CHAPTER-I

INTRODUCTION

1.1 Background of the Study

Profit planning is a well throughout operational plan with its financial implication expressed as both long range and short range profit plan or budgets in the form of financial statement including balance sheet, income statement, cash and working capital projection. The final results of successful long range profit planning are a capacity to make a greater risk for this is the way to improve entrepreneurial performance. The risk could be avoided from the proper information. The single most vital in an effective profit planning procedures, right information at the right time, presented and formulated in a way that is easy to comprehend and follow.

Profit is the primary measure of business success in any economy. If a firm cannot make profit, it cannot obtain the capital or hold capital for every long. If it cannot obtain capital, it cannot secure and retain other resources, such as man power, materials and machine etc. in other words the more profitable enterprises are more attractive to the holders of available capital. Since, these enterprises can attract capital they have the money needed to buy the other resources. The key here is that capital and other resources are scarce, they are allocated to the profit makes in roughly descending order of the profit potential. This allocation function though a relatively free open market system (Garrison and Noreen, 2017).

Nowadays, budgeting profit planning is especially filmier to business organizations but the practicability of it's depends upon the size of the business. The common objective of profit planning and control system, whether applied to national finance or business administration is to formulate policy aimed at an objective established after the consideration of probable course of event.

As regards the term budget, it can be visualized as the end result of the budgeting. If budgeting is the procedure for preparing plan in respect of future financial requirements the plan when presented in written form is called budget. Budgeting in fact managerial technique and a business budget is such a return plan in which all aspects of business operate with respect to a definite future period included. It is a

formal statement of policy plan objective and goals established by the top management in respect for the future period (Gyawali et al., 2012).

The descriptive term compressive profit planning and control can be used in the same context as: business budgeting, managerial budgeting. The term comprehensive profit planning and control is defined as systematic and formalized approach for performing significant phases of management planning and control. Functions specially: if involves 1) The development and application of the board and long range objective. 2) The specification of enterprise goals. 3) A long range profit plan detailed by assigned responsibilities by division products and projects. 4) A system of periodic performance report detailed by assigned responsibilities. 5) Follow up procedures (Koirala et al., 2017).

Profit planning is a comprehensive plan expressed. In financial terms by which an operating program is effective for a giving period of time. It includes the estimate of. (a) The service activities and project comprising the program. (b) The resultant expenditure requirements.

Profit plan is flexible and depends upon the size of firm, so that the format and rules regarding profit plan also varies according to the nature of business organization. Profit plan is prepared with in the environment of relevant variable and strengths and weakness.

Organizational board objectives are defined and these are specified in particular goals. Basic strategies are communicated to the line staff managers. Generally two types of profit plans are generated for long range objectives, strategic plans are prepared and short range objective. Tactical plans are developed. The types of budget or profit plan depend upon the nature of business entity. Generally for a manufacturing enterprise sales plan or sales budget, production plan or budget, raw material budget, purchase budget, administrative expenses budget, cash budget, flexible budget, capital expenditure budget, projected income statement and projected balance sheet are prepared (Hilton, 2015).

1.2 Historical Background of DDC

DDC has been collecting the milk of cow, buffalo and chauri from 33 districts. Its present milk collection network has spread from Pachthar in the east and Surkhet in

the west. DDC has been playing a special role in uplifting the economic status of rural farmers.

DDC could not buy all the milk produced by the farmers especially during the flush season; as a result, it had to introduce Milk Holiday on certain days during the flush season. On the other hand, in the lean period DDC had to import skimmed milk powder to meet consumer's demand. To mitigate this problem, in according with the Ten Year Dairy Development plan prepared with the assistance of Danish Government, project for establishing a Skimmed Milk Powder Plant was initiated in 2048 (1991) at BMSS and is in operation since December 1994. Capacity of this powder plant is 3.0 mt. of powder per day.

DDC has been collecting cow, buffalo and chauri milk from 33 districts. Milk is collected through the farmers, Milk producers Cooperative Societies (MPCS). Its present milk collection network has spread from Panchthar in the East to Surkhet in the West.

Hetauda Dairy Distribution Project also supports KMSS and BMSS by supplying excess milk above their local requirement. Biratnagar Milk Supply Scheme manufactures skimmed milk powder from its excess milk and milk excess from other supply schemes. DDC has been playing a special role to uplift the economic status of rural farmers. Thus dairy has been recognized as an effective tool for poverty alleviation (Annual report of DDC, 2017).

1.2 Focus of the Study

An effective budgeting system is vital to the success and survival of a business, whether it is public or private without a fully coordinated budgeting system, management can not know the direction business is taking out. Organizations that do not plan are likely to wonder aimlessly and ultimately succumb to the swirl of current events (Dangol, 2016).

Most of the public enterprises prepare their budget randomly and they do not use profit planning concept. Due to this most of the public enterprises are incurring heavy losses. Thus by realizing the important of budgeting to improve the efficiency and effectiveness, to ensure their competitive capacity at present cut throat competition, this study has focused on the budgeting practices of public enterprises. Many

developed countries organization achieved great success by applying budgeting as management tool this real truth also shows the need of budgeting in our public enterprises.

From government point of view, budgeting is the most important tool to strengthen the economy of public enterprises and national treasury by the sources of revenue and controlling its activities. In the under developed countries like Nepal, profit planning helps in growth of GDP by improving the financial position of enterprises but still, many organization in Nepal do not prepare budget and those organization preparing budget do not use proper and scientific methods thus has further deteriorated the conditions of Nepalese organization.

Thus from above we can say that profit planning is the heart of management and profit is very important indicator that does not occur without proper planning, So every organization has to mange its profit for this various functional budgets are essential, which ensures planning of activities and control over them. Thus the focus of this study is to examine and analyze the budgeting system applying in DDC and comment weakness.

1.3 Statement of the Problems

Nepalese economy experienced more than fifty annual budgets and completed ten periodic plans, now three years interim plan is on going. All the annual budget and periodic plans had set attractive objectives targets and policies but all of these plans failed to achieve targeted objectives. More than 80% of the Nepal population are still depending on agriculture, about 31% people are living under poverty line. Every plans and budgets are prepared on these poor people, but they get nothing than expectation. Instead of improving their condition, their conditions are getting worse off after each of plan and budget. This is the matter of great concern and food for enough for all social scientists, planners and policymakers.

Most of our public enterprises in Nepal are incurring heavy loss, due to this they have becomes burden to the government budget however DDC is one of the leading public manufacturing in Nepal because it has achieved profit to some extent than other public enterprises. Along with many problems mentioned above the one role played by public enterprises are very important since it has collected milk and milk products

to the urban areas. Thus solving the problems faced by these enterprises is most to operate the enterprises efficiently and effectively. It has been already described its major problems, however other problems faced by DDC are as follows:

- Most of the targets set in budget have been determined without proper study and analysis, due to which some targets have achieved easily and some are not achieved.
- Documents and records a transaction has not been kept properly.
- Operating expenses of DDC is going in increasing trend on the proportion of its income.
- Large amount of cash and bank balance are lying idle in DDC that is not good from financial point of view.
- Like other public enterprises DDC is also facing the problems of overstaffing and government intervention in decision making.
- DDC has not fulfilled the public demand sufficiently.

Thus this research attempts to show the budgeting practice in enterprises to fulfill these above mentioned problems and its effectiveness in solving these problems. Besides above mentioned problem this research has tried to answer the following started research problems.

- What is the trend of sales revenue of DDC?
- What are the functional budgeted adopted by DDC?
- What is the status of overhead expenses budget in DDC?
- What are the variances between estimated budget and actual budget?

1.4 Objectives of the Study

The main objective of this research is to review the budgeting i.e. profit planning practices and its overall effectiveness in manufacturing concernment special focus to DDC. However the other objectives have also been set by this research are:

- To analyze the sales revenue trend to DDC
- To examine the various functional budgets adopted in DDC.
- To evaluate the overhead expenses of DDC.
- To analyze variance and ratio analysis of DDC.

1.5 Limitations of the Study

Definitely each and every case study is limited by time, cost and other resources. Thus we have to conduct research work within these limitations. The other most important limitation in research work is the different between theories and practical because they do not match totally. Thus these all limitation restrict in achieving our objectives to some extent.

The main focus of thus study is confined to budgeting and profits planning of dairy development corporation through there are various sectors and fields in DDC which are equally important from different view points. To sum up the specific limitation of this study are as follows:

- This study covers the performance of DDC only five years covering FY 2069/70 to 2073/74.
- It does not include other areas of DDC except financial and accounting aspect of DDC.
- This analysis is totally based upon the secondary data provided by the management of DDC since these data is not for the research purpose, definitely it limits the research.
- This study covers budgeting system and its effect on comprehensive profit planning of DDC. This it way or way be applicable to other public enterprises.

1.6 Organization of the Study

Organized form of proposed study will include different chapters and sub-chapters.

Chapter-I: Introduction: It includes background of the study, focus of the study, statement of the problem, objective of the study, significance of the study, limitation of study and chapter scheme.

Chapter-II: Review of Literature: This chapter includes the review of books, articles, journals, reports, reports, theses, researches and other relevant materials.

Chapter-III: Research Methodology: It covers on research design, population and sample, source of data, data collection procedure, analytical tools etc.

Chapter-IV: Presentation and Analysis of Data: This chapter attempts to analyze and evaluate the both primary and secondary data of Nepal stock exchange with the help of different analytical tools.

Chapter-V: Summary, Conclusion and Recommendations: It sums up the results obtained through analysis and recommends some suggestions.

CHAPTER – II

REVIEW OF LITERATURE

In this chapter effort has been made to examine and review some of the related books, articles published in different economic journals, bulletins, dissertation papers, magazines, newspapers, and websites. The literature review shares the reader the results of other studies that are closely related to the study being reported and to the larger, outgoing dialogue in the literature about a topic, filling in gaps and extending prior studies. It also provides a framework for establishing the importance of the study, as well as a benchmark for comparing the results of a study with other findings. In brief, this chapter includes review of following:

2.1 Conceptual Review

2.1.1 Profit

In business usage, the excess of total revenue over total cost during a specific period of time. In economics, profit is the excess over the returns to capital, land, and labour (interest, rent, and wages). To the economist, much of what is classified in business usage as profit consists of the implicit wages of manager-owners, the implicit rent on land owned by the firm, and the implicit interest on the capital invested by the firm's owners. In conditions of competitive equilibrium, “pure” profit would not exist, because the competitive market would cause the rates of return to capital, land, and labour to rise until they exhausted the total value of the product. Should profits emerge in any field of production, the resulting increase in output would cause price declines that would eventually squeeze out profits (Koirala et al., 2017).

The real world is never one of complete competitive equilibrium, though, and the theory recognizes that profits arise for several reasons. First, the innovator who introduces a new technique can produce at a cost below the market price and thus earn entrepreneurial profits. Secondly, changes in consumer tastes may cause revenues of some firms to increase, giving rise to what are often called windfall profits. The third type of profit is monopoly profit, which occurs when a firm restricts output so as to prevent prices from falling to the level of costs. The first two types of profit result from relaxing the usual theoretical assumptions of unchanging consumer tastes and states of technology. The third type accompanies the violation of perfect competition itself (MLA and APA Style: Encyclopaedia Britannica, 2009).

Generally, profit is the amount of money which is available after paying the costs of producing and selling the goods and services. but the different economists and scholars have the different opinion in term of profit usually profit does not happen itself, profit is managed when management makes plans is known as profit planning. Profit planning is the part of overall process of organizations. Usually, profit does not just happen, profit is managed when management makes plans, it is known as profit planning (Lynch and Williamson, 1992).

Some statement about profit by economists are chalk out as, Schumpeter opines that an enterprises earn profit as reward for introducing innovation. J. M. Keynes holds the view that profit results from the favorable movement of general prices levels. In the view of Mrs. Joan Robinson and chamberlain the greater the degree of monopoly power the greater will be the profit made by the entrepreneur. Similarly "profit is the reward for risk locking in business" (Joshi, 1993).

The accounting concept of company profit is a concept of net business income. Profit is thus, the surplus income that remains after paying expenses and providing for that part of capital that has been consumed in producing revenue. It is the ultimate objectives of management to maximize profit over the long term consistent with its social responsibility. A business from is organized mainly with a motive of making profit and it is the primary measure of business success. Profit is the ultimate yardsticks of management's net in the interest of the consumer. Social criteria of business performance productions, rate of progress and behavior of prices. "Profit is a signal for allocation of resources and a yardstick for judging managerial efficiency" (Lynch and Williamson, 1993).

2.1.2 Planning

Planning means deciding in advance about the functions of management that is going to take place in near future. Planning is done on the basis of past experiences, present information and future expectations. Planning helps to direct actions. To plan is to look ahead and Chart out the future course of operations. It is the determinants of a course of action to achieve desired result (Bhusan, 1997).

Planning concentrates on setting and achieving objectives of an organization. Planning is the first management functions to be performed in the process of management. Planning is the determination of basic long-term goals and objectives of

an organization and the adoption of the source of action and the allocation of resources necessary for carrying out these goals. Panning is a analytical thought process which covers: (1) assessment of future, (2) determination of objective and goals in the light of the future, (3) the development of alternative course of action to achieve such objectives and (4) selection of the best course of action among these alternatives (Sherlakar, 1982).

