished previous thesis relating with the BNL and other published data, etc.

3.3 Population and Sample

BNL is itself population and sample as well, as this study is based on the revenue planning. CVP analysis focused wholly on BNL and not centered to particular product. Hence, there is no difference between sample and population in this case

3.4 Data Collection and Analysis

As stated by Mr. H, K. Wolff and P.R. Pant (2005), “collecting data is the connecting link to the world of reality for the researcher.”

Primary data are collected from the concerning the differentiation of fixed and variable costs and other related elements of the P/L a/c from the concerned authority of Central Office of BNL. And since, they are not using CVP analysis, a thorough discussion with them provide a legitimate estimation of fixed and variable cost. Secondary data are collected from annual reports, Sinhabalokan, auditor's report, Balance Sheet and P/L a/c, cost sheets and other thesis concerned mostly with the BNL.

The analysis of data are done by using different tools such as, averages, percentages, and all the CVP related ratios are used to find out the relationship among the three elements-cost, volume and profits. All the findings are presented in categorized, systematic, graphical and tabulated form.

3.5 Scheme of the Study

Job well planned and well presented is half job done. Likewise, this research study has categorized systematically the research work in five different chapters.

1) Introduction, in which basic knowledge about the subject matter of topic, the organization under study, objectives of study, its significance, limitation, etc, are included.
2) Review of Literature, in which the detailed theoretical knowledge about the subject matters and other researches conducted previously on the same topics, are included.
3) Research Methodology, in which the research designs, sources of data, data collection techniques and analysis, population and sample, etc, is enclosed.
4) Presentation and Analysis of Data, under which all the data collected are presented in systematic, tabulated and well-formatted form and analyze property. Also the major findings of the study are recorded here.
5) Summary, Conclusion and Recommendations, under which the outline of the research study and its conclusions and the necessary modification and recommendation are suggested for further improvements.

CHAPTER 4
DATA PRESENATION AND ANALYSIS

Profit Planning is the formal expression of the enterprises plan goals, objectives stated in financial term for specific future period of time. It is one of the most important management tools that are used to develop effective performance and systematic approach for attaining desire goals. CVP analysis, a tool of PPC, can be most important device to utilize the cost with effective and efficient way. CVP analysis has become a powerful instrument in managerial decision making especially cost, control and profit planning. The CVP analysis is a specific way of presenting and studying the interrelationship between cost, volume and profit.

The main purpose of this research is to examine use of CBP analysis in profit planning and evaluate the present practice of CVP analysis and identify the area where CVP analysis could be applied to strengthen manufacturing industries. For this reason, BNL has been randomly selected for the study and data analysis purpose.

To meet the said objectives the secondary data is used for sales & production trend analysis, cost analysis and cost volume profit analysis. The secondary data are collected form annual report of the company.

4.1 Sales Plan of BNL

The first step in developing budgeting process of an organization begins with the preparation of sales budget. The sales planning is a necessary company of PPC because,

i. It provides for the basic management decisions about marketing.
ii. Based on those decisions, it is an organized approach for developing a comprehensive sales plan.

If the sales plan is unrealistic most if not all of the other portions of the overall profit plan also will be unrealistic.

BNL is the market leading in the soft drink producing. Due to the various external factors, BNL's sales volume is increased only by 1.15% with comparison to previous year's sales. Which is not satisfactory?

The following table shows the sales target and achievement of BNL (in Rs.) of last five years from 2002/03 to 2006/07

Table 1

Budgeted Sales and Actual Sales (in Rupees '000')

Year	Budgeted Sales (X)	Increase/ (Decrease) %	Actual Sales (Y)	Increases/ (Decrease) %	Achievement (%)

2002/03	567,000	-	535494	-	-
2003/04	670,000	18.17%	609654	13.85%	90.99%
2004/05	740,000	10.45%	632114	3.68%	85.42%
2005/06	780,000	5.41%	614739	(2.75%)	78.81%
2006/07	810,000	3.85%	621827	1.15%	76.77%

Source: Audit Report, BNL

The above table shows the budgeted sales is in increasing trend with decreasing rate. And the actual sale is in increasing trend with decreasing rate up to fiscal years 2004/05. In the fiscal year 2005/06 the actual sales is decreased by 2.75% with comparison to the actual sales of previous year. And in the fiscal year 2006/07 the actual sales is increased only by 1.15% than the actual sales of the year 2005/06.

The table 1 shows the sales target and sales achievement at the period fiscal year 2002/03 to 2006/07. The table shows the sales achievement is always less than the sales target. In the FY 2002/03 actual sales are 90.99% of budgeted sales that is the best result among the five years period and in the FY 2006/07 only 76.77% of budget sales achievement which was poorest result among the five year period.

In order to examine the nature of variability of actual sales and budgeted sales of different year the arithmetic means, standard deviation and co-efficient of variation is calculated in appendix one (1); have presented in table 2. From the result, sales achievements are less fluctuated than budgeted sales being the lower C.V. of actual sales than budgeted sales. Similarly, mean sales and standard deviation of actual sales are less than that of budgeted sales.

Table 2

Summary of Statistical Calculation of sales data

Particulars	Budgeted Sales (X)	Actual Sales (Y)
Mean	713400	602765.60
Standard Deviation	109305.99	38538.78
Coefficient of variation (C.V.)	15.32%	6.39%
Correlation Coefficient (r)	0.8052	
Probable Error (P.E.)	0.1061	
Regression Equation of best fit	Y = 400235 + 0.284 X	
Coefficient of Determination (r^2)	0.6483	

The above data shows that there is not a systematic and realistic sales plan. Budget is based on historical data only and seems that planning faction of BNL ignores all other factors that can affect the budget. Therefore, the planning section of BNL should search and try to consider those factors that can affect the budget any process. Other statistical measurements correlation coefficient and regression equation presented in table 2 shows the relationship between budgeted sales and actual sales. The value of correlation coefficient 0.8052 explains that there is positive correlation between the budgeted and actual sales. The value of probable error 0.1061 explains that the value of correlation coefficient is significant, since correlation coefficient is greater than six times of probable error.

The regression equation $\hat{y}=400235+0.28X$ helps to estimate the actual sales assuming that the budgeted sales as an independent variable where as the actual sales as a dependent variable. The estimated actual sales ($\hat{y}$) calculated in appendix one (1) is presented in table 3 below:

Table 3

Estimated Sales (in Rs. '000')

Year	Budgeted Sales (X)	Actual Sales (Y)	Estimated Actual Sales $\hat{y}$=400235+0.284X
2002/03	567000	535494	561263
2003/04	670000	609654	590515
2004/05	740000	632114	610395
2005/06	780000	614739	621755
2006/07	810000	621827	630275

The value of the coefficient of determination (r^2) 0.6483 shows the goodness of fit. It explains the actual sales achievement up to 64.83% due to budgeted sales and remaining 35.17% is due to other reasons. Therefore factors except budgeted sales that can affect the actual sales are presented but not explored yet should be considered all those factors that can affect the actual sales achievement as for as possible.

4.2 Sales-Profit Relation of BNL

The main objective of running any business organization is to earn profit. Profit is taken to measure the competency and efficiency of the management. In other words, profit is the primary measurement of business success in any economy. Profit is a residual income left after the payment to other factors of production. The difference between the outflow of expenses and inflow of incomes is called profit. In is a reward for business activities. Profit determines the strength of financial position of the company.

The uniformly or variability of Net profit of BNL is analyzed and relation between actual sales and net profit is also studied under this topic. The actual sales and Net profit of the company during five years period has present in the table below.

Table 4

Actual Sales and Actual Profit (in Rs. '000')

Year	Sales (X)	Increase/ (Decrease) %	Profit (Y)	Increases/ (Decrease) %
2002/03	535494	-	48610	-
2003/04	609654	13.85%	25672	(47.12)%
2004/05	632114	3.68%	37800	47.24%
2005/06	614739	(2.75)%	34735	(8.11)%
2006/07	621827	1.15%	24962	(28.14)%

Source: Audit Report, BNL

The above table shows that the actual sales in fluctuating trend. Up to FY 2004/05 the sales is in increasing trend with decreasing rate. Than FY 2005/06 it is decreased by 2.75% and in FY 2006/07 it is increased only by 1.15%. The highest increasing rate of profit is in the FY 2004/05 and the highest decreasing rate of profit is in the FY 2003/04 with comparison of prevision year.

In order to examine the nature of variability of actual s ales and profit of different years, the arithmetic means, standard deviation and coefficient of variation calculated in appendix two (2), have been presented in table 5. From the result, sales achievements are less fluctuated than profit being the lower C.V. of actual sales than profit.

Table 5

Summary of Statistical Calculation of Sales and Profit

Particulars	Actual Sales (X)	Actual Profit (Y)

Mean	602765.60	34355.80
Standard Deviation (S.D.)	σ_X =38538.77	σ_Y =8817.21
Coefficient of variation (C.V.)	CV_X=6.39%	CV_X=25.66%
Correlation Coefficient (r)	-0.7155	
Probable Error (P.E.)	0.1472	
Regression Equation of best fit	Y=133025.24-0.1637X	
Coefficient of Determination (r^2)	0.5119	

On the other hand mean and standard deviation of actual sales are higher than that of profit. Other statistical measurement correlation coefficient and regression equation presented in table 5 show the relationship between sales and profit. The value of correlation coefficient -0.7155 explains that there is negative correlation coefficient is lower than six times of probable error and it is insignificant. Under this condition nothing can be concluded with the help of such relation and correlation coefficient and coefficient of determination become meaningless.

The regression equation y=133.25.24-0.1637x helps to estimated the profit assuming that the sales as an independent variable where as the profit as a dependent variable. The estimated profit ($\hat{y}$) is presented in table 6 below:

Table 6

Estimated Profit

Year	Actual Sales (X)	Actual Profit (Y)	Estimated Actual Profit $\hat{y}$=400235+0.284X
2002/03	535494	48610	45365
2003/04	609654	25672	33225

2004/05	632114	37800	29548
2005/06	614739	34735	32392
2006/07	621827	24962	31232

4.3 Raw Material Plan of BNL

Material Budget deals with requirement and procurement of direct material. The determination of material usage budget demonstrates the build up of the quantities of each material to be used. BNL also prepares the raw material budget requirement of raw materials for company. Mainly, it imports the raw material from outside of the country. The table 7 shows the purchases and consumption of raw material in the company over the period.

Table 7

Raw Material Plan of BNL

(In Rs. '000')

Particulars	2002/03	2003/04	2004/05	2005/06	2006/07
Opening Stock of Raw Material	50992	85288	122780	79958	142773
Work in Process	572	640	1023	1576	1379
Production of Co_2 gas	5840	6166	6606	5862	5878
Total Opening Stock	57404	92094	130409	87396	150030
Add: Purchase of Raw Material during the year	284041	350780	232947	347870	224047
Less: Transfer from to BNTL	(323)	(8753)	13430	(8555)	(11167)
Total Stock Available (A)	341122	434121	376786	426711	362910
Less: Closing Stock of Raw Material	85288	122780	79958	142773	81601
Work in process	640	1023	1576	1379	1075

Damage stock written off	0	0	1308	0	0
Total Closing Stock (B)	85928	123803	82842	144152	82676
Material lost of production (A-B)	255194	310318	293944	282559	280234

Sources: Audit Report, BNL

4.4 Inventory Consideration

Inventory plays an important role in profit planning for every organization. The main objective of the inventory is to meet its future requirement of production and sales. Raw materials and supplies, work in process and finished stock are the main types of inventories. A certain level of inventory is needed or smooth sales activities of any organization.

BNL has a policy to maintain of any organization primarily sales. The following table 8 shows the actual inventory of raw material work is process and finished goods over the period.

Table 8

Stock of BNL

Year	Stock of Raw Materials		Stock Of Work In Progress		Stock of Finished Goods	
	Opening	Closing	Opening	Closing	Opening	Closing
2002/03	50992	85288	572	640	5979	7840
2003/04	85288	122780	640	1023	7840	7757
2004/05	122780	79958	1023	1576	7757	10722
2005/06	79958	142773	1576	1379	10722	7466
2006/07	142773	81601	1379	1075	7466	7133

Source: Audit Report; BNL

The above table shows that the inventory of finished goods in fluctuating trend. It does not represent the any type of inventory policy.

4.5 Selling and Distribution Overhead Expenses of BNL

Selling and distribution expenses are not product costs and are not allocated to specific products. All those cost related to selling, distribution and delivery of products to customers are distributing expenses. BNL has not prepared the selling and distribution overhead separately in coming years. It is also included in annual general overhead estimated by the company. So it is difficult to know about the particulars expenses of distribution channel. Here is the detail selling and distribution overhead for the year period in the table 9 below.

Table 9

Selling and distribution Expenses (in Rs '000')

Particulars	2002/03	2003/04	2004/05	2005/06	2006/07
Distribution Expenses	25015	24156	24199	19736	16955
Trade discount	18959	44572	32573	51340	56673
Advertisement and publicity	7563	7534	5360	3933	2790
Sales promotion	17205	18607	13195	5955	4628
Subscription and donation	33	47	94	124	139
Rejection and breakages	7897	6791	6710	6638	1902
Product transfer fees	1367	6502	5945	7774	6780
Total	78039	108209	108076	95500	89867

The above table shows that there are particulars expenses related to selling and distribution expenses. The expenses in trade discount are highly increased with the comparison to the expenses of FY 2002/03. On the other hand sales promotion expenses became decreased with

comparison to past years expenses. So the company has not any systematic plan related to selling and distribution expenses.

4.6 Administration Expenses of BNL

This budget includes the expenses of office administration and the overhead expenses of company BNL does not prepare the overhead budget separately. Expenses budget for the year is based on actual cost of previous year. Annual budgets on different particulars are budgeted and compared with actual heading in each FY. Here are the office and general expenses of BNL for five years period in table 10 given below.

Table 10

Office and General Expenses (in Rs. '000')

Particulars	2002/03	2003/04	2004/05	2005/06	2006/07
Salaries, Wages and other employees cost	23156	26691	26560	27881	32743
Contribution to provident fund, gravity	3814	2906	2876	976	2543
Rent	626	1007	628	402	1381
Repair and maintenance	2892	4063	4793	3089	4447
Electricity, fuel and water	172	155	103	118	156
Traveling expenses	1717	1363	1847	8240	6790
Security expenses	1570	32	12		382
SAP related expenses					6291
Audit fees	220	220	220	220	220
Legal and professional fees and expenses	533	521	7775	648	1131
Rates and taxes	492	133	182	187	352

Bank charges	4853	153	672	307	288
General meeting expenses	25	21	35	48	52
Insurance premium	215	274	941	87	180
Communication expenses	5075	3305	3690	6844	5493
Printing and Stationery	713	680	813	715	1313
Training	11	157	717	1316	8110
Uniform	505	307	517	476	613
Obsolete stock and fixed assets written off	397	556	2655	717	5805
Management fees	1425	2817	4421	6276	6643
Miscellaneous expenses	1837	1031	1238	768	971
Total	50248	46392	60695	59315	85904

Source: Audit Reports; BNL

The above table shows that there is remarkable variation in expenses for different years. So we can say that performance of administration is not good.

4.7 Cost Variability

Identification of the variability of cost is necessary in planning and controlling of the cost. Thus the knowledge of cost behavior in two ways with relation to the volume of output. One is fixed cost that remains constant in total for a certain level of output and the period. Second is variable cost that charges directly in total with the change of output level but remains constant in cost per unit of output.

In the case of BNL there is not any applicable basis of cost classification in to variable and asset and fixed cost to segregate the mixed cost into fixed and variable cost the company has provided the information about the degree of variability of the cost. All semi variable cost have

segregation on the basis of the given information and details of segregation has presented in appendix four (4). The following table 11 shows information about the degree of variability of cost provided by the company.

Table 11

Cost Head and Their Variability

Cost Heads	Cost Variability	Cost Heads	Cost Variability
Material Cost	Variable	Depreciation & Amortization	Fixed
Production Cost	30% Fixed		Fixed
Distribution Expenses	30% Fixed	Accommodation Expenses	Fixed
Trade Discount	Variable	Staff Bonus	Fixed
Advertisement	50% Fixed	Audit Fee	50% Fixed
Sales Promotion	70% Fixed	Legal Expenses	Fixed
Rejection & Breakages	Variable	Rate & Taxes	Fixed
Product Transfer Fee	Variable	Bank Changes	Fixed
Salaries, Wages & other Employees Cost	Fixed	General Meeting Expenses	Fixed
Contribution to Provident Fund & Gratuity	Fixed	Insurance Premium	90% Fixed
Security Expenses	Fixed	Communication Expenses	70% Fixed
Rent	Fixed	Printing & Stationary	70% Fixed
Repairs and Maintenance	50% Fixed	Training	Fixed
Power and Fuel	20% Fixed	Uniform Expenses	Fixed
Traveling Expenses	Variable	Management Fees	Fixed
Interest Expenses	Fixed	Obsolete Stock & Fixed Assets Written Off	Fixed

Subscription & Donation	Variable	Miscellaneous Expenses	50% Fixed

Source: BNL Office

4.8 Profitability and Financial Ratios

An arithmetic relationship expressed in the form of percentage or in fraction is known as ratio. Ratio analysis is a technique or analysis and interpretation of financial statement. To evaluate the performance of an organization by creating the ratio from the figures of different accounts by consisting in balance sheet and income statement is known as ratio analysis.

Ratio can e classified into four broad groups. One of them; profitability ratio shows the overall efficiency of the business concerns another one, financial shows long term as well as short term solvency of the concern.

4.8.1 Profitability Ratio Analysis

Profitability ratio can be determined on the basis of either sale on investments. Different profitability ratios calculated in appendix 5 table 20 to 24 are presented in table 12 below.

Table 12

Profitability Ratio

Particulars	2002/03	2003/04	2004/05	2005/06	2006/07
Gross Profit Ratio	42.77%	38.28%	43.31%	41.87%	43.33%
Operating Profit Ratio	19.10%	13.13%	16.62%	16.49%	15.92%

Net Profit Ratio	9.08%	4.21%	5.98%	5.65%	4.01%
Return on shareholders Investment	6.98%	3.64%	5.20%	4.56%	3.54%
Return on Total Assets	4.69%	2.47%	4.19%	3.51%	2.37

From the above table, it can be said that the rate of return either in terms of sales or in terms of investment is not stable or it is in fluctuating trend. Gross profit ratio is highest in the FY 2006/07 and lowest in the FY 2003/04. Similarly, the operation profit ration is highest in the FY 2002/03 and lowest in the fiscal year 2003/04. All the remaining ratios are highest in the fiscal year 2002/03 and lowest in the fiscal year 2006/07. In the FY 2006/07 only the gross profit ratio is improved other ratios are hot in improving trend.

4.8.2 Financial Ratio Analysis

Financial ratios are calculated to see the short term as well as long term solvency of the firm. Different financial ratios calculated in appendix 5, table25 to 29 are presented below.