Planning is performed continuously because the passage of time demands both re-planning and making new plans. Moreover, current feedback often necessitates newly planned actions to correct Performance Deficiencies, cope with unanticipated events that are unfavorable, and take advantage of new developments.

Planning is the pervasive function of management, so management planning is a process that includes the following five phases.

- Establishing enterprises objective and goals.
- Developing premises about the environment of the entity.
- Making decision about course of action.
- Initiating actions to activate plans and
- Evaluating performance feedback for planning

Every successful business has a successful and sound plan. Planning is the key to good management (Kulkarni, 1999).

2.1.3 Control System

Control means by which a variable quantity or set of variable quantities is made to conform to a prescribed norm. It either holds the values of the controlled quantities constant or causes them to vary in a prescribed way. A control system may be operated by electricity, by mechanical means, by fluid pressure (liquid or gas), or by a combination of means. When a computer is involved in the control circuit, it is usually more convenient to operate all of the control systems electrically, although intermixtures are fairly common.

2.1.4 Profit Planning and Control

Making profit not easy because "Profit do not just happen profit are managed" To earn profit proper planning for profit should prepared so that loss may not be incurred in future. Profit planning is a tool for managing organizational objectives to achieve the targeted goal.

Profit plan (or budget) is a short term financial plan. It is an action plan to guide managers in achieving objectives of a firm. A profit plan (or budget) is a comprehensive and coordinated plan expressed in financial terms for the operations and resources of an enterprise for some specific period in future (Pandey, 1999).

The basic elements of a profit planning are:

- It is a comprehensive and coordinated plans
- It is expressed in financial terms.
- It is a plan for the firms operations and resources and
- It is a future plan for a specified period.

The term comprehensive profit planning and control is defined as a systematic and formalized approach for performing significant phase of the management planning and control functions. Specifically it involves the development and application of broad and long range objectives for the enterprise. The specification of enterprises goals. A long range profit plan developed in broad terms. A short range profit plan detailed by assigned responsibilities (division, products, time, projects). A system of periodic performance reports detailed by assigned responsibilities and follow up procedures. The planning horizon for budgeting may vary from one day to many years, depending on the budget objectives and the uncertainties.

Profit planning or budgeting is a forward planning are involves, the preparation in advance of the quantities as well as financial statements to indicate the intention of the management in respect of the various aspects of the business. Profit planning or budgeting in fact, is a managerial technique and a business budget as such is a written plan, in which all aspects of business operations with respect to definite future period are included. It is a formed statement of policy, plan, objectives and goal established by the top management in respect of some future period. It Acts as a business barometer as it is complete programme of activities of the business for the period

covered. According to Gordon and Shilling law "Profit planning is a predetermined detailed plan of action developed and distributed as a guide to correct operations and as a partial basis for the subsequent evaluation of performance" Thus we can say that budget is a tool which may be used by the management in planning the future course of actions and in controlling the actual performance (Gupta, 2000).

For profit planning and control, effective communication means development of well defined objectives, specification of goals, development of profit plans and reporting and follows up activities related to performance evaluation for each responsibility centre. Communication for effective planning and control requires same understanding of responsibilities and goods in both in the executives and subordinates.

2.1.4 Forecasting and Planning

A forecast is a prediction of future event, condition or situation, whereas plan includes a program of intended future actions and desired results. Forecasting predicts the future events in such a way that the planning process can be performed more accurately." Forecast is not a plan, rather it is a statement and or a quantified assessment of future conditions about a particular subject (eg. sales Revenue) based on one or more explicit assumptions. A forecast should always state assumptions upon which it is based. A forecast should be viewed as only one input into the development of sales plan. The management of the company may accept, modify or reflect the forecast, other inputs and management judgment about such related items as sales volume, prices, sales effects production and financing. It is important to make a distinction between the sales forecast and sales plan because internal technical start should not be expected or permitted to make the fundamental management decision and judgment implicit in every sales plan. Moreover the influence of management action on sales potentials is difficult to quantify for sales forecasting. Therefore the elements of management experience and judgment must hold the sales plan. Another reason for identifying sales forecasting as only one step in sales planning is that sales forecast are conditional (Welsch, et al. 1998)

In preparing plans for future the management has to make some predictions about the future shape of things. The father of modern management. Henry Fayol thought the entire plan (of enterprises) is made up of a series of separate plans called 'forecasts'

whenever the management plans its business operations and its organizational set-up for the years ahead, it has to take into account the post, the present and the prevailing economic political and social conditions. Forecasting provides a logical basis for determining in advance the managerial decision about the material personnel and requirements. It is thus the basis of planning (Bhusan, 1997).

Forecasting is not planning because planning has to be a grass-root operation in which all levels of management participate. It is true that budgeting does involve some forecasting primarily in the area of sales budget, but the process physically one of detailed analysis and planning not one of predicting future results (Kulkarni, 1982).

2.1.5 Budgeting: As a Tool of Profit Planning

The concept of comprehensive budget covers all the financial and operational activities of the firm in the forth coming period.

Comprehensive view rather than the narrow, traditional view of budget as a clearly derived set of quantitative schedules prepared by an accountant following the stereotyped reposting formats used in external financial statements used in external financial statements. In the past years, there has also been a tendency to view the budget primary as a mathematical model for an organization developed by computer programmes. These view completely overlook the three most relevant aspect of the PPC concept (a) PPC requires major planning decision by management (b) PPC entails pervasive management control activities, and (c) PPC recognizes may critical behavioral implication thought the organization (Welsch, et al. 1998).

Budgetary Control is system of controlling cost which includes the preparation of budgets, coordinating the departments and establishing the responsibilities, comparing actual performance with the budgeted and acting upon results to achieve maximum profitability (Manamohan and Goyal, 1995).

2.1.5.1 Role of Budgeting: Profit Planning and Control

An effective budgeting system is vital to the success and survival of business firm. Without fully coordinated budgeting system management can not know the direction business is talking out. Organizations that do not plan are likely to wonder aimlessly and ultimately succumb to the swirl of current events. Thus the benefits of budgeting

or profit planning and control are basic policies developed as the pre-requisites of profit planning and control show direction to the business. It provides definite goals and objectives the serve as benchmarks for evaluating subsequent performance. It completes and motivates management to make an early and timely study of the problems. It generates sense of caution and case adequate study among managers before they make decisions. Managers at different levels have to participate in the development of the profit plan. This provides an excellent training ground for the managers to know the process of planning in debt. It provides a norms, basis or yardstick for measuring performance of departments and individual working in organizations. Individual managers can evaluate than own decisions and achievements and take suitable steps to improve their performance. Well-organized profit planning and control program enable the management to maintain a level of profits, which will ensure the existence of the business and the fulfillment of management responsibilities (Koirala et al., 2017).

2.1.5.2 Objectives of Budgeting: Profit Planning and Control

A comprehensive profit planning and controlling is a systematic and formalized approach for stating and communicating the firms expectation and accomplishing management in such a way to maximize the use of profit plan to achieve the maximize the use of profit plan to achieve the maximum benefit from the resource available to an organization over a particular span of time. It serves a tool of management control. The maximum objective of profit planning and control is to help in systematic planning and in controlling then operations of the enterprises. In fact it is a best mean of communication and an important tool in the hands of management the purpose of budgeting and profit planning and control may be to state the firm's expectation (goal) in clearly, formal terms to avoid confusion and facilities their attainability, to communicate expectation to all concerned with the management to the firm so that they are understood, supported and implemented, to provide a detail plan of action for reducing uncertainty and for its proper direction of individual and group efforts to achieve goals, to coordinate the activities and efforts in such a way that the use of resource is maximized and to provide a means of measuring and controlling the performance of individual and units to supply information based on which the corrective action can be taken.

2.1.5.3 Limitation of Budgeting: Profit Planning and Control

Profit planning and control is an important tool for management: However each tool suffers from some limitation and its use is useful within these limits. The limitation of profit planning and control are as under (Garrison and Noreen, 2017):

1. Based on Estimates

Profit planning is not an exact science. Its effectiveness depends upon precision of estimates the success of profit planning and control depends to a large degree on the accuracy with which the basic estimates will be made. Using correct and standard statistical methods can make the accurate estimates.

2. Danger of Rigidity

Profit planning and control is an estimation and quantitative expression of all relevant data. So there can be tendency to attach some sort of rigidity or finality to them. Rigidness makes profit planning and control useless. For usefulness, the profit planning and control must be flexible. Various techniques must be tired, improved or discarded and replaced with others. In other words a profit planning and control program must be dynamic in every sense of the word.

3. Execution is Not Automatic

A skillfully prepared profit planning and control will not itself improve the management of an enterprises, unless it is property implemented. For the success of profit planning and control it is essential that all the related persons inside the enterprises should understand it. Thus for the effectiveness of profit planning and control all the fundamental elements of its should be applied.

4. Costly Affairs

The installation of a profit planning and control system is an elaborated process involving to much time and cost. Normally it is so costly that small organization can not afford it. Even for large concern it is suggested that there should be some correlation between the cost of operating a budgeting system and benefits derived from it.

5. Not a Substitute for Management

Profit planning and control is a management tool but not a substitute for the management. It is wrong to think that the introduction of profit planning and control is alone sufficient to ensure success and to guarantee future profit.

2.1.5.4 Fundamentals of Profit Planning and Control

Introduction of profit planning and control function is not only sufficient for the effective management of organization. Some fundamental aspects of budgeting should be prevalent for successful operation of budgeting to profit planning and control which are as follows (Hilton, 2015: 55):

1. Managerial Involvement and Commitment

Managerial involvement provides managerial support, confidence participation and performance orientation. For effective implementation of profit plan and control all levels of management especially top management must (1) understand the nature and characteristics of profit planning and control, (2) be convinced that this particular approach to managing is to devote the effort required to make it operative. (3) support the program in all its planning process as performance commitments.

2. Organizational Adaptation

Profit planning and control program must rest upon sound organizational structure for the enterprises and a clear-cut designation of lines of authorities and responsibilities. The purpose of organizational structure and the assignment of authority is to establish a framework within which enterprises objectives may be attained in a coordinated and effective way on a continuing basis. To increase management and operation efficiency particularly all enterprises except perhaps the very smallest ones should be structurally disaggregated into organizational sub units. The manager of each sub unit should be assigned specific authority and responsibility for the operational activities of that sub unit.

3. Responsibility Accounting

In order to set-up profit planning and control on a sound basis there must be a responsibility accounting system is one tailored first and foremost to the

organizational responsibilities. Within this primary accounting structure, Secondary classification of costs, revenues and other financial data that are relevant may be utilized in accordance with the needs of the enterprises.

4. Full Communication

For profit planning and control effective communication means development of well defected objectives, specification of goals, development of profit plan and reporting and follow up activities related to performance evaluation for each responsibility centre. Communication for effective planning and control requires same understanding of responsibilities and goods in both the executive and sub ordinates.

5. Realistic Expedition

Profit planning and control must be based on realistic approach or estimation. Management must be use realistic assumption and must not take irrational optimism or unnecessary conservatism.

6. Flexible Application

Profit planning and control technique should be flexible, so that its style can be changed according to the changes in management environment of enterprises.

2.5.5 Types of Budget

Budgets can be classified for different point of view, generally it can be classified as follows (Koirala et al., 2017):

1. Classification According to Time Factor.

On the basis of time factor, budgets are broadly classified into two types.

a. Long-term Budget

They are concerned with planning the operations of the firm over a period of five to ten years.

b. Short-term Budget

Short-term Budgets are prepared for one to five years of period.

2. On the basis of Functions

Functional budgets number depends on the size and nature of the business. Generally the functional budgets of a business are.

a. Sales Budget

The sales plan is the foundation of periodic planning in the firm because practically all other enterprise planning is built on it. The primary source of cash is sales, the need of capital addition, the plan of expenses the manpower requirement. Production level and other important operational aspects depend on the volume of sales. A comprehensive sales plan includes two separate but related plans the strategic and tactical sales plan. A comprehensive sales plan incorporates such management decisions as objectives goals strategies and premises. Long term/strategic and short term/tactical plans must be developed in harmony with comprehensive profit plan. The primary purposes of sales plan are to reduce uncertainty about future revenues. To incorporate management judgments and decisions into the planning process. To provide necessary information for developing other elements of comprehensive profit plan and to facilities managements control of sales activities.

b. Selling and Distribution Cost Budget

It is concerned with an estimate of the cost of selling and distributing of goods.

c. Production Budget

Production budget is the initial step in budgeting of manufacturing operations. The production budget is an estimation of planned quantity of goods to be manufactured during the budget period. It is prepared after adjusting the finished goods inventory with the sales budget prepared, as:

Sales Budget - Finished Goods Inventory XProduction Budget

d. Production Cost Budget

This budget is related to the cost of production including direct material cost, direct labor cost and expenses, fixed, variable and semi-variable.

e. Purchase Budget

Materials that are essential for production must be purchased in each period in sufficient qualities to meet production needs and to confirm to the company's ending inventory policy. Purchase budget specifies the quantities and timing of each raw material needed. The purchase budget specifies the estimated quantities to be purchased and the estimated cost for each raw material and the required delivery dates. It is calculated as:

Planned Purchase Unit X Planned Material Consumption + Desired ending inventory of raw material-Beginning inventory of raw materials.

g. Research Budget

This budget relates to the improvement in the quality of products or research of new products.

h. Cash Budget

Two kinds of resources flow through many business cash and non-cash assets. Cash budgeting in an effective way to plan and control the cash flows, asses cash needs and effectively use excess cash. The primary objective of preparing cash budget is to plan the liquidity position of the company as a basis for determining future borrowing and future investments. A cash budget shows the planned cash inflows, outflows and ending position by interim periods for a specific time span.

The primary purposes of the cash budget are to give the probable cash position at the end of each period as a result of planned operations, to identify cash excesses or shortages by time periods, to establish the need for financing or the availability of idle cash for investment, to coordinate cash with (a) total working capital (b) sales revenue (c) expenses (d) investment (e) liabilities and to establish a sound basis for continues monitoring of the cash position.

i. Plant Utilization Budget

This is intended to cover plan and machinery requirements to meet the budgeted production during the period. Schedules is developed showing the available load in each department expressed in standard hours or units.

j. Office and Administrative Budget

This budget represents cost of all administrative expenses such as management directing salary staff salaries and expenses of office management like lighting and heating

k. Capital Budget

Capital budgeting involves the entire process of planning and controlling the expenditures for expansion and contraction of investment in operating (fixed) assess with returns that are expected to extended by beyond one year. A capital expenditure is the use of fund to obtain operations assets that will help to earn future revenues and to reduce future costs.

2. Master Budget

A complete set of financial plan for a business from is often called the master budget. The master budget consists of many functional budgets including a sells budget, a production budget, a purchase budget, an expense budget, and equipment purchase budget and cash budget. Once all of these budgets are completed the master budget for the entire firm is prepared.

When all budgets have been prepared, the budgeted profit and loss account and balance sheet provide the over all picture of the planned performance for the budget period.

3. On the basis of Flexibility

a. Fixed Budget

It is a budget in which targets are rigidly fixed. Such budgets are usually prepared for one to three month's in advance of fiscal year to which they are applicable.

b. Flexible Budget

The budget which can be easily adjusted to any required level of activity is the flexible budget. It is designed to change in accordance with the changes in the level of activities. The concept of flexible budget is the complementary to the tactical profit plan.

A flexible budget calculates budgeted revenues and budgeted costs based on the actual output level in the budget period. A flexible budget is calculated at the end of the period when the actual output is known, unlike a static budget is each developed at the start of the budget period based on the planned output' level for the period. A flexible budget estimates expenses at different trends of future operation. A flexible budget is not based on only one level of activity. It is detailed plan for controlling over head cost a plan that is valid in the firm's relevant rage of activity

2.1.6 Development of a Profit Plan

Development of a profit plan induces the preparation of various functional budgets analysis of variance and presentation of projected income statement and balance sheet. Top to lower level management involves in the development of profit plan. The preparation process of budget forces executives for better administration of budgeting. Developing profit plan begins with the preparation of sales budgets or plan and ends with the preparation of master budget. The steps included in the preparation of master budget are outlined by John R. Shermerhorn as below.

Steps 1: Forecast demand for products or services.
2: Identify cost pattern for responsibility centers.
3: Estimate production cost.
4: Specify operation objectives.
5: Develop sales Budget.
6: Develop a production Budget.
7: Develop a purchasing Budget.
8. Develop budget for responsibility centers.
9. Formulate a profit plan.
10: Compare profit plan with operating objectives.
11: Formulate a projected cash Budget.
12: prepare projected statement of financial position.

2.1.6.1 Sales Budget or Plan

Profit planning processes begin from the preparation of the sales budget. After having the planning premises of the organization, the sale plan is developed.

The three distinct parts of sales plan are the planned volume of sales at the planed sales price per unit for each product. The sales promotional plan (advertising and other promotional costs) and the sales (or distribution) expense plan (sales person's remuneration and order getting and filling expenses) (Welsch, et al., 1998).

Sales budget forecasts what the business can reasonably expect to sell to it's customer during the budget period. The company earns profits only when it is able to sell it's products and not when it produces them. A reasonable degree of accuracy is necessary in sales budget because some other budget depend on it (Manamohan and Goyat, 1995).

The sales planning process is a necessary part of PPC because (a) it provides for the basic management decision about marketing and (b) based on those decisions, it is an organized approach for developing a comprehensive sales plan. If the sales plan is not realistic, most if not all of the other parts of overall profit plan are not realistic.

2.1.6.1.1 Sales Planning Vs Sales Forecasting

A sales budget is not sales forecast. It is a planning and control document which shows what management intends to accomplish. The document is active rather than passive. On the contrary the sales forecast is a projection of the available customer demand. A forecast reflects the environmental and competitive situation facing accompany, while the sales budget shows how a management intends to react to this situation (KulKarni, 1981).

A sales forecast expresses the demand potential and opens the way to intelligent marketing planning. To contest the forecast into marketing plan the management must take certain policy decisions about pricing, share of the market, size of the sales forecast level and promotional activity etc.

The sale budget is prepared from the sales forecast. A sales forecast is broader than a scales budget, generally encompassing potential sales for the entire industry, as well as potential sales for the firm preparing the forecast (Garrison, 1975).

The sales budget is the most important functional budget. It sales figure is incorrect, practically all functional budgets and consequently master budget will be affected. It is the keystone of the budget structure (Saxena and Vashist, 1995).

The organizations of sales department will determine the detailed planning of sales budget. In general, personnel at all levels will be involved but different grades will be concerned with different aspect of problem. Those concerned will probably includes sales representatives area and divisional sales managers, the sales managers and accountant each will ultimately be responsible for carrying out his share of plan (Manamohan and Goyal, 1595).

Now it is obvious that sales plans are formulated by top executives on the basis of strategies, objectives and guidelines as well as considering the forecast and sales forecast is the job of lower and middle level managers on the basis of past experience and knowledge. This estimate is used in formulating sales plan.

2.1.6.1.2 Strategic and Tactical Sales Planning

In harmony with a comprehensive profit, both strategic long-term and tactical short term sales plan must be developed. Thus, the usual case is five-or ten year strategic sales plan and one year tactical sales plan, many sales and product decisions commit a large amount of resources involving a life span of many years. Basic strategies and major decisions that involve commitment of resources and long life spans are difficult to stop.

Strategic long term sales plan is developed as one of the first stop in the overall completion process of comprehensive profit planning. Strategic sales plans are usually developed as annual accounts. This plan uses broad grouping of products lines with separate consideration of major and new products and services. It involves in depth analysis of future market potentials that may be built from a basic foundation such as changes in population, state of the economy, industry projection and finally company objectives. Strategic plans usually involves such areas as long term pricing policy, expanding and development new products, new marketing directions, evolution in distribution channels.

Tactical sales plan is prepared to plan sales for the twelve moths into the future detailed by time, product or territory region or sales person. Such plan subject to review and revision on a timely basis and usually developed in terms of physical units and in sales amount. This will held respective centers and for production department to plan and assess, Cost of production.

2.1.6.1.3 Developing a Comprehensive Sales Plan

Developing a comprehensive sales plan consist of the following steps:

Step 1: Develop management guidelines specific to sales planning including the sales planning process and planning responsibilities.

Step 2: Prepare one (or more) sales (market) forecast consistent with specified forecasting guidelines including guidelines.

Step 3: Assemble all the other data that will be relevant in developing a comprehensive sales plan such as manufacturing capacity, sources of raw materials and supplies or good for resale, availability of key people and a labour force, capital availability, availability of alternative distribution channels and general economic conditions etc.

Step 4: Based on the above mentioned steps apply management evaluation and judgment to develop a comprehensive sales plan. Different approaches widely used for developing sales plan are sales force composite (maximum participation), sales division mangers composite. (participation limited to manager only), executive decision (participation limited to manager only) and statistical approaches (Technical specialists. plus limited participation)

Step 5: Secure managerial commitment to attain the goals specified in the comprehensive sales plan.

2.1.6.2 Consideration of Alternatives

Sales plan involves consideration of numerous policies and related alternative and final choice by executive management among many possible courses of action. Important decisions must be made about such issues as new products, discontinuance of present products, pricing, expansion or contraction of sales areas, size of sales, new distribution channels, distribution costs and advertising and other promotional policies. Mainly two kinds of consideration is very essential.

2.1.6.2.1 Price - Cost - Volume Consideration

In a competitive market price and sales volume are mutually interdependent. The close relationship between sales volume and price and a complicated problem for

every company. Thus while developing sales plan the basic relationship between these two elements must be considered are estimation of the demand curve i.e. the extent to which sales volume varies at different offering prices, and the unit cost curve, which varies with the level of productive output.

2.1.6.3 Production Plan

The marketing plan specifies the planned volume of each product (or groups of similar products) for each time period throughout the planning period. The next step in a manufacturing enterprise is to develop a production plan. This entails the development of policies about efficient production levels, use of productive facilities and inventory levels. The quantities specified in the marketing plan, adjusted to confirm to production and inventory policies give the volume of the goods that must be manufactured by product and interim time period. Thus, the production budget can be represented in this way:

Sales Volume - Finished Goods Inventory Change = Production Requirements

2.1.6.3.1 Responsibility for Production Planning

The completed marketing plan should be given to the manufacturing executive who is responsible for translating it into production program consistent with managerial policies and subject to certain constraints. Planning, scheduling, and dispatching of the actual production throughout the year are functions of the production department, therefore, it is essential that responsibility for the planning and control of these functions are performed by the production managers. These managers have first hand knowledge of the plant and personnel capacities, availability of materials and production process. Although responsibility rests directly upon the production managers, top-management policies must be considered in such matters as inventory levels, stability of production and capital additions. An efficient and coordinated production plan requires the careful attention of the executive management.

The approach used by a particular company should depend upon its size and characteristics of its manufacturing processes.

2.1.6.3.2 Developing the Production Plan

Production managers must translate the quantities in the sales budget into unit production requirements for the budget period for each product while considering management inventory policies. Factors to be consider developing production budgets are (a) Establishment of policies for inventory levels (b) Total quantity of each product to be manufactured during budget period and (c) Scheduling this production by interim periods.

Following formula is usually to calculate the planned production.

		Units
	Planned Sales	.....
Add:	Planned Ending inventory	.....
	of finished goods	_____
	Total finished goods required	.....
Less:	beginning inventory of finished goods	_____
	Planned production for the year	.....

Because the production plan is developed prior to the end of the current year, the beginning inventory for the budget period must be estimated. The estimate is based on the basis of status of the inventory at the date the budget is being prepared and it is adjusted for planned operations for the balance of the current year.

When the budgeted production for the budget period has been determined, the next problem is preparing this production by interim periods during the budget year. Interim production must be planned to (1) provide sufficient goods to meet interim sales requirements (2) Keep interim inventory levels within policy constraints and (3) manufacture the goods as economically as possible. These three objectives may not always be in complete harmony. For example assuming seasonal sales, it is possible to maintain a stable production level only if inventories are allowed to fluctuate inversely with sales. On the other hand a stable inventory level is possible only if production is allowed fluctuate directly with sales. From the point of view of operations, it is generally describe to keep both inventories and production stable, a situation that is impossible given seasonal sales. Thus an efficient production plan

should represent the optimum coordination between sales requirements essential inventory levels, and stable production levels.

2.1.6.3.3 Consideration in Developing Inventory Policies

In most business, inventories represent a relatively high investment and may have significant impact on the major functions of the enterprise and its profit so being a important part of profit planning and control, management should considered the following in developing inventory policy.

1. Quantities needed to meet the sales requirements.
2. Permissibility of items.
3. Length of production period.
4. Storage facilities.
5. Adequacy of capital to finance inventory production sometime in advance of sales.
6. Distribution time requirements.
7. Cost of holding inventory.
8. Protection against labour short stages.
9. Protection against labour shortages.
10. Protection against materials and parts price increase.
11. Risk involved inventory
    a. Price defines
    b. Obsolescence of stock.
    c. Casually loss and theft.
    d. Lack of demand.
    e. Customer returns policies.

2.1.6.4 Material Plan

Material budget is prepared just after the preparation of production budget in manufacturing company. Once production output is planned, material required for the planned output is ascertained and then quantities of material to be purchased estimated. The material budget includes planning and controlling of raw materials and component parts used in manufacturing of finished products. Material plan is the plan to maintain coordination between (1) the factory requirements of raw materials (2) raw materials inventory levels and (3) purchasing of raw materials.

Sufficient raw materials will have to be available to meet production needs and to provide the desired ending raw materials inventory. However some quantity of raw material requirement will already exist in the form of beginning raw materials inventory. The remainder will have to be purchased from a supplier.

To assure the right amount of raw materials on hand at the time required and to plan for the cost of such materials, it is essential that the tactical short-term profit plan include (1) detail budget specifying quantity and cost of materials required and (2) a related budget for raw material purchase.

2.1.6.4.1 Components of Material Budget

The following are the main components of material budget:

(a) Material Consumption Budget

Once production needs are determined, direct material budget is prepared to show the materials that will be required in the production process. These budget specifics the planned quantities of each raw material required for production of finished goods, by time, by product and responsibility. The material consumption is computed as:

Planned Material Consumption = Planned Production Units ⎪ Standard Raw Material usage Per Unit of Output.