Table 13

Financial Ratios

Ratios	Ideal ratio	2002/03	2003/04	2004/05	2005/06	2006/07
Current ratio	2:1	1.49:1	1.60:1	2.57:1	1.98:1	1.58:1
Quick ratio	1:1	0.43:1	0.28:1	0.78:1	0.36:1	0.36:1
Fixed Assets ratio	<1	0.76	0.71	0.62	0.70	0.79

Ratio of current Assets to Fixed Assets	-	0.96	1.09	1.02	0.87	0.71
Proprietary ratio	1:3	0.67	0.70	0.81	0.77	0.67

In the table 13, the current ratio is in fluctuating trend and it is higher than the ideal ratio in FY 2004/05 and it is consideration in the FY 2005/06. But it is lower than the ideal ratio in others year. Quick ratio is lower than the ideal ratio in every year. So, it can be said that the solvency of the company is being not good. Fixed assets ratio is considerable in each year and ratio of current assets to fixed assets is in fluctuating trend. Since FY 2003/04 it is in decreasing trend. Since FY 2003/04 it is in decreasing trend up to FY 2006/07. It shows that the business is not in expending trend. Proprietary ratio is much higher than the ideal ratio because there is no any long term debt of the company shown in the balance sheet except in the FY 2006/07. The financial condition and solvency of the company is satisfactory but not good enough.

4.9 Cost Volume Profit Analysis of BNL

The relationship among cost, revenue and profit is known as Cost Volume Profit Analysis. CVP analysis is a powerful instrument in management decision making especially in cost control and profit planning. It helps to determine the minimum sales volume to avoid losses and the sales volume at which the targeted profit amount of the company will be achieved.

Profit planning can done only when the management has information about the cost of products, both fixed and variable costs and the selling

price of the product. CVP analysis is especially applied for profit planning and control. The CVP relationship will be established by break even analysis.

4.9.1 Break even analysis excluding other incomes and ending inventory

Table 14

Income Statement for the Year 2002/07

Particular	2002/03	2003/04	2004/05	2005/06	2006/07
Sales Revenue	535494	609654	632114	614739	621827
Less: Variable Cost of Goods Sold	350479	445550	436714	428785	431400
Contribution Margin	185015	164104	195400	185954	190427
Less: Fixed Cost	145598	146576	160829	146731	163184
Earning Before Tax	39417	17528	34591	39223	27243
Profit Volume Ratio	0.35	0.27	0.31	0.30	0.31
Break Even Sales	421408	544537	520278	485073	532867
Margin of Safety	114086	65117	111836	129666	88960
Margin of Safety Ratio	21 %	11 %	18 %	21 %	14 %

a. Contribution Margin

The difference between sales amount and variable cost is known as the contribution margin. In other words fixed cost plus the amount of profit is equivalent to contribution margin. Contribution margin can be expressed by:

Contribution Margin = Sales Volume – Variable Cost

The above table shows the calculation of contribution margin of BNL for the five years period. Contribution margin for the period is fluctuated trend. It was Rs. 195015000, 164104000, 195400000, 185954000 and 190427000 for the fiscal year 2002/03, 2003/04, 2004/05, 2005/06 and 2006/07 respectively.

b. Profit Volume Ratio:

It establishes a relationship between the contribution and sales volume. The factors profit and volume are interconnected and dependent with each other. Profit depends upon sales. It can be expressed by:

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

From the above table, the profit volume ratio of BNL for different years in decreasing trend. The profit volume ratio is 0.35, 0.27, 0.31, 0.30 and 0.31 approximately for the fiscal year 2002/03, 2003/04, 2004/05, 2005/06 and 2006/07 respectively. An increase in contribution margin would means increase in profit only because fixed costs are assumed to constant at all levels of production.

This ratio would remain constant at different levels of productions since variable costs as of proportion to sales remain constant at various levels. Management should try to increase the value of the ratio by reducing the variable cost or by increasing the selling price.

c. Break Even Point

The point which breaks the total costs and 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. Through contribution margin approach, break even point can be expressed by:

$$\text{Break Even Point (in amount)} = \frac{\text{Fixed Costs}}{\text{PV/ Ratio}}$$

In the above table, break even sales of BNL are 421408000, 544537000, 520278000, 485073000 and 532867000 for the fiscal year 2002/03, 2003/04, 2004/05, 2005/06 and 2006/07 respectively. The trend of break even sales shows that it is in fluctuating trend.

d. Margin of Safety

It is the difference between the actual sales revenue and the break even sales revenue. It can be expressed by:

Margin of Safety = Actual Sales – Break Even Sales

The table shows the margin of safety is in fluctuating trend. It is Rs. 114086000, 65117000, 111836000, 129666000 and 8896000 for the fiscal year 2002/03, 2003/04, 2004/05, 2005/06 and 2006/07 respectively. The higher margin of safety indicates the better profitability of the company. It is highest in year 2005/06 and it is lowest in year 2003/04.

4.9.2 Cash Break Even Point

The CVP relationship can also be used to show the liquidity position of the firm. This is done through the computation of cash break even point or cash break even sales revenue (CBEP in amount). It can be expressed by:

$$\text{CBEP } X\frac{\text{Cash Fixed Costs}}{\text{P/V Ratio}}$$

Table 15

Calculation of Cash Break Even Point of the Year 2002/03 to 2006/07

Particular	2002/03	2003/04	2004/05	2005/06	2006/07
Sales Revenue	535494	609654	632114	614739	621827
Contribution Margin	185015	164104	195400	185954	190427
Cash Fixed Cost	93635	89743	94802	85149	97799
Profit Volume Ratio	0.35	0.27	0.31	0.30	0.31
Cash Break Even Sales	267557	332381	305813	283830	315481
Percent of Break Even Sales	50 %	55 %	48 %	46 %	51 %
Margin of Safety	267937	277273	326301	330909	306346
Margin of Safety Ratio	50 %	45 %	52 %	54 %	49 %

a. Break Even Point

The point which breaks the total cash costs and selling price evenly to show either the level of output or sales at which there shall be neither profit nor losses of cash is regarded as cash break even point. Through contribution margin approach, cash break even point can be expressed by:

$$\text{Cash Break Even Point (in amount)} = \frac{\text{Cash Fixed Costs}}{\text{P/V Ratio}}$$

In above table, cash break even sales of BNL are Rs. 267557000, 332381000, 305813000, 283830000, and 315481000 for the fiscal year 2002/03, 2003/04, 2004/05, 2005/06 and 2006/07 respectively. The trend of break even sales shows the fluctuating trend.

b. Margin of Safety

It is the different between the actual sales revenue and the break even sales revenue. It can be expressed by:

Margin of Safety = Actual Sales – Break Even Sales

The table shows the margin of safety is in increasing trend from fiscal year 2002/03 to 2005/06. Then in the fiscal year 2006/07 the margin of safety is decreased. The margin of safety is Rs. 267937000, 277273000, 326301000, 330909000 and 303646000 for the fiscal year 2002/03, 2003/04, 2004/05, 2005/06 and 2006/07 respectively. The higher margin of safety indicates the better profitability of the company. It is highest in year 2005/06 and it is lowest in year 2002/03.

4.10 Change Effect and Relationship of CVP Analysis Factors

Profit is the function of variety of factors. It is affected by changes in volume, cost and prices. Profit may be affected by the changes in price volume, variable costs, fixed cost and combination of factors which shows proportionate relationship, positive relationship, inverse relationship and no relationship. Lower BEP is better than the higher BEP for the comparison of results.

4.10.1 Change Effects of Sales Volume

An increase in the sales value will increase profit volume relation and as a result will lower the break even point. On the opposite a decrease in sales value will reduce the profit volume ratio and therefore, results in a higher break even point. If increase and decrease of sales value by 10 % with other factors assumed to remain the same, it gets following results:

Table 16

Income Statement with Change in Sales Value for the Year 2002/03 to 2006/07

Year		Sales	VC	CM	F.C.	Profit	P/V Ratio	BEP	% Change in BEP
2002/03	Original	535494	350479	185015	145598	39417	0.35	421408	-
	10 % Increase	589043	350479	238564	145598	92966	0.41	359499	(15 %)
	10 % Decrease	481945	350479	131466	145598	(14132)	0.27	533752	27 %
2003/04	Original	609654	445550	164104	146576	17528	0.27	544537	-
	10 % Increase	670619	445550	225069	146576	78493	0.34	544537	(20 %)

	10 % Decrease	548689	445550	103139	146576	(43437)	0.19	779769	43 %
2004/05	Original	632114	436714	195400	160829	34571	0.31	520278	-
	10 % Increase	695325	436714	258611	160829	97782	0.37	432419	(17) %
	10 % Decrease	568903	436714	132189	160829	(28640)	0.23	692161	33 %
2005/06	Original	614739	428785	185954	146731	39223	0.30	485073	-
	10 % Increase	676213	428785	247428	146731	100697	0.37	401011	(17 %)
	10 % Decrease	553265	428785	124480	146731	(22250)	0.23	652162	34 %
2006/07	Original	621827	431400	190427	163184	27243	0.31	532867	-
	10 % Increase	684010	431400	252610	163184	89426	0.37	441865	(17 %)
	10 % Decrease	559644	431400	128244	163184	(34940)	0.23	712119	34 %

The above table 16 shows the break even amount has decreased with the increase in sales value by 10 %, that indicates the price or value of sales and break even point has inverse relation. Similarly, the decreased sales value by 10 % increased the break even sales. There is the increment of BEP by 27 %, 43 %, 33 %, 34 % and 34 % with the 10 % decrease in the sales volume in the fiscal year 2002/03, 2003/04, 2004/05, 2005/06 and 2006/07 respectively. Similarly, there is the reduction of BEP by 15 %, 20 %, 17 %, 17

% and 17 % with the 10 % increase in sales volume in the year 2002/03, 2003/04, 2004/05, 2005/06 and 2006/07 respectively.

From the observation the ratio of increment is higher the rate of reduction in BEP with the constant changes of sales volume in the respective years. Therefore, it can be said that the decrease in sales affects the company more than the increase in sales by same percent. Due to the slightly fluctuating sales trend the company should careful specially those controllable factors that may reduce the sales volume.