(b) Cost of Material used Budget

This budget specifies the estimated cost of the material that will be used in the production process. The cost of material is computed as:

Cost of Material Used = Budgeted Production Units ⎪ Standard Material Usages Rate ⎪ Price Per Units of Raw Material

(c) Material Purchase Budget

Direct materials are essential for production and must be purchased in each period in sufficient quantities to production needs and to confirm to the company's ending inventory policies. The material budget specifies the quantities and timing of each raw material needed. The purchase budget specifies the estimated quantities to be purchased and the estimated cost of each raw material and the required delivery dates. It is computed as:

Planned Purchase Units = Planned Consumption Material + Desired Ending Inventory of Raw Material -Beginning Inventory of Raw Materials.

(d) Material Inventory Budget

This budget specifies the planned level of raw material inventory interms of quantities and cost for each product and in total.

2.1.6.4.2 Consideration in Materials and Parts purchase and Inventory Policies

The primary consideration in setting inventory policies for materials and parts are timing and quantity of manufacturing goods, economies in purchasing through quantity discounts, availability of materials and parts, lead time, profitability of materials and parts, storage facilities needed, capital requirement to finance inventory, costs of storage, expected changes in the cost of materials and parts, protection against shortages, price involved in inventories and opportunity cost

Like finished-goods inventory policies, raw material and parts inventory policies should be based on standardized and well known principle, which should specify the two basic timing factors, are:

(1) How much to purchase at a time

(2) When to purchase

A well know approach called economic order quantity (EOQ) is used to find out, how much to purchase as:

$$EOQ = \sqrt{\frac{2AOC}{C}}$$

Where,

A = Annual quantity used in units

O = Average annual cost of placing an order.

C = Annual carrying cost of carrying one unit inventory for one year.

The time when a purchase is made is called the reorder point. The recorder point is reached when the inventory level is equal to the quantity needed to sustain production for a period equal to the time to reorder and receive the replenishment often is

desirable to include a safety stock to accommodate unusual fluctuation is usage and replenishment time. The Reader point is determined as follows:

Average monthly consumption (planned)	.....
Replenishment provision (Lead-time)	.....
	_____
Add: Safety Stock	.....
Reorder point	.....
	_____

2.1.6.5 Direct Labour Cost Budgets

The direct labour budget includes the planned direct labour requirements necessary to produce the types and quantities of outputs planned in the production budget. Although some companies prepare a labour budget that induces both direct and indirect labour, it is usually preferable to prepare a separate direct labour budget and to include indirect labours in the factory overhead budgets.

Direct labour, budget is the predetermination of planned direct labour hours and labour cost after preparing the production budget the direct labour hours are calculated by multiplying the units to be produced end estimated labour hours for each product. After finding total Labour hours required labour cost is calculated by multiplying the labour hours and labour rate.

Planning and controlling labour cost involve major and complex problem areas (1) Personal needs (2) Recruitment (3) Training (4) Job description and evaluation (5) Performance management (6) Union negotiations (7) wages and salary administration (Welsch, et al, 1999).

The primary purpose of preparing directed labour budget are to provide planning date about the amount of direct labour required number of direct labour employees needed', labour cost of each product unit and cash flow requirements, these all helps in controlling direct labour.

The responsibility for preparing the direct labour budget should be assigned to the executive responsible for the manufacturing function. The cost accounting and personnel departments provide support and supplementary information.

a. Approaches Used in Developing Direct Labour Budget

Has suggested the following approaches in developing direct labour budget are estimate the standard direct labour hours required for each unit of each product, then estimate the average wage rates by department cost center or operation. Multiply the standard time per unit of product by the average hourly wage rate, giving the direct labour cost per unit of output for the department cost centre or operation. Multiply the units of output planned for the department, cost centre, or operation by one unit direct labour cost rate to obtain the total direct labour cost by product. Estimate ratios of direct labours cost to some measure of output that can be planned realistically. Develop personnel tables by enumerating personnel requirements (including costs) for direct labour in each responsibility centre (Welsch, et al, 1999).

b. Approaches used in Planning Standard Labour Times

Different approaches for planning standard labour times are time and motion studies, standard cost, direct Estimate by Supervisors and statistical Estimate by a Staff Group.

2.1.6.6 Expenses or Overhead Budget

Expenses budget plays a significant role in profit planning and control because it helps to maintain expenses at a reasonable level in respect of the accomplishment of the objectives. There are three broad categories of expenses (a) manufacturing overhead (b) distribution expenses and (c) general administrative expenses for which separate sub-budgets are prepared.

An expense planning does not mean the reduction of expenses but rather focus on better utilization of limited resources. Expenses planning and control should focus on the relationship between expenditures and the benefits derived for those expenditures. The desired benefits should be viewed as goals and sufficient resources must be planned to support the operating activities essential for their accomplishment.

The knowledge of cost behavior is important in planning expenses. Cost behavior is the response of a cost to different volume of output. There are three distinct categories of expenses which are viewed in relation to change in output.

(a) Fixed Expenses

Those expenses that is constant in total, from month to month, regardless of fluctuations in output or volume of work done.

(b) Variable Expenses

Those expenses that charges in total, directly with changes in output or volume of work done.

(c) Semi Variable Expenses

Those expenses that are neither fixed no variable because they possess some characteristics of both. As output changes, semi variable expenses change in the same direction but not in proportion to the change in output.

Manufacturing Overhead Budget

Manufacturing overhead is that part of total production cost, not directly identifiable (traceable to) specific products or jobs. If consists of (a) indirect material (b) indirect labour (c) all other miscellaneous factory expenses such as taxes, insurance, depreciation, supplies utilities and repairs. Manufacturing expenses include many dissimilar expenses which can cause problem in the allocation of these cost to products.

Two types of responsibility centers: production and services are common in most manufacturing firms. Production department work directly on the products manufactured, service departments do not work on the Production directly but rather furnish services to the production department and to other service departments.

For budgeting purposes, manufacturing overhead involves the following two problems are controlling of manufacturing or factory overhead, allocation of manufacturing or factory overhead to product manufactured.

2.1.6.7 Selling and Distribution Expenses Budget

Distribution expenses include all costs related to selling distribution and delivery of products to customers. In many companies, this cost is significant percentage of total expenses.

The top marketing executive has the overall responsibility for developing the distribution expenses plans or budgets. Following the principle of participation, the manager of each responsibility centre should be assigned direct responsibility for that department's distribution expenses plan. Thus the promotion manager should be responsible for developing the promotion plans, and the field sales manager should be responsible for developing both their marketing plans and their distribution expenses budgets.

Fundamentally, the top executive has the direct responsibility for planning the optimum economic balance between (1) sales budget (2) the advertising budget (3) distribution expense budget. Therefore profit planning and control views sales advertising and distribution expense as the one basic problem rather than as three separate problems.

Distribution expenses include two major types. (1) home-office expenses and (2) field expenses, from the planning and controlling point of view, these expenses must be planned by responsibility centre. In some case this might be by sales district, in other case by products.

2.1.6.8 Capital Expenditure Budget

A capital expenditure is the uses of the funds to obtain operational assets that will (a) help earn future revenues or (b) reduce future costs capital expenditure include such fixed i.e. operational assets as property, plant equipment, major renovations and patents. Typically, capital expenditure projects involve large amount of cash, other resources and debt that are tied up for relatively long period of time.

Capital expenditures are investments because they require the commitment of resources today to receive higher economic benefits i.e. profit in the future. Capital expenditures becomes expenses in the future as their related goods and services are being used to earn higher future profits from future revenues or to achieve future cost saving. The related future expenses, such as depreciation expenses, are identified with the periods when the capital additions are used for their intended purposes therefore capital expenditures involve two planning and controlling phases (a) Investment and (b) Expenses.

Capital budgeting may be defined as the decision making process by which firms calculate the purchase of major fixed assets, including buildings, machinery and equipment (Hampton, 1994).

Capital projects are those that are expected to generate returns for more than one year. Capital budgeting refers to the process of planning capital projects, rising funds and efficiently allocating resources to those capital projects. It involves the planning and control of capital expenditures. It is the process of deciding whether or not to commit resources to a particular long term project whose benefits are to be realized over a period of time, longer than one year.

Thus in conclusion capital expenditure budget is the process of decision making as it determines which capital investment will be undertaken by a firm. It includes generation of projection and their analysis in the context of long term financial viability.

Process of Planning and Controlling Capital Expenditures

Because capital expenditures involves the long term commitment of large amount of resources decisions concerning them have a significant long term effect on the economic health of a company. This fact suggest the need for careful analysis and planning on the part of top management, Thus to make the capital expenditure planning systematic and effective, the following process are suggested.

1. Identify and generate capital additions projects and other needs.
2. Develop and define capital additions proposal collection of relevant data about each proposal, including any related alternatives.
3. Analyze and evaluate all capital additions, proposal and alternatives. Emphases should be given to the validity of the underlying financial and operational data.
4. Make capital expenditure decisions to accept the best alternatives and assignment of project designations to selected alternatives.
5. Develop the Capital Expenditure Budget:
    i. Strategic plan - replan and extend the long - term plan by dropping the post year and adding one year into future.
    ii. Tactical plan - Develop a detailed annual capital expenditure budget, by responsibly centers and by time that is consistent with the comprehensive profit plan.

6. Establish control of capital expenditures during the budget year by using period and special performance reports by responsibility centers.
7. Conduct post completions audit and follow-up evaluations of the actual results from capital expenditures in periods after completion.

2.1.6.8.1 Methods of Measuring the Economic Value of Capital Expenditures

Capital expenditures decision is related with the selection of best alternative or alternatives from the competing capital expenditure alternatives by management such decisions focus mainly in two points (a) investment decisions selecting the best alternatives based on their economic worth, and (b) financial decisions - based on the amounts and sources of funds needed to pay for the selected alternatives. The essence of capital investment analysis comprises the benefit that accrues over a period of time with the amount invested. There are, several methods to measure the economic value of capital invested. The important methods are.

1. Discounted Cash Flow Methods

The discounted cash flow method consists:

(a) Net Present Value Method

This method compares the present value of the future cash inflows with the present value of the initial net cost of the capital value of the initial net cost of the capital expenditure projects. The difference in amount between these two is called NPV.

The net cash that are expected to be inflow in the future are discounted to present value. The project is accepted only if NPV is positive. The following formula is used to calculate NPV.

$$NPV = F \quad \frac{1}{1 \Gamma i}^{n} \quad Z C$$

Where,

NPV = Net Present Value

F = Expected cash inflow

i = Cost of capital or required rate of return.

C = Initial investment on project.

Decision Rule:

1. Independent projects: All projects having a positive net present value (NPV) are accepted.
2. Mutually Exclusive projects: project having highest net present value is accepted.

(b) Internal Rate of Return (IRR)

The IRR is the rate that will discount all the future net cash inflows so that their discounted sum will exactly equal the initial outflows of the investment projects. The formula used to calculate IRR is

$$IRR = LR + \frac{NPV_{LR} - NCO}{NPV_{LR} \; Z \, NPV_{HR}} \; (HR\text{-}LR)$$

Where,

IRR = internal rate of return

LR = Lower discount rate

NPV = net present value

HR = highest discount rate.

2. Traditional Approach

(a) The Payback Period

This method computes the payback period which is number of years that the project takes to recoup a cash investment from the annual net cash inflows.

$$PBP = \frac{\text{Net Cash Investment}}{\text{Annual net cash inflows or net cost saving}}$$

Decisional Rule

1. **Independent project:** A project should be accepted if its payback period is less than or equal to a specified maximum period i.e. standard time fixed.
2. **Mutually Exclusive Projects:** Projects having the lowest payback period is accepted.

(b) The average rate of Return on total Investment

This method represents the rate of the average annual profits to be the investment in profits.

Average cash return on

$$\text{total cash investment} = \frac{\text{Average annual net cahs inflows}}{\text{Cash outflow of the investment}}$$

Decisional Rule:

Independent Project: A project should be accepted if the ARR is equal or greater than the standard rate.

Mutually Exclusive Project: A project having higher ARR is accepted.

2.1.6.9 Cash Budget

A cash budget shows the planned cash inflows, outflows and ending position by interim periods for a specific time span most company should develop both long-term and short-term plans about their cash flows. The short-term cash budget is included in annual profit plan. A cash budget basically includes two parts: (1) the planned cash receipts and (2) budget planned cash disbursements

Planning cash inflows and outflows gives the planned beginning and ending cash position for the budget period: planning the cash inflows and cash outflows will indicate (1) the need for financing probable cash deficits or (2) the need for investment planning to put excess cash to profitable use. The cash budget is directly related to other plans, such as sales plan, account receivable and the expense budget and the capital expenditure budget.

The primary purposes of the cash budget are to:

1. Give the probable cash position at the end of each period as a result of planned operations.
2. Identify cash excess or shortages by time periods.
3. Establish the need for financing and for the availability of idle cash for investment.
4. Coordinate cash with (a) Total working capital (b) Sales revenue (c) Expenses (d) Investments and (e) Liabilities.
5. Establish a sound basis for continuous monitoring of cash position.
6. Preparation of the cash budget should be the responsibility of company treasurer. The cash budget is based almost exclusively on the other budgets,

therefore the treasurer must work closely with the other managers whose decisions may directly affect cash flows.