4.10.2 Change Effect of Variable Costs

The impact of changes in variable costs on profit is straight forward if it does not cause any changes in selling price or volume. An increase in variable cost will lower the PV ratio and decrease in variable cost will increase the PV ratio. Increase and decrease of variable costs by 10 % with other factors assumed to remain the same, if gets following results:

Table 17

Income Statement with Change in Variable Cost for the Year 2002/03 to 2006/07

Year		Sales	VC	CM	F.C.	Profit	P/V Ratio	BEP	% Change in BEP
2002/03	Original	535494	350479	185015	145598	39417	0.35	421408	-
	10 % Increase	535494	385527	149967	145598	4369	0.28	519893	23 %

	10 % Decrease	535494	315431	220063	145598	74465	0.41	354293	(16 %)
2003/04	Original	609654	445550	164104	146576	17528	0.27	544537	-
	10 % Increase	609654	490105	119549	146576	(27027)	0.20	747481	37 %
	10 % Decrease	609654	400995	208659	146576	62083	0.34	428262	(21 %)
2004/05	Original	632114	436714	195400	160829	34571	0.31	520278	-
	10 % Increase	632114	480385	151729	160829	(9100)	0.24	670025	29 %
	10 % Decrease	632114	393043	239071	160829	78242	0.38	425239	(18 %)
2005/06	Original	614739	428785	185954	146731	39223	0.30	485073	-
	10 % Increase	614739	471664	143075	146731	(3656)	0.23	630447	30 %
	10 % Decrease	614739	385907	228832	146731	82101	0.37	394181	(19 %)
2006/07	Original	621827	431400	190427	163184	27243	0.31	532867	-
	10 % Increase	621827	474540	147287	163184	(15897)	0.24	688942	29 %
	10 % Decrease	621827	388260	233567	163184	70383	0.37	434446	(18 %)

The table 17 shows that 10% increase in variable cost increase the break even point and 10% decrease in variable costs decreases the break even point which indicates that variable costs and break even point have positive relationship. There is the increment of BEP by 23% , 37% 29%, 30% and 29% with the 10% increase in variable costs in the year 2002/03, 2003/04, 2004/05, 2005/06 and 2006/07 respectively similarly there is the reduction of BEP by 16%, 21%, 18%, 19%, and 18% with the 10% decrease variable cost in the year 2002/03, 2003/04, 2004/05, 2005/06 and 2006/07 respectively.

From the observation the rate of increment is higher than the rate of reduction in BEP with the constant change in variable cost in the respective years. There fore, it can be said that the increase in variable cost affects the company more than the decrease in variable cost by same percent and the change trend of variable cost is in fluctuation trend. Therefore company should careful in the fluctuation of variable cost especially in those controllable factors that may increase the variable cost and should try to control the cost to get stability in variable cost.

4.10.3 Change effect of fixed costs

A change in fixed costs does not influence PV ratio other factors remaining the same a fall in fixed costs will lower the BEP and raise the profit an increases in fixed costs causes an increment in BEP and decrease the profit. The changes of fixed costs with other factors remaining the same it will get the following result:

Table 18

Income statement with change in fixed cost for the year 2002/03 to 2006/07

(in Rs.'00')

Year		Sales	VC	CM	F.C.	Profit	P/V Ratio	BEP	% Change in BEP
2002/03	Original	535494	350479	185015	145598	39417	0.35	421408	-
	10 % Increase	535494	350479	185015	160158	24857	0.35	463550	10 %
	10 % Decrease	535494	350479	185015	131038	53977	0.35	379267	(10 %)
2003/04	Original	609654	445550	164104	146576	17528	0.27	544537	-
	10 % Increase	609654	445550	164104	161234	2870	0.27	598992	10 %
	10 % Decrease	609654	445550	164104	131918	32186	0.27	490082	(10 %)
2004/05	Original	632114	436714	195400	160829	34571	0.31	520278	-
	10 % Increase	632114	436714	195400	176912	18488	0.31	572306	10 %
	10 % Decrease	632114	436714	195400	144746	50654	0.31	468250	(10 %)
2005/06	Original	614739	428785	185954	146731	39223	0.30	485073	-
	10 % Increase	614739	428785	185954	161404	24550	0.30	533580	10 %

	10 % Decrease	614739	428785	185954	132058	53896	0.30	436566	(10 %)
2006/07	Original	621827	431400	190427	163184	27243	0.31	532867	-
	10 % Increase	621827	431400	190427	179502	10925	0.21	586152	10 %
	10 % Decrease	621827	431400	190427	146866	43561	0.31	479581	(10 %)

The table 18 shows that the 10 % increase in fixed costs increases the BE amount with same percentage and 10 % decrease in fixed costs decreases the BE amount by 10 %. Therefore it can be concluded that break even point and fixed costs have proportionate relationship. From the observation, the change in fixed cost affects the BEP in same rate and the fixed costs of the company is in fluctuating trend. Therefore, company should analyze the nature and variability of cost and find the real and actual fixed cost. Since, the current system of cost analysis and segregation is not scientific and practical.

4.11 Major findings

The major findings of this study based on the analysis of available secondary data are pointed out as follows:

- The company has not maintained the broad and long range objectives and periodic report and objectives are limited to the high ranking officials only.
- Relevant internal and external market variables are not fully explored.
- Sales targets are not achieving because there is not an effective forecasting system.

- Enterprises has no financial plan, they have sales and production plan in term of required target.
- The company's sales trend is in increasing with decreasing rate up to FY 2004/05 thereafter in fluctuating trend.
- There is no any effective plan for cost reduction and control.
- There is lack of effective cost control programmes or techniques.
- The profit trend of the company is not satisfactory. As compared to profit, proportion is very low with fluctuated trend.
- The company has no detailed and systematic expenses plan. The fixed, variable and mixed expenses plan is the necessary elements for profit planning and control.
- In the company, there is no effective inventory policy. The inventory management, raw material handling and controlling system are not efficient and effective.
- BNL has not proper practice of segregating the costs into fixed and variable or controllable and non controllable.
- Management information system is not performance based.
- There are no any proper criteria for performance evaluation for financial tools.
- The profitability position of the company was satisfactory but not as expected.
- There is no effective use of C-V-P analysis.

CHAPTER 5

SUMMARY, CONCLUSION & RECOMMENDATION

5.1 Summary

Profit planning of the companies and firms has become very important and necessary tools for both deficit and surplus units of the growing financial markets of our country Nepal. So, profit plan is the lifeblood of

every organization, which not only keeps it alive but also assures the future and creates the soundness on it. PPC means the development of objectives, which motivates the organization to achieve the objectives effectively and efficiently. It is one of the most important mechanisms for planning and controlling business operations. The effective operation of a business concern resulting into the excess of income over the expenditure fully depends upon as to what extent the management follows proper planning, effective coordination and dynamic control.

Management can effectively achieve organizational objectives through the efficient use of scarce available resources in a changing environment of business. Future is uncertain which creates risk and only the good management can reduce it. CVP analysis is an analytical technique for studying the relationship between volume, costs and profit which help to manage future costs and profit. Profit planning is a management technique and it is a written plan in all aspect of business operations for definite future period. CVP analysis is a technique used to determine the usefulness and effectiveness of profit planning process of the organization. In fact, the entire field of profit planning has become associated with the CVP inter relationship.

The main objective of the present research was to examine the use of cost-volume-profit analysis to plan the profit so, this study was undertaken to evaluate CVP analysis of the company. It has observed that BNL has succeeded in living up to the expectation of general position and main producer company of soft drinks and beverages for all over the country. As per the nature of the study, the secondary data have been used and related other information has collected by informal interviews for sales analysis, costs analysis, inventory analysis, contribution margin analysis, P/V ratio analysis, BEP analysis.

From the analysis, the cost volume profit analysis shows that the company has low contribution, low P/V ratio, high BEP and low margin of safety. The sensitivity test of cost volume profit analysis shows that the increase in costs (i.e. variable and fixed), increase the BEP and the decrease in costs decreases the BEP. But increase of selling price decreases the BEP. It indicates the relationship between selling price and BEP is negative correlate. To fulfill the company's objectives, it takes burden of all types of fixed costs but not control effectively. Company's profit condition is satisfactory. Lack of details information and extra cost burdens are the mains reasons behind not practicing profit planning and control tools like a CVP analysis.

5.2 Conclusion

Different types of theoretical tools and techniques of profit planning have not been applied by BNL. It shows gap between the theory and practice. BNL has not applied cost volume profit analysis and segregation of costs into fixed and variable. Increasing and decreasing some variable cost haphazardly in each year is another remarkable problem for BNL. They have not adopted the cost control programmed. Company had no clear cut boundaries to separate cost into fixed and variable. The classification of cost is not scientific and systematic. Therefore, BNL has not been able to CVP analysis and make the realistic budget.

After analyzing in detail the present practice on the field of profit planning in BNL, the following matters can be concluded.

- **Lack of Clear Objectives**

The objectives of the company are not clearly defined. There is not a long term strategic plan to achieve the unclear defined objectives. There is not complete and comprehensive budgeting system. BNL has not prepared long term strategic profit plan but has prepared only short term profit plan in terms of budget for each year.

- **Lack of Skilled Planner and Budgeting Experts**

  There is not a scientific budgeting system. Budgets are prepared on traditional basis. There is no planning for purchasing of materials and sales of goods. All overhead expenses are shown in general expenditures budget.

- **Lack of Participatory Management**

  The plans are prepared from top level and later it is communicated to the lower level in terms of required target but not in the term of the action plan. There is lack of authorities to formulate various plans in lower level management.