2.1.6.10 Completion and Implementation of the Profit Plan

The major purpose of developing various budgets (mentioned above) is to integrate these budgets and preparing the overall profit plan of the enterprises. So by integrating the all functional budgets, the planned income statement and balance sheet is prepared.

Only after preparing the following statement the annual profit plan of an enterprise is said to be completed.

1. Planned statement of cost of goods manufactured.
2. Planned statement of cost of goods sold.
3. Planned income statement.
4. Planned balance sheet.

The efforts and cost involved in developing a profit plan is worth while only if it is implemented property so as to meet or achieve all major objectives. For this purpose management enhances participation and communication making accountable to the concerned responsibility centers. The copies of complete profit plan are distributed to the deserving executive with guiding principle. A series of profit plan conference should be held to recognize actions, flexibility and continuous control of activities. It should convey the profit plan to all level of management, considering profit plan as a management tool for obtaining objectives.

2.1.7 Control Process of the Profit Plan

2.1.7.1 Performance Report

Management has to devote considerable time and efforts to develop profit plan for an enterprises. This effort is justified primarily because the activities of all subunits must be focused on enterprises objectives. Each responsibility center is a company fulfills a prescribed and necessary role in attaining enterprises objectives. Attainment of profit plan is vital. The central objective of performance report is the communication of performance measurements actual results and the related variances. In addition to control implications, performance reports offer management essential insights into all

faces of operational efficiencies. Performance reports pose critical behavioral problems became inefficiencies as well efficiencies, of individuals are pinpointed and reported performance reports should be tailored to the characteristics of the particular environment. Thus performance report should be:

- Tailored to the organizational structure and locus of controllability.
- Designed to implement the management by exception principle.
- Repetitive and related to short time periods.
- Adapted to the requirements of the primary uses.
- Simple, understandable and report only essential information.
- Accurate and designed to pinpoint significant destinations.
- Prepared and personated promptly.
- Constructive in tone.

Performance report should distinguish clearly controllable and non-controllable items. The actual results are compared with objectives and standards and the different are analyzed by the management performance report is designed carefully to show the title and headings. It should not posses technical jargon, complex tabulations and irrelevant information.

Performance report should minimize the time gap between decision and report. As report indicates the favorable and unfavorable various between planned and actual performance immediate action should be made.

2.1.8 Analysis of Budget Variances

Comparison of actual results with planned or budget goals has been emphasized as an integral port of the control process. A basic feature of performance reports is the reporting of variances between actual results and planned or budgeted goals. If a variance is significant, a careful management study should be made to determine the underlying causes. The under lying causes rather than the actual results, should lead to remedies through appropriate corrective action by management. There are numbers ways to study or investigate variances to determine the underlying causes some of the primary approaches are conferences with responsibility centre managers and supervisions and other employees in a particular responsibility center involves. Analysis of work situation including the flow of work, coordination of activities.

Effectiveness of supervision and other prevailing circumstances. Direct observation. On the spot investigation by line managers. Investigation by staff groups and variance analysis.

Variance analysis involves a mathematical analysis of two sets of data in order to gain insight into the underlying causes of variances. One amount is treated base, standard or reference point, variance analysis has wide application in financial reporting. It is frequently applied in investigation of variances between actual results of the current period and the actual results of a prior period. Investigation of variances between actual results and standard costs. Investigation of the variances between actual results and planned or budget goals reflected in the profit plans. The planned or budget goals are used as the base.

2.2 Review of Previous Studies

2.2.1 Review of Journals/Articles

Welsch (2016) carried out a study on "Budgeting Practices of Listed Companies in Netherlands". In the article, budgeting is a well-known subject. In the last few years, many articles have criticized the traditional budgeting process and have stated, among other things, that the process costs too much time in relation to the benefits and reduces innovation and changes.

In this article it was presented the results of an empirical research project on current budgeting practices in Dutch-listed companies. A survey was mailed to corporate controllers and/or financial directors of 134 companies listed on the Amsterdam Stock Exchange in November 2016. The initial mailing was followed one month later by a reminder, which resulted in a final usable response rate of 33%. Our investigation indicated that, on average, the budgeting practices in Dutch-listed companies are a budget covers a fixed period and will generally not be changed during this period. During this period, regularly revised forecasts are prepared next to the original budget. The budget covers one year, broken down by months, and supports the firm’s strategy. Business unit managers participate in setting targets of the business units. In most cases, the standards are developed by lower-level management and are reviewed and approved by higher levels of management. The budget targets are attainable with some extra effort. Targets are used in the budgeting process. These targets are

developed through participation of subordinate levels of management. These standards are tight but attainable. Budgets have several uses. They are used most frequently to motivate and reward managers, for planning purposes, to evaluate activities, and for communication purposes. Budgets are related to long-term plans. The profit-conscious style is used to evaluate the performance of managers. Any overspending of budgets is evaluated in relation to the long-term goals of the firm. A great majority of respondents use slack to deal with environmental uncertainty. Overall, there is no significant association among size (revenues), the kind of industry, and the findings of the research.

King, Clark and Wallace (2017) wrote an article presenting evidence linking primary healthcare business characteristics, budgeting practices, and business performance. Based on a sample of 144 responses from a survey of members of the Australian Association of Practice Managers (AAPM), we find that factors identified by contingency-based research are useful for predicting a business's budgeting practices. Specifically, we find the adoption of written budgets to be related to size and structure, and for businesses using written budgets, the extent of use is related to business structure, strategy and perceived environmental uncertainty. Finally, we find evidence of a relationship between budgeting practice and performance. Here, we initially find a business's performance to be positively associated with the use of written budgets. More refined tests of the “fit” between business contingency factors and extent of operating budget use then provide evidence of a positive association between the extent of “fit” and performance.

McConaty (2017) wrote an article on "Budgeting, Planning and Forecasting Best Practices." The writer found that it is a common mistake to assume that automation alone will bring necessary budget process improvements to an organization. Automating an inefficient or unintelligent budget process just makes the same process faster, not better.

The reality is traditional practices that govern budgeting, planning, forecasting, reporting and risk management are becoming obsolete in the context of a fast paced digital marketplace and a volatile and uncertain global economy. Long established budget practices provide a false sense of security and fail to cope with the speed and volatility of today’s markets.

Additionally, the traditional budgeting process is widely decried, both by FP&A personnel—who must reconcile the requests from business managers with the targets handed down from the C-suite—and the business line managers they support—who view the budget process as a bureaucratic exercise, a distraction from their job, a drag on their time, and a purely finance-driven process.

As you consider a new budget system, remember this is the optimal time to evaluate the strategies that can help your organization develop a more agile and intelligent budget process, use this process as decision making tool rather than a negotiation, and positively change your organization's perception of budgeting.

Datt (2017) wrote an article on "Best Practices of Budgeting". The continual changes in the business climate constantly challenge companies to find more effective business practices. However, common budgeting limitations are preventing companies from moving forward; they have become so universal and accepted in the marketplace that it is becoming more difficult to move ahead and progress the business. Flexibility, accuracy and control over the budgeting process are three prominent factors slowing this progression. Many finance professionals want to grasp the big picture of the company's position by having the flexibility to evaluate and understand the effect of various factors. They want the ability to review previous years' budgets, add/remove accounts or change budgeting assumptions with ease. However, with the lack of flexibility in their current tools, the depth of understanding and awareness are very limited. Data integrity and control issues are also very common challenges that companies report during the budgeting process. The whole budgeting process can become very difficult to manage and various stakeholders begin to lack data ownership and confidence. Finance professionals begin to consume too much valuable time dealing with the gaps and errors in the data. Yes, budgeting is a necessary evil that, if done improperly, can bring distress and anguish throughout the company. Yet, by resolving these issues, companies truly can gain a tangible competitive advantage by effectively budgeting and optimizing the use of their resources. With a comprehensive view of financial and non-financial data, you are able to make better, more informed decisions; you can accurately understand the true cost of your products and services and the budgeting process becomes much more efficient—ultimately leading to more time for advanced analysis and improved teamwork and data ownership.

2.2.2 Review of Theses

Lamichhane (2010) carried out a study on "Budget as a tool of profit planning of public utility Enterprises: A case study of NTC" with the aim to focus on the aspect of budgeting and examine the practice and effectiveness of profit plan in Nepal Telecommunication. The main objectives of the study were to examine the practices and effectiveness of profit planning in NTC and to observe the NTC's profit planning system on the basis of budgeting system.

Achievement of sales is not satisfactory with respect to targeted sales because actual sales are more variable than budgets sales. Actual production lines in NTC are more fluctuated than budgeted productive line due to government influenced. There is problem to analyze and control the cost due to overhead cost which is not classified systematically. From the analysis of profit plan in NTC there is no practice of cost segregation into fixed and variable and there is no systematic approach to record manufacturing costs. NTC has not practiced to prepare projected profit and less account and balance show in advance.

Adhikari (2012) conducted a research study on "Profit Planning in Manufacturing Enterprises: A Case Study of the Dairy Development Corporation". This research has highlighted and analyzed the problems and prospects in budget application and implementation. This research study has also tried to find whether new trend of DDC is positive and perfect in case of profit planning and control or not. The main objectives of the study were to analyze the functional budgets on sales and production sector of the DDC, to analyze various accounting ratios, measures the profitability and efficiency of DDC and to analyze the budget target and its advancement along with reason of deviation if any.

Production and sales of DDC is increasing annually although sales growth is fluctuated. The corporation has no proper practice of segregating cost into fixed cost and variable cost. Most of budgeted figures are higher than actual figures. DDC has applied stable inventory policy with opening stock of inventory but thus policy is not applied in practice closing stock quantity is not fixed. DDC has prepared direct labour budget only based on technical and administration. It is not prepared according to time and rate.

Prajapati (2014) has conducted research on the topic "Study of Profit Planning & Control of Dairy Development Corporation Lainchaur" with the aim to analyze the

practices of profit planning and control in dairy development corporation. The study was mainly based on secondary sources of data covering five years data. The main objectives of the study were to analyze the trend of profit and loss of DDC, to analyze the various functional budgets that is prepared by DDC, to evaluate the variance between budgeted and actual achievement of the enterprises and to examine the present profit planning premises adapted by DDC.

Lack of planning and management, poor storage and look of effective response have always contributed to poor performance of DDC. From the above research interpretation we came to know that DDC has planned only short - term plan i.e. plan for only one year it does not make long term plan for five years. DDC makes budget for its every product from milk to ice cream. But is does not make sales budget for sweets because of being new product. DDC prepares some functional budget like sales and purchase budget, expense budget etc. These all budgets are prepared on an annual basis. The annual amounts are not divided into the interim period.

Pandey (2015) carried out a study on "A Study of Cash Management to Dairy Development Corporation" with the aim to analyze and evaluate cash management techniques and effectiveness in dairy development corporation. The study followed descriptive research design using secondary sources of data.

The main objectives of the study were to examine the cash management practice in DDC, to examine the liquidity position of DDC and to study the relationship of cash with other influencing variables of cash managements.

DDC does not have any definite policy regarding how much cash balance to behold in each period. Cash and bank balance hold during the deferent period of study were observed to be highly fluctuated and thus the fact indicates the need of definite policy regarding how much of each balance to be hold in each period. Average cash balance of DDC during his study period was 176.73 million. Erratic fluctuation has been observed in cash turnover relation analysis. The fluctuation of cash turnover ratio is the indication of not having definite policy regarding holding cash in relation to sales volume. The average cash turnover ratio of DDC is 8.74 tones, where the higher ratio is 14.05 times has been observed in FY 2068/69. Analysis shows that DDC has not utilizing its current assets effectively in earning profit. Noticeably in FY 2070/71 which calls for serious attention. Besides, the overall ratios are not satisfactory, indicating loss in each fiscal year. Overall, the return on working capital i.e. current assets is disappointing indicating drastic downfall of corporation. The average return

on working capital has been calculated -6.93%. The fluctuation of inventory turnover ratio it's 6.72 times in FY 2067/68 to 15.2 in FY 2070/71 where inventory conversion period is minimum in FY 2070/71 and maximum is 54 days in two FY 2068/69 and 2069/70. The ratio of lower conversion period suggests that either DDC is in under investment or the inventory was completely lower. At last overall ratio has been calculated 8.55 and conversion period is 43 days.

Deepak (2016) conducted a research study on "Sales Budgeting Is the Tools of profit planning in Public Enterprises." The main objectives of the study were to analyze the sales budgeting and practices adopted by Nepal Electricity Authority, to examine sales trend of Nepal Electricity Authority and to analyze the relation between budgeting sales and its effect on profitability of Nepal Electricity Authority.

NEA has a practice of preparing both strategic (long-range) and tactical(short-range) profit plan. But the strategic plan is limited only to the top level executives. NEA prepares almost all of the necessary budgets such as operation budget, financial budget, appropriation budget and NEA has been suffering from series of losses since last half decade. The actual profit of NEA has a very high degree of negative correlation with actual sales i.e. -0.6615 approximately, therefore an increase in sales decreases the profit of Authority. The reasons may be due to inability and insufficiency of NEA to increase the efficiency of costs by considering forthcoming risks, power leakage, wastage etc. Tariff rate of electricity is high in domestic, non-commercial, commercial and temporary supply but it is cheap in water supply, irrigation community sales, transport and bulk supply (India) categories. Category-wise sales analysis of NEA shows that the sales share (in GWH) of electricity of domestic, industrial, bulk supply (India) and commercial categories is high and sales share (in GWH) of community sales, temporary supply is low. The sales revenue of electricity (in Rs.) of 'domestic' category is the highest and the least is in the 'transport' category.

Pokhrel (2016) conducted a study on "Sales Planning in Nepalese Public Enterprises: A Case Study of Dairy Development Corporation" with the objective to present sales planning system applied by DDC. The main objectives of the study were to identify the sales planning process of DDC, to examine the formulation and implementing procedure of sales plan in DDC, to evaluate the variance between budgeted and actual sales of the DDC and to examine the effectiveness of sales plan in DDC.

DDC is not preparing the systematic periodic performance reports detailed by assigned responsibilities for accomplishing the planning objectives. By the analysis, there is no systematic and realistic sales plan. The sales planning is rarely satisfactory for some product but not for all. The company prepared the sales budget without studying the environmental scanning. Least square straight line sales trend of DDC shows that the sales will be gradually increased in the future if present efforts are frequently being improved.

2.3 Research Gap

In previous researches, growth and size of the DDC have been studied. They were analyzed only on the basis of secondary data analysis. Few of the previous research were concerned with problems of DDC. However, they were not analyzed taking such variables like sufficiency of legal rules and regulations, availability of information about the actual position of DDC. To do this research, the researcher does not find the any previous research on the topic of prospects of market size and potential customer of DDC. So to fulfill this gap this present study is conducted only analyzing the secondary data. The sales growth of DDC is analyzed using only secondary data.

CHAPTER - III

RESEARCH METHODOLOGY

Research methodology is the process of arriving at the solution of the problem through planned and systematic dealing with the collection, analysis and interpretation of facts and figures. Research is a systematic method of finding right solution for the problem whereas research methodology refers to the various sequential steps to adopt by a researcher in studying a problem with certain objectives in view.

3.1 Research Design

The research design of the study is analytical approach. This study is an examination and evaluation of budgeting procedure in the process of profit plan of DDC. This study is closely related with the various functional budgets and other accounting statement as well as the actual result of the budget. This information and data are presented in an analytical method. But the qualitative aspect of the research such as effectiveness of profit planning in DDC, problem of formulating and implementing the profit plans views of top personnel of the bank and the theoretical prescriptions are explained in words wherever necessary.

3.2 Population and Sample

This research aims at studying budgeting practices of DDC i.e. a single corporation and data have been analyzed for five years of its operations. It is not concerned with any branch or product of DDC. There is not any difference in the population and sample terms for this study. That means DDC is a sample company. The present study covers two times dimensions long range and short range. The time period of five years for the purpose of trend analysis for long planning and the time period of one year (current year) for the purpose of short range planning are taken.

3.3 Nature and Sources of Data

This study is based on secondary data used to fulfill the objective of the study. The secondary data has been collected from annual report of DDC, profiles and magazines of DDC, published and unpublished articles, budget-sheet of DDC, previous studies made in this field, websites, etc.

3.4 Research Variables

The research variables of this study is mainly sales, production, inventory profit and loss, capacity utilization, manpower, capital expenditure, flexible budget and cash flows related to short term and long term periods of DDC.

3.5 Research Tools Used

The collected data from various sources are managed to analyze and present in proper tables, formats and graphs such as table and formats are interpreted and explained wherever necessary. To analyze the collected data financial and statistical tools are used. In statistical tools, mean, standard deviation, co-efficient of variation, correlation coefficient, coefficient of determination, probable error of correlation, regression equation, time series analysis, graphs and diagrams are taken, whereas in financial tools ratio analysis, CVP analysis are used.

3.5.1 Financial Tools

Since the study concentrated on profit planning of DDC, some important financial tools and techniques are used for the analysis.

3.5.2 Statistical Tools Used in this Analysis

Regression Analysis

Regression analysis is used to estimate the likely value of one variable from the known value of the other variable i.e. in regression analysis we establish a kind of average irreversible functional relationship between the two variables. The cause and effect relationship is clearly indicated through regression analysis than by correlation. In other words, regression analysis is a mathematical measure of the average relationship between two or more variables in terms of original units of data. There are two types of variables in regression analysis – dependent variable and independent variable, the variable whose value is influenced or is to be predicted is called dependent variable whereas the variable which influences the value or is used for predication is called independent variable. The dependent variable is also known as regressed or explained variable while the independent variable is called as regress or predictor or explanatory variable.

Lines of Regression

If there exists a relationship between two variables, the points in the scatter diagram will more or less concentrate around a curve, called the curve of regression. If the curve is a straight line, it is called the line of regression and the relationship between the variables is said to be linear regression.

A line of regression is the line, which gives the best estimate to the value of one variable for any specified value of the other variable. Thus the line of regression is the line of best fit.

The term best fit is interpreted in accordance with principle of Least Squares which consists in minimizing the sum of squares of the residuals or the errors of estimate, i.e. deviation between the given observed values of the variables and their corresponding estimate values as given by the line of best fit. If we have two variables X and Y, we shall have two regression lines, Minimizing the sum of squares of error parallel to y-axis gives the equation of the line of regression equation of Y to X and minimizing the sum of squares of the errors parallel to x-axis, gives the equation of the line of regression of X on Y.

Regression Equation of Y on X

It is the line, which gives the best estimates for the values of Y for any specified values of X.

Regression equation of Y on X is given by

$$\text{In } Y = a + b X + e \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{(i)}$$

Where,

Y= Dependent variable (Total sales)

X= Independent variable (Unit change)

a = Intercept of the line

e = Random error term

3.5.1 Standard Deviation (S.D)

Standard deviation is the measurement of dispersion of variables around the mean value. It is a statistical measure of the variability of a distribution of sales around its

mean. It is the square root of the deviations of the planned sales. S. D. is the standard average of planned sales from mean sales.

3.5.2 Coefficient of Variation (C.V.)

The coefficient of variation is the relative measure of dispersion, comparable across distribution, which is defined as the ratio of standard deviation to the mean expressed in percentage. It gives the risk per unit of the expected sales and gives the result regarding the unit of risk to bear for the actual sales.

3.5.3 Correlation Coefficient (r)

The correlation coefficient measures the direction of relationship between two sets of figures. Correlation is the relative measurement of co-movement of the returns of two stocks. The regression line shows the degree of relationship between target production and actual production. It makes the forecasting possible in coming year.

3.6 Data Analysis Procedure

The research procedure involves the following steps for present study.

- Analysis of data by using approved statistical and financial tools.
- Collection of various books, previous thesis and other publication relevant for the study.
- Assimilation of useful secondary data.
- Arrangement and presentation of data throughout table, chart, graph.
- Valuable conclusion and recommendation.

CHAPTER – IV

DATA PRESENTATION AND ANALYSIS

This study focuses only in short range profit planning of DDC however sales production raw material collection, financial data and other related data and figure of previously year have also been analyzed with a view to make this research more logical and implementable. For research purpose this study covers only 5 years data i.e. from FY 2069/70 to 2073/74.

4.1 Sales Budget Planning and Control

Sales planning are the foundation of budgeting since it is prepared first and than all budgets are prepared. A sale not only generates revenues but also involves selling cost. Due to these reason comprehensives, sales planning including both revenue and selling cost components. The sales planning is a forecast of total sales according to types of products, geographical location etc. It is also concerned with estimate of selling and distribution of goods.

DDC produced and sales different types of product milk, curd, ice-cream, butter ghee, chees Paneer etc. So, while analyzing the sales budget, the overall product sales and its selling behavior have been analyzed.

While, analyzing the sales budget of DDC, it has tried to analyze the budgeted and actual sales of DDC and its behavior. After analyzing by using different tools and techniques this study checks consistency and effectiveness of budgeting and actual sales practices.

The efficiency of plan has been tired to evaluate from the comparative table showing comparison between actual and budged sales. The following table presenting sales performance from the fiscal's years 2069/70 to fiscal years 2073/74 shows sales trend of DDC.

Table 4.1

Annual Sales Budget of Dairy Development Cooperation

(Rs. In '000')

S. N.	Items/ Product	Unit	Description	2069/70	2070/71	2071/72	2072/73	2073/74
1.	Milk	Ltr.	Budgeted	64595	69050	58809	62928	55456
			Actual	61089	63926	53327	52171	52094
			Ach (%)	94.57	92.58	90.68	83.03	93.93
2.	Butter	Kg.	Budgeted	318	288	196	253	273
			Actual	255	226	150	201	165
			Ach (%)	80.18	78.41	76.53	79.44	60.43
3.	Ghee	Kg.	Budgeted	943	917	730	848	628
			Actual	834	820	658	823	628
			Ach (%)	88.44	89.37	90.1	97.05	67.23
4.	Chees	Kg.	Budgeted	188	241	172	251	247
			Actual	158	182	143	137	164
			Ach (%)	84.04	75.35	83.4	54.58	66.39
5.	Curd	Ltr.	Budgeted	1101	1182	1158	1350	1685
			Actual	1062	1158	1274	1704	2009
			Ach (%)	96.45	98	110	126.22	119.22
6.	Ice-cream	Ltr.	Budgeted	42	186	91	163	152
			Actual	38	150	37	52	53
			Ach (%)	90.42	80.63	40.54	32	34.86
7.	Paneer	Kg.	Budgeted	67	132	92	157	104
			Actual	68	121	58	78	96
			Ach (%)	101.49	92	63	50	92.30
8.	Raswari	Pack	Budgeted	85	140	138	187	173
			Actual	92	131	87	86	74
			Ach (%)	108.23	94	63	46	42.77

Source: Annual Reports, DDC 2073/74

From the analysis of above data of DDC product, it is clearly seen that the budgeted and actual sales practices of organization are highly fluctuated.

The sales figures of milk have never been met. All fiscal yearly targets are achieved more than 90%. But the fiscal year 2072/73 is only 83.03%.

The sales of butter have not also meet all these achievement are limited up to maximum 80.18% even is some year they are at only 60.43%. These the achievement of butter is also low it is necessary to upgrade the activities related with this product to push the sales of butter.

Again in case of Ghee also the achievement level is not satisfactory it is maximum in FY 2072/73 is 97.05% and minimum in FY 2073/74 is 67.23%.

The sales level of cheese is also not in satisfactory position since its achievement have been confined only up to 84.04% maximum in FY 2069/70.

DDC have achieved satisfactory level of sales in case of curd in comparison with other product. The actual sales of cured is 126.22% of budgeted sales in F/Y 2072/73 minimum in F/Y 2069/70 is 96.45. The crude sales position provides strength for DDC it should be continued. The overall sales of ice- cram are also not satisfactory since the set target have been never met. Thus the overall sales position of ice-cram should be revised should be upgraded.

The sales position of Paneer and Raswari assumed satisfactory to some extent since in some F/Y It is in above 100% and in some, it is below standard level.

In overall analysis, it is shown that there is no systematic and scientific analysis in determining budget sales of DDC product either researcher says that there are some deficiencies in marketing aspects since the actual sales are very low in comparison with standard. There is no matching in between budgeted and actual sales thus the sales analysis shows that there is no proper planning mechanism in determination sales plans.

In conclusion we can say that DDC has not practicing proper planning system it's planning has no meeting since there is greater deviation in budgeted and actual sales.

The reason behind not meeting budget target can be following:

- Lack of knowledge about product markets.
- Being of public intuition staff may not be motivated for profit point of view.
- DDC may lack performer incase of informing its customer about the products.
- It may not have proper mechanism in case of analyzing competition.
- There may be problems in case of raw material supply due to this product may be disturbed.
- While going and visiting DDC fields we could not found proper mechanism and body to formulate budget.

Different statistical tools have been used i.e. calculating such as arithmetic mean, standard deviation coefficient of variation and correlation with a view to analyze the nature of variability in between budgeted and actual sales in different fiscal year.

The summary of the calculation have been presented in the table below.