- **Lack of Analyzing System of SWOT**

  Company has not analyzed its strength and weakness. Quality products, local manpower, latest production technology, etc. are the strength whereas high production costs, market competition, difficulties to import raw materials, high fixed costs, etc. are the weakness of the company.

- **Ineffective Budgeting Control System**

Fixed cost and non manufacturing cost are growing higher. Past year actual cost is taken as a budget for the current year and there is not any programmed to study about variation between budget and actual expenditures.

- **Not Optimum Utilization of Fixed Cost**

  There is not the optimum utilization of fixed cot because the fixed cost are growing higher with out any reason and from this situation the relation between actual sales and actual profit has become and unpredictable relation.

- **Lack of Systematic Accounting and Classification of Cost**

  There is no systematic classification of cost as fixed and variable components. There is not the system of analysis of cost and clear cut policy to separate semi variable cost into fixed and variable. The costs are roughly classified and such classification is not scientific and appropriate.

- **Lack of Suitable Inventory Policy**

  BNL has no inventory policy. The finished goods inventory levels have been fluctuating each year.

- **Lack of Systematic and Complete Profit Planning Programme**

  Total sale achievements are fluctuating year after year. Similarly gross profit margin and net profit margin are in fluctuating trend. So, the rate of trend and growth is not stable. The company has not developed the alternative plan to earn profit.

There is significant correlation between sales target and sales achievement. It indicates that increased in targeted sales will also increase achievement sales. The regression line about sales of BNL indicates a positive trend. Coefficient of determination of sales shows that there are some other factors are affecting the forecasting of sales. But BNL has not searched those factors to make its profit plan complete and systematic.

5.3 Recommendations

On the basis of the study of use of CVP analysis to plan the profit of BNL, it seems necessary to develop, implement and improve the process of CVP analysis form beginning to end with PPC. Nepal is proceeding towards globalization with membership of WTO. Nepalese companies should fit with the global environment with best fitted managerial strategies. For better utilization of the limited resources and achieve goal through strong competition, application of advance profit planning and control tools can be of great help. Thus the recommendations based on the findings of the research study are as follow:

- Formulate the clear objectives
- Analyze the SWOT
- Apply participatory management system
- Apply budgetary control system
- Proper account and analysis of cost
- Classify the variability of cost
- Optimum utility of fixed cost
- Use effective inventory policy
- Use systematic and complete profit planning programme
- Use performance report

- Effective use of C-V-P analysis.

- **Formulate the clear objectives**
- The objectives are the basic guidelines of the company therefore BNL should clearly define its broad objectives, similarly duties and responsibilities of employees should be clearly defined.

- **Analyze the SWOT**
- For long life of the company it should analyze its strengths and weaknesses in internal environment of company and its opportunities and threats in external environment of the company.

- **Apply participatory management system**
- The participative management can play the important role in implementation of decisions. Therefore the company should try to involvement of more personnel in decision making process as far as possible. The CVP and PPC manuals should be communicated from top to lower levels of the company.

- **Apply budgetary control system**
- To strengthen the competitiveness of BNL and to carry out PPC activities, the company should use the profit planning and controlling tools. For budgeting activities tools like CVP analysis should consider for planning.

- **Proper account and analysis of cost**
- Cost control department should establish separately which will identify and analyze the variability and controllability of cost

correctly that may give the right ideas to control the cost. From this uneconomical and idle costs will decrease automatically.

- **Classify the variability of cost**
- Classification of expenses and cost from their nature of variability is very essential. From this application of CVP analysis and preparation of flexible budgets becomes exact and easier.

- **Optimum utility of fixed cost**
- BNL has invested huge amount of capital in fixed cost. Therefore the company should try to maximum and effective utilization of fixed cost to generate profit.

- **Use effective inventory policy**
- The ending inventory of the company does not show the any inventory policy. Therefore the company should apply the effective inventory management policy, raw material handling and controlling system for continuous production and selling of the product.

- **Use systematic and complete profit planning programme**
- A systematic and complete profit planning programme should be followed to generate more profit. From this the efficiency and profitability of the company may be improved.

- **Use performance report**

- Finally, a system of periodical performance reports should be strictly followed to be conscious about poor performance and take corrective actions immediately.

- **Effective use of C-V-P analysis.**
- The company should use C-V-P analysis as a tool for short term
- Future planning.

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APPENDIX

TABLE- 1

Calculation of Statistical Measurement of Actual Sales and Budgeted Sales

Year	Budgeted Sales (x)	Actual Sales (y)	$(X - \bar{X})$	$(Y - \bar{Y})$	$(X - \bar{X})(Y - \bar{Y})$	$(X - \bar{X})^2$	$(Y - \bar{Y})^2$
2002/03	5,67,000	5,35,494	–1,46,400	–67,271.6	9,84,85,62,240	21,43,29,60,000	45,24,68,167
2003/04	6,70,000	6,09,654	–43,400	–6,888.4	29,89,56,560	1,88,35,60,000	4,74,50,054.56
2004/05	7,40,000	6,32,114	26,600	29,348.4	78,06,67,440	70,75,60,000	86,13,282.6
2005/06	7,80,000	6,14,739	66,600	11,973.4	79,74,28,440	4,43,55,60,000	14,33,62,307.6
2006/07	8,10,000	6,21,827	96,600	19,061.4	1,84,13,31,240	9,33,15,60,000	3,63,36,970
Total	**35,67,000**	**30,13,828**	**0**	**0**	**13,56,69,45,920**	**47,79,12,00,000**	**5,94,09,46,082**

Mean Budgeted Sales $\bar{X} = \frac{X}{N} = \frac{3567000}{5} = 713400$ *Rs.*713400000

Mean Actual Sales $\bar{Y} = \frac{Y}{N} = \frac{3013828}{5} = 602765.6$ *Rs.*602765600

Standard Deviation of Budgeted Sales

$$\sigma_x = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}} = \sqrt{\frac{47791200000}{5 - 1}} = 109305.9925$$ *Rs.*109305992.50

Standard Deviation of Actual Sales

$$\sigma_Y = \sqrt{\frac{\sum (Y - \bar{Y})^2}{N - 1}} = \sqrt{\frac{5940946082}{5 - 1}} = 38538.77646$$ *Rs.*38538776.46

Coefficient of Variation of Budgeted Sales ($C.V_X$) $= \frac{\sigma_X}{\bar{X}} \times 100\%$

$$= \frac{109305992.50}{713400000} \times 100\%$$

$= 15.32\%$

Coefficient of Variation of Actual Sales ($C.V_Y$) $= \frac{\sigma_Y}{\bar{Y}} \times 100\%$

$$= \frac{38538766.46}{602765600} \times 100\%$$

$= 6.36\%$

Correlation Coefficient $r_{XY} = \frac{\sum(X-\bar{X})(Y-\bar{Y})}{\sqrt{\sum(X-\bar{X})^2 \sum(Y-\bar{Y})^2}}$

$$= \frac{13566945920}{\sqrt{47791200000 \times 5940946082}}$$

$$= \frac{13566945920}{16850072470}$$

$$= 0.8052$$

Probable Error (P.E.) $= 0.6745 \times \frac{1-r_{XY}^2}{\sqrt{N}}$

$$= 0.6745 \times \frac{1-(0.8052)^2}{\sqrt{5}}$$

$$= 0.1061$$

Regression equation of actual sales (Y) on budgeted sales (X) is given by

$$Y - \bar{Y} = r_{XY} \frac{\sigma_Y}{\sigma_X}(X - \bar{X})$$

$$Y - 602765.60 = 0.8052 \times \frac{38538.78}{109305.99}(X - 713400)$$

$$Y = 400235 + 0.284X$$

Coefficient of Determination = $r^2 = (0.8052)^2 = 0.6483$

Calculation of Estimated Sales:

2002/03	$\hat{Y} = 4,00,235 + 0.284 \times$	5,67,000	= 5,61,263
2003/04	$\hat{Y} = 4,00,235 + 0.284 \times$	6,70,000	= 5,90,515
2004/05	$\hat{Y} = 4,00,235 + 0.284 \times$	7,40,000	= 6,10,395
2005/06	$\hat{Y} = 4,00,235 + 0.284 \times$	7,80,000	= 6,21,755
2006/07	$\hat{Y} = 4,00,235 + 0.284 \times$	8,10,000	= 6,30,275

TABLE- 2

Calculation of Statistical Measurement of Actual Sales and Actual Profit

Year	Budgeted Sales (x)	Actual Sales (y)	$(X-\bar{X})$	$(Y-\bar{Y})$	$(X-\bar{X})(Y-\bar{Y})$	$(X-\bar{X})^2$	$(Y-\bar{Y})^2$
2002/03	5,35,494	48,610	–67,271.6	14,254.2	–95,89,02,840.70	4,52,54,68,167	20,31,82,217.60
2003/04	6,09,654	25,672	–6,888.4	–8,683.8	5,98,17,487.92	4,74,50,054.56	75,40,832.44
2004/05	6,32,114	37,800	29,348.4	3,444.2	10,10,81,759.30	86,13,28,582.6	1,18,62,513.64
2005/06	6,14,739	34,735	11,973.4	379.2	45,40,313.28	14,33,62,307.6	1,43,792.64
2006/07	6,21,827	24,962	19,061.4	–9,393.8	–17,90,58,979.30	36,33,36,970	8,82,43,478.464
Total	**30,13,828**	**1,71,779**	**0**	**0**	**–97,25,22,259.5**	**5,94,09,46,082**	**31,09,72,834.8**

Mean Actual Sales $\bar{X} = \frac{\sum X}{N} = \frac{3013828}{5} = 602765.6$ *Rs.*60,27,65,600

Mean Actual Profit $\bar{Y} = \frac{\sum Y}{N} = \frac{171779}{5} = 34355.8$ *Rs.*3,43,55,800