Table 4.2

Statistical Tools for the Analysis of Sales Data

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Product	**Particular**	**Units**	**Budgeted**	**Actual (%)**
Milk	Mean	Ltr.	61.74	56.52
	S.D	Ltr.	4.72	5.0037
	C.V	%	0.07644	0.08852
	Correlation		r_{xy} = 0.619	
Butter	Mean	Ltr.	0.2656	0.1994
	S.D.	Ltr.	0.0407	00385
	C.V	%	0.153	0.193
	Correction		r_{xy} = 0.85	
Ghee	Mean	Kg.	0.8744	0.7544
	S.D	Kg.	0.0788	0.090
	C.V	%	0.090	0.120
	Correlation		r_{xy} = 0.327	
Chees	Mean	Kg.	0.2198	0.1568
	S.D	Kg.	0.032	0.0159
	C.V	%	0.15	0.101
	Correlation		r_{xy} = 0.4172	
Curd	Mean	Ltr.	1.295	1.44
	S.D	Ltr.	0.211	0.356
	CV	%	0.162	0.247
	Correlation		r_{xy} = 0.935	
Ice-cram	Mean	Ltr.	0.1268	0.066
	S.D	Ltr.	0.0527	0.0424
	C.V	%	0.4159	0.66
	Correlation		r_{xy} = 0.673	
Paneer	Mean		0.1104	0.842
	S.D		0.0311	0.0221
	C.V		28.23	0.262
	Correlation		r_{xy} = 0.46	
Raswari	Mean	Pack	0.1446	0.094
	S.D	Pack	0.0350	0.0190
	C.V	%	24.2	20.2
	Correlation		r_{xy} = 0.28	

Source: Appendix- I

The budgeted and actual sales data have been tabulated in the above table by using different statistical tools with a view to analyzing this sales figure. From the above analyzing it is seen that the sales figures are highly fluctuated between budgeted and actual sales, to analyze the deviation i.e. fluctuation between budgeted and actual sales standard deviation and coefficient of variation have been calculated these figures shows high fluctuation in budgeted sales amount rather than actual sales figures.

In case of milk, sales standard deviation and coefficient of variation are slight greater sales in actual sales i.e. 4.72 and 0.07644 rather than budgeted sales i.e. 5.0037 and 0.08852. The high degree of standard deviation and coefficient of variation shows high degree of variability in the figures. Thus in all cases of sales the budgeted figures are in wide fluctuation than actual these shows the inconsistency in planning of DDC.

Again while seeing the mean figure of budgeted and actual sales it is seen that actual mean sales of all product are greater than budgeted sales excepts in case Paneer this also shows weak performance of DDC. Here in the figure, Milk has mean budgeted sales 61.74 while actual is 56.52, butter has mean sales 0.2656 while actual is 0.1994, Ghree has mean sales 0.8744 while actual has 0.7544, Chees has mean sales 0.2198 while actual 15.68, curd has mean sales 1.295 while actual has 1.44, Ice-cream has mean sales 0.1268 while actual has 0.066. Similarly, Paneer has mean sales 0.1104 and it has actual mean sales 0.842 which is greater than budgeted. Likewise, Raswari has mean sales 0.1446 in respect of actual mean sales 0.094 pack.

Sales achievement should increase with the increase in budget and vice-versa. To some extent, the result of correlation coefficient can satisfy the DDC performance since all products have positive correction i.e. ranged from 0.28 to 0.935 correlation coefficient between different products of DDC. However, not fully satisfactory since all products have low correlation coefficient because correlation coefficient near to 1 is good.

Since correlation coefficient only give the deviation of the relationship in the relevant variables, a regression line can be fitted to show the degree of relationship between the budgeted and actual sales and to forecast the possible actual sales within the given budgeted sales. Regression analysis is the more general method of forecasting technique to shows the relation between the variables. A line of regression is the line, which gives the best estimate to the value of one variable for any specified value of

the other variable. Thus the line of regression is the line of best fit. The term best fit is interpreted in accordance with the principle of lest squares which consists in minimizing the sum of squares of the residents or the sum of squares of the residuals or the errors of estimate i.e. deviation between the give observed values of the variables and their corresponding estimated values as given two variables X and Y we, shall have, two regression line. Minimizing the sum of squares of error parallel to y –axis gives the equation of the line of regression equation of y in x and minimizing the sum of squares of the errors parallel to x-axis give the equation of the line of regression of x-on y.

The line which gives the best estimates for the values of y for any specified value of x is given by the following equation:

$$Y = a + bx$$

Where,

y = Depends variable i.e. actual sales in our analysis.

X = Independents variables i.e. budgeted sales in our analysis.

a = Intercept of the line.

b = Slop of the line it measures the average change in the values of y as a result of one unit change in value of x. Thus the regression line of the actual sales (y) on the budgeted sales (x) for different production area as:

1) For Milk

Y= 16 + 0.6562 x …….. (A)

2) For Butter

Y= -0.0141 + 0.8040x …… (B)

3) For Ghee sales

Y = 0.4249 + 0.3767x ……. (C)

4) For cheese sales

Y= 0.11 + 0.2072x …….. (D)

5) For curd sales

Y= – 0.0609 + 1.582x ……..……. (E)

6) For ice-creame

Y= -0.000265 + 0.5414x ……..…… (F)

7) For Paneer

Y= 0.048 + 0.326x ……..……. (G)

8) For Reswari

Y = 0.1159 – 0.152x ……..……. (H)

Now, to find out the value of actual seals i.e. y based on budgeted sales, x we have to assume the value of x for fiscal years 2073/74 for all the products (Appendix - I).

Table 4.3

Dairy Development Corporation Actual Sales for the fiscal year 2074/75 based on Regression Equation

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S. N.	Product	Budget for 2074/75 (x)	Regression	Sales for 2073/74
1.	Milk	52.56	Y: 16+06562x	52.390ltr.
2.	Butter	0.251	Y = -0.0141 + 0.8040 x	0.2053kg.
3.	Ghee	0.100	Y= 0.4249 + 0.3767 x	0.776kg
4.	Cheese	0.23	Y = 0.11+ 0.2072 x	0.1621 kg.
5.	Curd	1.523	Y= -0.609 + 1.582x	2.0567ltr.
6.	Ice-cream	0.149	Y= 0.00265 + 0.5414x	0.0513 kg.
7.	Paneer	0.102	Y= 0.048+ 0.0326 x	0.0513kg.
8.	Raswari	0.170	Y=0.1159 – 0.152 x	0.090 pack

Source: Appendix I.

By fitting the regression line from the post data of budgeted and actual sales assuming some values for budgeted sale for period 2074/75 in the above table we have calculated actual seals for each products. The above calculate show-increasing trend of DDC sales.

Least square, method is the statistical tool that can be used to analyze the possible sales trend. While calculating the least square trend, it is assumed that, the sales are consistently changed: by this method straight line shows the relationship between time and possible sales of relevant year.

To fit straight line through least square method, time factor is considered as independent variable X and the actual sales are considered is dependent variable Y.
Then,

$Y_s = a + bx$

Where,

Y_s = Dependent variable i.e. total seals

a = Constant value

b = Slope of trend line i.e. average change in the value of y due to the unit change, in value of x.

X = Independent variable

Straight line by least square,

$Ys = a + bx$

$$a = \frac{Y}{n} X \frac{8142.16}{5} X 1628.43$$

$$b = \frac{xy}{x^2} X \frac{619.07}{10} X 61.90$$

Then, we have equation

$Ys = a + bx$

Then, putting value of variable and b the equation becomes

$Ys = 1628.43 + 61.90X$

Then, total sales for 2073/74, putting the value of x = 3, we get

$Ys = 1628.43 + 61.90 \times 3$

$Ys = 1813.7$ (000000)

Thus from the above calculation the total sales of DDC is in increasing trend it will be Rs. 1813.7 (000000) in years 2074/75 (Appendix - I).

4.3 Production Planning and Control

It is the second steps of profit planning and control. It is prepared after the preparation of sales budget. A production plan is an estimation of the quantity of goods to be manufactured to meet the planned sales and maintain the desired level of inventory during the planned period. It is based upon the capacity of plants sales requirement and inventory policy. Many products such as milk, curd, ice cream ghee, cheese, Paneer, Raswari etc have been producing by DDC. Definitely the collection and analyzing of milk very much affect the production mechanism of DDC since all products are developed through the processing of milk, production planning always aims to fulfill the sales requirement thus while developing and preparing production plan all factors directing and affecting it should be properly analyzed. While developing production plan the following elements should be adjusted.

Production = Planned Sales + Closing Inventory - Beginning Inventory

Beside above factors, while developing production plan the total production compacting of plants total manpower employing in the organization, whether the raw material i.e. milk will be available in the time, or not should be considered. Thus the production of the organization may be affected by the following factors:

- Perishability of raw material and final product

- Machine conditions and its capacity
- Workers capacity
- Frequent strike
- Government intervention etc.

DDC has been practicing production budget only on a tentative basis and for short term. There is no systematic and scientific policy and plan about production. This to analysis the production pattern of DDC and its practices it's consistency between budgeted and actual sales here we have tried to tabulate its budgeted and actual production of major products with in a view to generalize the overall production policy of DDC. The following table shows the cooperative study between budgeted and actual production from the fiscal year 2069/70 to 2073/74.

Table 4.4

Production Budget of DDC

S.No	Item/ Product	Unit	Description	2069/70	2070/71	2071/72	2072/73	2073/74
1.	Milk	Ltr.	Budgeted	78852	83653	77717	74508	71550
			Actual	74072	76124	67614	62663	63536
			Achieve %	93	91	87	84.1	88.79
2.	Butter	Kg	Budgeted	1518	1318	731	1207	1395
			Actual	1372	1252	665	1125	894
			Achieve %	90	95	91	93.2	64
3.	Ghee	Kg	Budgeted	951	917	693	788	934
			Actual	806	816	665	803	617
			Achieve %	84	89	96	101.9	66
4.	Cheese	Kg.	Budgeted	214	241	186	287	266
			Actual	186	215	169	166	174
			Achieve %	86.91	89	91	57.83	65.41
5.	Curd	Kg	Budgeted	1108	1182	1105	1350	1659
			Actual	1067	1194	1282	1712	2030
			Achieve %	96	101	116	126.8	122
6.	Ice cream	Ltr.	Budgeted	41	186	60	165	152
			Actual	38	140	38	55	55.55
			Achieve %	92	75	63	33.33	36.5
7.	Paneer	Kg	Budgeted	68	132	74	157	105
			Actual	68	172	62	78	39
			Achieve %	100	96	84	49.6	94.2
8.	Raswari	Pack	Budgeted	85	140	139	185	177
			Actual	92	127	89	89	81
			Achieve %	108	91	64	48	45.76

Source: Annual Reports, DDC 2073/74

From the analysis of above production figure of DDC it is seen that in all fiscal year in most case except in case of product curd the budgeted production are greatest then actual production, it means the target set by management have never achieved.

In case of milk maximum achievement is 93 % in FY 2069/70 and minimum is 84.1 % in F/Y 2072/73 in this case the actual production is in decreasing trend. In overall, the achievement rate is low in milk. In comparison within milk butter production achievement is higher since it is all rations are in at 90% level except in FY 2073/74.

Similarly, in other product ghee cheese ice ream, Paneer and Raswari the targeted production have not be achieved the achievement rate is not satisfactory and there is high variability. But in case of curd the achievement rate is satisfactory; it is above 100% achievement in all fiscal year except FY 2069/70 which is limited to 96%. However, crude production is satisfactory.

Table 4.4 shows that actual production is lower than budgeted production which is lower than 100%. Milk production is not achieved during the five fiscal year which is below 100%. Similarly, achievement of butter is maximum by 95% in the year 2070/71. In case of cheese, curd, ice-cream, paneer and raswari, there is no achievement in regards of budget. Here, the problem of not meeting the target set by himself may be due to either optimistic budget level determination or due to the lack of considering activities affecting the actual production. Low level production very much affects the performance of DDC sales, the targeted sales could not achieve in the absence of production. Thus DDC should focus on improving the performance confecting production activities. Production of DDC very much depends upon the collection of milk and in the capacity of plant. In raining season milk production is high but in dry season the demand of milk can not be met. This problem shows the requirement of technology to make power milk so that milk of over supply can be stored for shortage season. DDC has not fixed effective plan for production to meet short-term and long terms demand it has no effective inventory policy. Due to this, the actual production of DDC is significantly varies from budgeted production.

To find the nature of variability between budgeted production and actual production, actual production, different statically tools mean, standard deviation, coefficient of variance and correlation coefficient have been calculated and analyzed in table below.

Table 4.5

Statistical Tools for the Analysis of Production Data

S. No.	Products	Particulars	Unit	Planned	Actual
1.	Milk	Mean	Ltr.	77.25	68.79
		S.D.	Ltr.	4.09	4.05
		CV	%	5.29	5.9
		Correlation		$r_{xy} = 1$	
2.	Butter	Mean	Kg.	1.233	1.06
		S.D.	Kg.	0.267	0.254
		CV	%	21.72	24
		Correlation		$r_{xy}= 0.79$	
3.	Ghee	Mean	Kg.	0.856	0.181
		S.D.	Kg.	0.090	0.226
		CV	%	10.60	37.12
		Correlation		$r_{xy}= -0.346$	
4.	Cheese	Mean	Kg.	0.238	0.181
		S.D.	Kg.	0.027	0.0186
		CV	%	11.69	10.31
		Correlation		$r_{xy}= -0.83$	
5.	Curd	Mean	Ltr	1.28	1.456
		S.D.	Ltr	0.208	0.356
		CV	%	16.2	24.47
		Correlation		$r_{xy}= 0.964$	
6.	Ice-cream	Mean	Ltr	0.1208	0.065
		S.D.	Ltr	0.056	0.0356
		CV	%	16.2	24.47
		Correlation		$r_{xy}= 0.964$	
7.	Paneer	Mean	Kg.	0.107	0.0868
		S.D.	Kg.	0.058	0.021
		CV	%	48	64.09
		Correlation		$r_{xy}= 0.55$	
8.	Raswari	Mean	Pack	0.1452	0.0956
		S.D.	Pack	0.0354	0.0077
		CV	%	24. 41	8.14
		Correlation		$r_{xy}= -0.51$	

Source: Appendix – II

The above calculation shows more variability in budgeted production than in the actual production. In the table, we have shown tabulated different factors to analysis its variability. A distribution with smaller coefficient of variable is said to be more homogenous or less variable and with greater coefficient of variance is said to be

heterogeneous. The coefficient of variable i.e. c.v. is greater in case of product butter, ghee, curd and ice cream of actual production, which means actual production of these product are more variable, which creates more uncertainty in production as well as sell. But in case of product milk cheese Paneer and Raswari, budgeted coefficient of variance is greater then actual production. This indicates ambitious target setting. Here, the production achievement is very low this may be either due to ambitious production target or due to inefficiency in DDC operation.