Standard Deviation of Actual Sales

$$\sigma_x = \sqrt{\frac{\sum (X-\bar{X})^2}{N-1}} = \sqrt{\frac{5940946082}{5-1}} = 38538.77$$ *Rs.*3,85,38,770

Standard Deviation of Actual Profit

$$\sigma_Y = \sqrt{\frac{\sum (Y-\bar{Y})^2}{N-1}} = \sqrt{\frac{310972834.8}{5-1}} = 8817.211$$ *Rs.*88,17,211

Coefficient of Variation of Actual Sales ($C.V_X$) $= \frac{\sigma_X}{\bar{X}} \times 100\%$

$= \frac{38538770}{602765600} \times 100\%$

$= 6.39\%$

Coefficient of Variation of Actual Profit ($C.V_Y$) $= \frac{\sigma_Y}{\bar{Y}} \times 100\%$

$= \frac{8817211}{34355800} \times 100\%$

$= 6.36\%$

Correlation Coefficient $r_{XY} = \frac{\sum (X-\bar{X})(Y-\bar{Y})}{\sqrt{\sum (X-\bar{X})^2 \sum (Y-\bar{Y})^2}}$

$$X \frac{972522259.5}{\sqrt{5940946082 \mid 310972834.8}}$$

$$X Z 0.7155$$

Probable Error (P.E.) $$X 0.6745 \mid \frac{1 - r_{XY}^2}{\sqrt{N}}$$

$$X 0.6745 \mid \frac{1 Z f Z 0.7155 Å}{\sqrt{5}}$$

$$X 0.1472$$

Regression equation of actual profit (Y) on actual sales (X) is given by

$$Y - \overline{Y} X r_{XY} \frac{\pm_Y}{\pm_X} \int X - \overline{X} Å$$

$$Y Z 34355.8 X Z 0.7155 \mid \frac{8817.211}{38538.77} \mid fX Z 602765.6 Å$$

$$Y X 133025.24 Z 0.1637 X$$

Coefficient of Determination = $fr Å X (0.7155)^2 X 0.5119 X 51.19\%$

Calculation of Estimated Profit:

2002/03 $\hat{Y} X 1,33,025.24 Z 0.1637 \mid 5,35,494 = 45,364.87$

2003/04 $\hat{Y} X 1,33,025.24 Z 0.1637 \mid 6,09,654 = 33,224.88$

2004/05 $\hat{Y} X 1,33,025.24 Z 0.1637 \mid 6,32,114 = 29,548.18$

2005/06 $\hat{Y} X 1,33,025.24 Z 0.1637 \mid 6,14,739 = 32,392.47$

2006/07 $\hat{Y} X 1,33,025.24 Z 0.1637 \mid 6,21,827 = 31,232.16$

TABLE- 3

Income Statement (In Rs '000')

Particular	2002/03	2003/04	2004/05	2005/06	2006/07
Sales Revenue	**5,35,494**	**6,09,654**	**6,32,114**	**6,14,739**	**6,21,827**
Less: Cost of Goods Sold	3,06,480	3,76,263	3,58,377	3,57,350	3,51,080
Gross Profit	**2,29,014**	**2,33,391**	**2,73,737**	**2,37,389**	**2,70,747**
Other Income	1,611	1,263	90	1,161	859
Business Expenditure:					
Distribution Expenses	25,051	24,156	24,199	19,736	16,955
Administration & General Exp.	1,03,272	1,30,445	1,44,572	1,37,461	1,55,663
Profit from Operation (A)	**1,02,302**	**80,053**	**1,05,056**	**1,01,353**	**98,988**
Interest Expenses	663	284	4	265	1,329
Depreciation and Amortization	51,566	56,277	63372	55,777	64,668
Profit/Loss on Sale of Fixed Assets	-	1	638	-	(2,861)
Dividend from Subsidiary Company	(1,647)	(10,985)	(10,985)	(5,492)	-
Provision for Staff Quarter	3,328	1,724	2,574	2,540	1,793
Provision for Bonus	5,747	2,977	4,445	4,387	3,096
Total Expenditure (B)	**44,827**	**50,278**	**60,048**	**57,477**	**68,025**
Profit before Tax (A–B)	**57,475**	**29,775**	**45,008**	**43,876**	**30,963**
Less: Provision for Tax	8,865	4,103	7,208	8,503	5,539
Less: Provision for Special Fees	0	0	0	638	462
Net Profit After Tax (NPAT)	**48,610**	**25,672**	**37,800**	**34,735**	**24,962**
Less: Tax paid in respect of earlier year	0	6,300	16,205	0	24,332
Less: Depreciation expenses for earlier year	0	0	0	0	57,949
Add: Balance Brought Forward	3,04,834	3,33,955	3,43,583	3,65,178	3,99,913
Profit Available for Appropriation	**3,53,444**	**3,53,327**	**3,65,178**	**3,99,913**	**3,42,594**
Less: Proposed Dividend	19,489	9,744	0	0	0
Balance Carried Forward	**3,33,955**	**3,43,583**	**3,65,178**	**3,99,913**	**3,42,594**

TABLE- 4

Budgeted Sales and Actual Sales

(In Rs '000')

Year	Actual Sales	Budgeted Sales
2002/03	5,35,494	5,67,000
2003/04	6,09,654	6,70,000
2004/05	6,32,114	7,40,000
2005/06	6,14,739	7,80,000
2006/07	6,21,827	8,10,000

TABLE- 5
Other Income
(In Rs '000')

Particular	2002/03	2003/04	2004/05	2005/06	2006/07
Sales of Post Mix Cup	35	6	0	90	0
Recovery of Insurance Claims	169	0	0	366	0
Interest Income	149	94	6	33	143
Exchange Gain/Loss	191	(102)	(1,068)	(807)	74
Sales of Scrape and other	1,067	1,265	1,152	1,479	642
Total	**1,611**	**1,263**	**90**	**1,161**	**859**

TABLE- 6

Revised Statement of Other Incomes

(In Rs '000')

Particular	2002/03	2003/04	2004/05	2005/06	2006/07
Sales of Post Mix Cup	35	6	0	90	0
Recovery of Insurance Claims	169	0	0	366	0
Interest Income	149	94	6	33	143
Exchange Gain/Loss	191	(102)	(1,068)	(807)	74
Sales of Scrape and other	1,067	1,265	1,152	1,479	642
Dividend received from subsidiary company	16,447	10,985	10,985	5,492	0
Profit/ Loss on sale of fixed Assets	0	(1)	(638)	0	2,861
Total	**18,058**	**12,247**	**10,437**	**6,653**	**3,720**

TABLE- 7

Detailed Office and Administrative Overheads (In Rs '000')

Particular	2002/03	2003/04	2004/05	2005/06	2006/07
Salaries, Wages and other employees cost	23,156	26,691	26,560	27,881	32,743
Contribution to provident fund, Gratuity	3,814	2,906	2,876	976	2,543
Security Expenses	1,570	32	12	382	-
Trade Discount	18,959	44,572	52,573	51,340	56,673
Rent	626	1,007	628	402	1,381
Repair and Maintenance	2,892	4,063	4,793	3,089	4,447
Electricity, Fuel and Water	172	155	103	118	156
Traveling expenses	1,717	1,363	1,847	3,240	6,790
SAP related expenses	0	0	0	0	6,291
Audit Fees	220	220	220	220	220
Legal and Professional fees and expenses	533	521	7,775	648	1,131
Rates and taxes	492	133	182	187	352
Bank Charges	4,853	153	672	307	288
General meeting expenses	25	21	35	48	52
Insurance Premium	215	274	941	87	180
Communication Expenses	5,057	3,305	3,690	6,844	5,493
Printing and Stationery	713	680	813	715	1,313
Advertisement expenses	7,563	7,534	5,360	3,933	2,790
Sales Promotion expenses	17,205	18,607	13,195	5,955	4,628
Training expenses	11	157	717	1,316	8,110
Charity and Donation	33	47	94	124	139
Uniform expenses	505	307	517	476	613
Rejection and Breakages	7,897	6,791	6,710	6,638	1,902
Management Fees	1,425	2,817	4,421	6,276	6,643
Obsolete Stock and Fixed Assets Written off	397	556	2,655	5,805	717
Product Transfer Fees	1,367	6,502	5,945	7,774	6,780
Miscellaneous Expenses	1,837	1,031	1,238	768	971

Source: Audit Report; BNL

TABLE- 8

Cost of Goods Sold

(In Rs '000')

Particular	2002/03		2003/04		2004/05		2005/06		2006/07	
	Rs.	**Total Rs.**	**Rs.**	**Total Rs.**	**Rs.**	**Total Rs.**	**Rs.**	**Total Rs.**	**Rs.**	**Total Rs.**
Opening Stock of Raw Material	50,992		85,228		1,22,780		79,958		1,42,773	
Work in Progress	572		640		1,030		1,576		1,379	
Production of CO_2 Gas	5,840		6,166		6,606		5,862		5,878	
Finished Goods	5,979	**63,383**	7,840	**99,934**	7,751	**1,38,160**	10,722	**98,118**	7,466	**1,57,496**
Add: Purchase during the year	2,84,041		3,50,780		2,32,947		2,47,870		2,24,047	
Add/Less: Transfer from BNTL	(323)	**2,83,718**	(8,753)	**3,42,027**	13,430	**2,46,377**	(8,555)	**3,39,315**	(11,167)	**2,12,880**
		3,47,101		**4,41,961**		**3,84,537**		**4,37,433**		**3,70,376**
Less: Closing Stock of R/M	85,288		1,22,780		79,958		1,42,773		81,601	
Work in Progress	640		1,023		1,576		1,379		1,075	
Damaged Stock Written Off	0		0		1,308		0		0	
Finished Goods	7,840	**93,768**	7,751	**1,31,554**	10,722	**93,564**	7,466	**1,51,618**	7,133	**16,369**
Material Cost of Sales (Variable)	–	**2,53,333**	–	**3,10,407**	–	**2,90,973**	–	**2,85,815**	–	**3,54,007**
Add: Production Expenditure 30 %		**53,147**		**65,856**		**67,404**		**71,535**		**70,512**
Cost of Goods Sales		**3,06,480**		**3,76,263**		**3,58,377**		**3,57,350**		**3,51,079**

Source: Audit Report; BNL

TABLE- 9
Details of Costs Variability and Segregation of Semi Variable Costs
(In Rs '000')

Particular	Cost Variability	2002/03			2003/04			2004/05			2005/06			2006/07		
		Total	F.C.	V.C.	Total	F.C.	V.C.	Total	F.C.	V.C.	Total	F.C.	V.C.	Total	F.C.	V.C.
Direct Material	**Variable**	2,55,194	-	2,55,194	3,10,318	-	3,10,318	2,93,944	-	2,93,944	2,82,559	-	2,82,559	2,80,234	-	2,80,234
Production Cost	**Fixed**	53,147	15,944	37,203	65,856	19,575	46,099	67,404	20,221	47,183	71,535	21,461	50,075	70,512	21,154	49,358
Distribution Expenses	**Fixed**	25,051	7,515	17,536	24,156	7,247	16,909	24,199	7,260	16,939	19,736	5,921	13,815	16,955	5,086	11,869
Interest Expenses	**Fixed**	663	663	-	284	284	-	4	4	-	265	265	-	1,329	1,329	-
Depreciation & Amortization	**Fixed**	51,566	51,566	-	56,277	56,277	-	63,372	63,372	-	55,777	55,777	-	64,668	64,668	-
Accommodation Expenses	**Fixed**	3,328	3,328	-	1,724	1,724	-	2,574	2,574	-	1,793	1,793	-	2,540	2,540	-
Staff Bonus	**Fixed**	5,747	5,747	-	2,977	2,977	-	4,445	4,445	-	4,387	4,387	-	3,096	3,096	-
Salaries, Wages and Other Employees Cost	**Fixed**	23,156	23,156	-	26,691	26,691	-	26,560	26,560	-	27,881	27,881	-	3,2743	32,743	-
Contribution to provident fund & Gratuity	**Fixed**	3,814	3,814	-	2,906	2,906	-	2,876	2,876	-	976	976	-	2,543	2,543	-
Securities Expenses	**Fixed**	1,570	1,570	-	32	32	-	12	12	-	382	382	-	-	-	-
Trade Discount	**Variable**	18,959	-	18,959	44,572	-	44,572	52,573	-	52,573	51,340	-	51,340	56,673	-	56,673
Rent	**Fixed**	626	626	-	1,007	1,007	-	628	628	-	402	402	-	1,381	1,381	-
Repair & Maintenance	**Fixed**	2,892	1,446	1,446	4,063	2,032	2,031	4,793	2,397	2,397	3,089	1,545	1,544	4,447	2,224	2,223
Electricity, Fuel & Water	**Fixed**	172	34	138	155	31	124	103	21	82	118	24	94	156	31	125
Traveling Expenses	**Variable**	1,717	-	1,717	1,363	-	1,363	1,847	-	1,847	3,240	-	3,240	6,790	-	6,790

Audit Fees	**Fixed**	220	220	-	220	220	-	220	220	-	220	220	-	220	220	-
Legal & Professional Fees Expenses	**Fixed**	533	267	266	521	261	260	7,775	3,888	3,887	648	324	324	1,131	566	565
Rates & Taxes	**Fixed**	492	492	-	133	133	-	182	182	-	187	187	-	352	352	-
Bank Charges	**Fixed**	4,853	4,853	-	153	153	-	672	672	-	307	307	-	288	288	-
General Meeting Expenses	**Fixed**	25	25	-	21	21	-	35	35	-	48	48	-	52	52	-
Insurance Premium	**Fixed**	215	215	-	274	274	-	941	941	-	87	87	-	180	180	-
Communication	**Fixed**	5,075	4,568	507	3,305	2,975	330	3,690	3,321	369	6,844	6,160	684	5,493	4,944	549
Printing & Stationary	**Fixed**	713	499	214	680	476	204	813	569	244	715	500	215	1,313	919	394
Sales Promotion Expenses	**Fixed**	17,205	12,044	5,161	18,607	13,025	5,582	13,195	9,237	3,958	5,955	4,169	1,786	4,628	3240	1,388
Advertisement	**Fixed**	7,563	3,782	3,781	7,534	3,767	3,767	5,360	2,680	2,680	3,933	1,967	1,966	2,790	1,395	1,395
Training	**Fixed**	11	8	3	157	110	47	717	502	215	1,316	921	395	8,110	5,677	2,433
Charity & Donation	**Variable**	33	-	33	47	-	47	94	-	94	124	87	37	139	97	42
Uniform Expenses	**Fixed**	505	505	-	307	307	-	517	517	-	476	476	-	613	613	-
Rejection & Breakage	**Variable**	7,897	-	7,897	6,791	-	6,791	6,710	-	6,710	6,638	-	6,638	1,902	-	1,902
Obsolete Stock & Fixed Assets Written Off	**Fixed**	397	397	-	556	556	-	2,655	2,655	-	5,805	5,805	-	717	717	-
Management Fees	**Fixed**	1,425	1,425	-	2,817	2,817	-	4,421	4,421	-	6,276	6,276	-	6,643	6,643	-
Product Transfer Fees	**Variable**	1,367	-	1,367	6,502	-	6,502	5,945	-	5,945	7,774	-	7,774	6,780	-	6,780
Miscellaneous Expenses	**Fixed**	1,837	919	918	1,031	516	515	1,238	619	619	768	384	384	971	486	485
Total		**4,97,968**	**1,45,628**	**3,52,340**	**5,92,037**	**1,46,576**	**4,45,461**	**6,00,514**	**1,60,829**	**4,39,685**	**57,160**	**1,48,731**	**4,22,870**	**5,86,389**	**1,63,184**	**4,23,205**

Revised Income Statement

TABLE- 10

(In Rs '000')

Particular	2002/03	2003/04	2004/05	2005/06	2006/07
Sales Revenue	**5,35,494**	**6,09,654**	**6,32,114**	**6,14,739**	**6,21,827**
Less: Variable Cost of Goods Sold	3,50,479	4,45,550	4,36,714	4,28,785	4,31,400
Contribution Margin	**1,85,015**	**1,64,104**	**1,95,400**	**1,85,954**	**1,90,427**
Add: Other Income	18,058	12,247	10,437	6,653	3,720
Total Income	**2,03,073**	**1,76,351**	**2,05,837**	**1,92,607**	**1,94,147**
Less: Fixed Cost	1,45,598	1,46,576	1,60,829	1,46,731	1,63,184
Earning Before Tax	**57,475**	**29,775**	**45,008**	**43,876**	**30,963**
Less:					
1. Provision for Tax	8,865	4,103	7,208	8,503	5,539
2. Provision for Special Fees	0	0	0	638	462
Earning After Tax	**48,610**	**25,672**	**37,800**	**34,735**	**24,962**
Less:					
1. Tax Paid in respect of earlier year	0	6,300	16,205	0	24,332
2. Depreciation paid for earlier year	0	0	0	0	57,949
Add: Balance brought forward	3,04,834	3,33,955	3,43,583	3,65,178	3,99,913
Profit for Distribution	**3,53,444**	**3,53,327**	**3,65,178**	**3,99,913**	**3,42,594**
Less: Proposed Dividend	19,489	9,744	0	0	0
Balance Carried Forward	**3,33,955**	**3,43,583**	**3,65,178**	**3,99,913**	**3,42,594**

TABLE- 11

Calculation of Cash Fixed Cost*

(In Rs '000')

Particulars	**2002/03**	**2003/04**	**2004/05**	**2005/06**	**2006/07**
Total Fixed cost (A)	1,45,598	1,46,576	1,60,829	1,46,731	1,63,184
Less:- Non cash Fixed cost:					
1. Depreciation	51,566	56,277	63,372	55,777	64,668
2. Obsolete Stock and Fixed Assets written off.	397	556	2,655	5,805	717
Total (B)	**51,963**	**56,833**	**66,027**	**61,582**	**65,385**
Total cash Fixed cost (A-B)	**93,635**	**89,743**	**94,802**	**85,149**	**97,799**

* Total Cash Fixed Cost = Total Fixed Cost - Non Cash Fixed Costs.

Balance Sheet
TABLE- 12

(In Rs '000')

Capital + Liabilities	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	Assets	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
Capital and Reserve							Fixed Assets	3,49,114	4,16,993	3,77,394	3,26,096	4,09,427	3,23,573
Share Capital	1,94,889	1,94,889	1,94,889	1,94,889	1,94,889	1,94,889	Capital work in progress	96,278	-	-	-	-	1,76,107
Reserve and retained earnings	4,71,921	5,01,042	5,10,670	5,32,265	5,67,000	5,09,681	Investment	1,12,628	1,12,628	1,12,628	1,12,628	1,12,628	1,12,628
Bank Loan	-	-	-	-	-	72,000	**Current Assets:**						
Current Liabilities & Provision:							Inventories	1,42,734	1,85,341	2,26,861	1,84,980	2,24,070	1,76,936
Current Liabilities	1,49,260	1,89,995	1,84,099	1,17,199	1,64,399	2,10,702							
Provision	1,35,798	1,50,120	1,98,749	56,823	64,592	64,781							
							Trade & other receivables	80,480	1,15,210	88,039	1,24,178	80,845	63,657
							Cash & bank balance	3,940	29,456	5,335	13,755	1,917	35,926
							Prepaid Expenses						
							Loans, Advances & Deposits	1,66,694	1,76,418	2,12,148	1,24,918	1,46,379	1,59,526
							Deferred Expenses	-	-	16,002	14,621	15,614	3,700
Total	**9,51,868**	**10,36,046**	**10,38,407**	**9,01,176**	**9,90,880**	**10,52,053**	**Total**	**9,51,868**	**10,36,046**	**10,38,407**	**9,01,176**	**9,90,880**	**10,52,053**

Source: Audit Report, BNL

TABLE- 13

Inventory Consideration

(In Rs '000')

Particular	**2001/02**	**2002/03**	**2003/04**	**2004/05**	**2005/06**	**2006/07**
Raw Material	50,992	85,288	1,22,780	79,958	1,42,773	81,601
Work in Progress	917	1,000	1,023	1,576	1,379	1,075
Finished Products	5,979	7,840	7,751	10,722	7,466	7,133
Goods in Transit	20,642	14,692	1,271	2,213	3,594	12,253
Stores, Spares and Loose Tools	27,835	41,664	48,826	57,613	62,035	69,117
Consumables	4,114	3,706	5,765	6,207	6,017	4,834
Advertising Materials	1,521	1,793	2,985	1,361	806	923
Bottles and Shells	30,734	29,358	36,822	25,330	-	-
Less: Provision for Damage & Obsolete	0	0	(362)	0	0	0
Total	**1,42,734**	**1,85,341**	**2,26,861**	**1,84,980**	**2,24,070**	**1,76,936**

TABLE- 14

Calculation of Current Assets

(In Rs. '000')

Particular	**2002/03**	**2003/04**	**2004/05**	**2005/06**	**2006/07**
Inventories	1,85,347	2,26,861	1,84,980	2,24,070	1,76,936
Trade and other receivables	1,15,210	88,039	1,24,178	80,845	63,657
Cash and Bank Balance	29,456	5,335	13,755	1,917	35,926
Prepaid expenses, loan & advance	1,76,418	2,12,148	1,24,918	1,46,379	1,59,526
Total	**506425**	**5,32,383**	**4,47,831**	**4,53,211**	**4,36,045**

TABLE- 15

Calculation of Quick Assets

(In Rs. '000')

Particular	2002/03	2003/04	2004/05	2005/06	2006/07
Trade and other receivables	1,15,210	88,039	1,24,178	80,845	63,657
Cash and Bank Balance	29,456	5,335	13,755	1,917	35,926
Total Quick Assets	**1,44,666**	**93,374**	**1,37,933**	**82,762**	**99,583**

TABLE- 16

Calculation of Total Fixed Assets

(In Rs. '000')

Particular	2002/03	2003/04	2004/05	2005/06	2006/07
Fixed Assets	4,16,993	3,77,394	3,26,096	4,09,427	3,23,573
Capital work in progress	-	-	-	-	-
Inventories	1,12,628	1,12,628	1,12,628	1,12,628	1,12,628
Total Fixed Assets	**5,29,621**	**4,90,022**	**4,38,724**	**5,22,055**	**6,12,308**

TABLE- 17

Calculation of Current Liabilities

(in Rs. '000')

Particular	2002/03	2003/04	2004/05	2005/06	2006/07
Trade and Other Payable	1,89,995	1,84,099	1,17,199	1,64,399	2,10,702
Provision	1,50,120	1,48,749	56,823	64,592	64,781
Total Current Liabilities	**3,40,115**	**3,32,848**	**1,74,022**	**2,28,991**	**2,75,483**

TABLE- 18

Calculation of Equity Shareholders' Fund

(in Rs. '000')

Particular	2002/03	2003/04	2004/05	2005/06	2006/07
Share Capital	1,94,889	1,94,889	1,94,889	1,94,889	1,94,889
Reserve and Retained Earning	5,01,042	5,10,670	5,32,265	5,67,000	5,09,681
Total Equity Shareholders' Fund	**6,95,931**	**7,05,559**	**7,27,154**	**7,61,889**	**7,04,570**

TABLE- 19

Calculation of Capital Employed

(in Rs. '000')

Particular	2002/03	2003/04	2004/05	2005/06	2006/07
Share Capital	1,94,889	1,94,889	1,94,889	1,94,889	1,94,889
Reserve and Retained Earning	5,01,042	5,10,670	5,32,265	5,67,000	5,09,681
Bank Loan	–	–	–	–	72,000
Total Capital and Long Term Liabilities	6,95,931	7,05,559	7,27,154	7,61,889	7,76,570
Less: Deferred Expenses		(16,002)	(14,621)	(15,614)	(3,700)
Total Capital Employed	**6,95,931**	**6,89,557**	**7,12,533**	**7,46,275**	**7,72,870**

TABLE- 20

Calculation of Gross Profit Ratio

Year	Gross Profit	Sales	Gross Profit Ratio $= \frac{\text{Gross Profit}}{\text{Net Sales}} \times 100\,\%$
2002/03	2,29,014	5,35,494	42.77 %
2003/04	2,33,391	6,09,654	38.28 %
2004/05	2,73,737	6,32,114	43.31 %
2005/06	2,57,389	6,14,739	41.87 %
2006/07	2,70,747	6,21,827	43.33 %

TABLE-21

Calculation of Operating Profit Ratio

Year	Operating Profit	Sales	Operating Profit Ratio $= \frac{\text{Operating Profit}}{\text{Net Sales}} \times 100\ \%$
2002/03	1,02,302	5,35,494	19.10 %
2003/04	80,053	6,09,654	13.13 %
2004/05	1,05,056	6,32,114	16.62 %
2005/06	1,01,353	6,14,739	16.49 %
2006/07	98,988	6,21,827	15.92 %

TABLE- 22

Calculation of Net Profit Ratio

Year	Net Profit	Sales	Gross Profit Ratio $= \frac{\text{Gross Profit}}{\text{Net Sales}} \times 100\ \%$
2002/03	48,610	5,35,494	9.08 %
2003/04	25,672	609,654	4.21 %
2004/05	37,800	6,32,114	5.98 %
2005/06	34,735	6,14,739	5.65 %
2006/07	24,962	6,21,827	4.01 %

TABLE- 23

Calculation of Return on Shareholders' Investment Ratio

Year	Net Profit	Shareholder's Equity	Return on Shareholder's Investment Ratio = $\frac{\text{Net Profit after Tax, Interest \& Preference Dividend}}{\text{Equity Shareholder's Funds}} \times 100\ \%$
2002/03	48,610	6,95,931	6.98 %
2003/04	25,672	7,05,559	3.64 %
2004/05	37,800	7,27,254	5.20 %
2005/06	34,735	7,61,889	4.56 %
2006/07	24,962	7,04,570	3.54 %

TABLE-24

Calculation of Return on Total Assets

Year	Net Profit	Total Assets	Return on Total Assets Ratio = $\frac{\text{Net Profit after Tax}}{\text{Total Assets}} \times 100\ \%$
2002/03	48,610	10,36,046	4.69 %
2003/04	25,672	10,38,407	2.47 %
2004/05	37,800	9,01,176	4.19 %
2005/06	34,735	9,90,880	3.51 %
2006/07	24,962	10,52,053	2.37 %

TABLE-25

Calculation of Current Ratio

Year	Current Assets	Current Liabilities	Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}} \times 100\,\%$
2002/03	5,06,425	3,40,115	1.49:1
2003/04	5,32,383	3,32,848	1.60:1
2004/05	4,47,831	1,74,022	2.57:1
2005/06	4,53,211	2,28,991	1.98:1
2006/07	4,36,045	2,75,483	1.58:1

Current Assets = Inventories + Trade and Other Receivables + Cash and Bank Balance + Prepaid Expenses, Loan and Advances and Deposits

Total Current Liabilities = Current Liabilities and Provision

TABLE-26

Calculation of Quick Ratio

Year	Quick Assets	Current Liabilities	Quick Ratio = $\frac{\text{Quick Assets}}{\text{Current Liabilities}}$
2002/03	1,44,666	3,40,115	0.425:1
2003/04	93,374	3,32,848	0.281:1
2004/05	1,35,933	1,74,022	0.781:1
2005/06	82,762	2,28,991	0.361:1
2006/07	99,583	2,75,483	0.361:1

Quick Assets = Current Assets – Inventories – Prepaid Expenses Loan and Advances and Deposits

TABLE-27

Calculation of Fixed Assets Ratio

Year	Fixed Assets	Capital Employed	Fixed Assets Ratio = $\frac{\text{Fixed Assets}}{\text{Capital Employed}}$
2002/03	5,29,621	6,95,931	0.76
2003/04	4,90,022	6,89,557	0.71
2004/05	4,38,724	7,12,533	0.62
2005/06	5,22,055	7,46,275	0.70
2006/07	6,12,308	7,72,870	0.79

TABLE-28

Calculation of Current Assets to Fixed Assets Ratio

Year	Current Assets	Fixed Assets	Current Assets to Fixed Assets = $\frac{\text{Current Assets}}{\text{Fixed Assets}}$
2002/03	5,06,425	5,29,621	0.96
2003/04	5,32,383	4,90,022	1.09
2004/05	4,47,831	4,38,724	1.02
2005/06	4,53,211	5,22,055	0.87
2006/07	4,36,045	6,12,308	0.71

TABLE-29

Calculation of Proprietary Ratio

Year	Shareholder's Funds	Total Assets	Proprietary Ratio = $\frac{\text{Shareholder's Fund}}{\text{Total Assets}}$
2002/03	6,95,931	10,63,046	0.96
2003/04	7,05,559	10,38,407	1.09
2004/05	7,27,154	9,01,176	1.02
2005/06	7,61,889	9,90,880	0.87
2006/07	7,04,570	10,52,053	0.71