To examine the relationship between budgeted and actual production here the correlation coefficient have been calculated. The relationship between budgeted and actual milk production is 1.00 which shows there is perfect positive correlation. There is negative correlation coefficient of ghee, cheese and raswari production which is -0.346, -0.83 and -0.51 which shows there is no negative relationship between planned and actual production of mentioned products. This result also shows that the panning of DDC is impracticable. The coefficient of variation is highest in raswari production which is 24.41% shows the highest inconsistency between planned and actual production.

The positive correlation is better between budgeted and actual production however, only product milk, butter, curd, ice-cream and Paneer have positive correlation. Correlation coefficient nearer to + 1 is said to be good in relation however, only the product milk have correlation + 1 others have low than + 1. Thus while analyzing relationship between budgeted and actual production, there found great inconsistency.

Again the regression line have been developed to show the degree of relationship between budgeted and actual production. The regression line of different products are as follows:

1) For milk production

$Y = 7.77 + 0.99\ x$ ……. ……(1)

2) For Butter production

$Y = 0.133 + 0.75\ x$ ……... (2)

3) For Ghee production

$Y = 1.353 – 0.868x$ …… …..(3)

4) For cheese production

Y = 0. 317 – 0.571 x …… (4)

5) Curd Production

Y = -0.654 + 1.649 x …… (5)

6) For Ice cream Production

Y = 0.01 + 0.459 x …… .(6)

7) Paneer production

Y = 0. 0499 + 0.344 x ……(7)

8) Raswari Production

Y= 0.111- 0.112 x …… (8)

Where, y is dependent variable i.e. actual production and x is independent variable i.e. budgeted production. Now, putting value of independent variable we can calculate value for dependent variable for 2074/75 (Appendix - II).

Table 4.6

Actual Production for FY 2074/75

('000000')

Product	**Budgeted (x) 2074/75**	**Regression eq^n y = a + bx**	**Production for 2073/74**
Milk	73	Y = 7.70 + 0.99	79.97 ltr.
Butter	1.42	Y= 0.133 + 0.75 x	1.20 kg.
Ghee	1.21	Y = 1.353 -0.868	0.302 kg.
Cheese	0.28	Y= 0.317-0.751x	0.11 ltr.
Curd	1.8	Y = 0.654 + 1.649 x	3.62 kg.
Ice-cream	1.7	Y= 0.01 + 0.459 x	0.79 ltr
Paneer	0.20	Y= 0.0499+0.344 x	0.1187kg.
Raswari	0.21	Y= 0.111 – 0.112x	0.087 pack

Source: Appendix-II.

From the above estimation, it is seen that the actual production of product ghee, cheese, ice-cream, Paneer and Raswari will be decreased in the fiscal year 2074/75, while other product, milk, butter, crude will be increased in the same fiscal years.

Thus from the analysis of production budget of DDC it is concluded that:

- In most of product actual production is more consistent than budgeted production.
- Correlation coefficient between budgeted and actual production is not satisfactory.

- The regression line estimation shows mix behavior in DDC product i.e. some are in increasing and some in decreasing order.
- In most case production achievement is not satisfactory.

4.4 Raw Materials Budget

Raw material is one of the most important elements of production with out raw material manufacturing enterprise can produce finished goods. So, comprehensive budgeting included raw material budget. Comprehensive budgeting a wider concept it is difficult to include the entire concept in this however, an attempt has been made to cover maximum parts of it by including raw material budget also. In general sales budget is prepared first and then other budgets are prepared based on this but the availability of raw material plays a vital role and guide other plans. Thus in manufacturing concern the requirement of raw material is calculated as follows:

Raw materials to be purchased =

Raw Material Requirement + Closing Stock of Raw Material - Opening Stock of Raw Material

Raw material budgeted is presented by showing the amount of raw material and the period of interim. It should clearly show, when and how much raw material is needed for production process and when and how much to be purchased. But in case of DDC it is seen that there is no practice of preparing "Raw Material Budget". Thus due to not having perfect Raw material purchase budget an attempt has been made to analyze the milk collector of DDC from fiscal year 2069/70 to 2073/74.

Table 4.7

DDC Milk Collection

(Ltr. in '000')

Fiscal Year	Target	Actual	% Achievement
2069/70	55062	53410	91
2070/71	54193	52122	96
2071/72	55224	54120	98
2072/73	57111	53684	94
2073/74	53306	50641	95

Source: Appendix-III.

From the above table it is seen that the actual collection is always less then target collection, so it is necessary to find out the reason of not achieving target. This result of milk collection can be presented in graph as follows:

With a view to find the nature of variability of milk collection data's of different years different statically tools mean, standard deviation, coefficient of variation and correlation coefficient have been calculated as:

Table 4.8

Statistical Tools for the Analysis of Milk Collection

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S. No.	Practices	Unit	Planned Collection (x)	Actual Collection (y)
1.	Means	Ltr.	54.99	52.79
2.	S.D.	Ltr.	1.263	1.305
3.	CV	%	2.29	2.47
4.	Correlation			Rxy= 0.08

Source: Appendix - III

The above result shows less variability in both budgeted and actual milk collection since there have less coefficient of variance i.e. CV However budget mean collection is higher than actual mean collection.

The least square method can be used to estimate the total milk collection for the future.

We have least square line

$$Y = a + bx$$

Now,

$$a = \frac{y}{n} X \frac{263.97}{5} X 5279$$

$$b = \frac{xy}{x^2} X \frac{3.976}{10} X Z 0.3976$$

Now least square equation is

$$Y = 52.79 - 0.3976 \times X$$

Now, y i.e. milk collection for 2074/75

$$Y = 52.79 - 0.3976 \times 3$$

= 52.79 – 1.1928

Y = 51. 59 000000) ltr.

The above calculation shows that the actual milk collection in 2074/75 will be 51597200 ltr (Appendix - III).

4.5 Capacity Utilization

Capacity utilization analysis is another part of this research since it has major role in profit planning of manufacturing enterprise since both the sales and production dependents upon these factor only through high capacity utilization the cost of production can be decreased and thus the product can compete in market. Along with DDC many manufacturing enterprise of public sector in Nepal are suffering from low capacity utilization. It has become the major cause for the failure of public enterprise.

Table 4.9

The Normal Capacity of DDC

(Ltr)

S. No.	Practices	Production Capacity	
		Pre hours	**Per day**
1.	KMSS	15000	75000
2.	HMSS	3000	15000
3.	BMSS	5000	25000
4.	PMSS	2000	10000
5.	LMSS	5000	2500
	Total	**25500**	**127500 ltr.**

Source: Annual report from FY 2069/70 to 2073/73.

Above table shows DDC has total 25500 ltr. Milk production per hours and it operates 5 hours shift per day. Thus in total its production capacity becomes 127500 ltr. per day. DDC operates its production process 365 days, thus its annual capacity.

Annual Capacity = 127500 x 365 = 46537500 ltr.

Table 4.10

Composition between Actual Capacity Utilization and Budgeted Capacity

Fy	Actual Production	% of capacity utilization
2069/70	73573	158.09
2070/71	70128	150.69
2071/72	67614	145.28
2072/73	62663	134.65
2073/74	63536	136.52

Source: Annual report from FY 2069/70 to 2073/73.

$$\% \text{ Capability Utilization} = \frac{\text{Production}}{\text{Capacity}} \times 100$$

From the above calculation of capacity utilization, DDC rate of capacity utilization is satisfactory since all percentage is above 100%. This high utilization of capacity helps to reduce the total cost of production and thus provide strength in competition.

4.6 Cost – Volume - Profit Analysis

Cost value profit analysis including both contribution analysis and break even analysis. Contribution analysis involves a series of analytical technique used to determine and evaluate the effects on profit of changes sales volume, sales price, fixed cost and variable cost. Break even analysis emphasizes the level of output or productive activity at which sales revenue exactly equals with total cost that there is no profit and loss.

Cost volume profit analysis is the most useful for management decision making. Specially break even analysis is the term to study the relationship between cost volume and profit at various level of activity. The breakeven point is the level of activity where total cost equals with total revenue. If the sale is higher then break even volume there will be profit and if sales are less then break even sales, there will be loss.

Formula used in the CVP analysis is are:

1. BEP (in amount) $= \frac{\text{Fixed Cost}}{\text{P/V Ratio}}$

2. P/ V ratio= $\frac{\text{CM}}{\text{SR}}$ or $1 - \frac{\text{VC}}{\text{SR}}$

3. Margin of safety = Actual sales – BE sales

Table 4.11

Dairy Development Corporation CVP Analysis

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Particular	Sales	Total V.C	Total F.C	CM	PV Ratio	BE Sales in Rs.	Margin of Safety (Rs)
2069/70	1535810	1302443	214080	233367	0.151	1417748	118062
2070/71	1589663	1390682	246004	198981	0.125	1968032	(378369
2071/72	1536340	1362171	273715	174169	0.113	2422256	(885916)
2072/73	1680353	1428671	242488	251682	0.149	1627436	52917
2073/74	1800673	1572251	331969	228422	0.126	2684674	(834001)

Source: Appendix-IX.

From the above analysis table of CVP, it is seen that DDC is operating below BEP since BFP sales is grater than actual sales in F/Y 2070/71, 2071/72 and in F/Y 2073/74. This means that the sales revenue has not covered even total cost during this fiscal year. However in the fiscal year 2069/70 and in 2072/73 actual sales are greater than BEP sales.

The ways to recover loss or to sale more than break even point may be by increasing production, but it is difficult in case of DDC since it has been operating in more than 134 % of normal capacity in each fiscal year.

4.7 Overhead Budgets

Overheads are the part of the product cost that are not directly identifiable with the volume of product manufacturing concern prepares different overhead budgets to control its indirect cost DDC's overheads are analyzed below as:

4.7.1 Administrative Overhead

Administrative overhead included all the indirect expanses like salaries allowance, water and electricity, stationary and printing etc that have indirect contribution for the production. DDC has a system of developing target for each part of administrative budget with a view to control these expanses. After achievement of expenses it compares with the target and analysis whether the actual expanses are within the limit of budget or not. If not it takes necessary action to control these cost. Here an attempt has been made to analysis the actual administrative expansion of DDC from FY 2069/70.

Table 4.12

Dairy Development Corporation Administrative Expansion

Fiscal Year	Annual in Rs.	Increase(Decrease) %
2069/70	61131047	-
2070/71	76692653	25.45
2071/72	73529349	(4.12)
2072/73	80209132	9.08
2073/74	117665206	46.49

Source: Appendix – VIII (a)

The table shows mix behaviors of administrative cost, since it is increased by 25.45% in 2070/71 and then decreased by 4.12% in 2071/72 then it is in increasing trends.

Now to estimate the administrative expenses for the fiscal year 2074/75 the straight line trend by least square method is given by:

$$Y = a + bx$$

Where,

$$a = \frac{Y}{n} X \frac{409227387}{5} X 81845477.4$$

$$b = \frac{XY}{X^2} X \frac{116584797}{10} X 11658479.8$$

Then,

Total administrative expenditure for 2074/75

$$Y = 8184577.4 + 11658479.7 X$$

$$= \text{Rs } 116820916.5$$

This estimation shows that DDC's administrative expanses are in increasing trend (Appendix – IV (b)).

4.7.2 Collection Expenses

Collection expanses includes salary and allowances, transportation changes, commission, water and electricity that are required to collect milk and other material required for production process the situation of calculation expenses of DDC for different study period are as follows:

Table 4.13

Collection Expenses of DDC

Fiscal FY	Collection exp^n. (Y)	% Increase / Decrease
2069/70	1127653155	-
2070/71	1132317997	0.41
2071/72	11447098429	1.091
2072/73	1209510351	5.66
2073/74	131052932	8.351

Source: Appendix – V (a)

The table above shows small percentage increases' in collection examples each years. The graphical presentation of collection expenses is as:

Now to estimate the collection expenses for fiscal Year 2074/75

Now, the starlight line

$$Y = a + bx$$

$$a = \frac{Y}{n} X \frac{5924713863}{5} X 11849427$$

$$b = \frac{XY}{X^2} X \frac{4429339066}{10} X 44293390.6$$

Then,

Straight line trend

$$Y = a + bX$$

$$Y = 11849427 + 44293390.6X$$

Then, total expenses for the fiscal year 2074/75 = 11849427 + 44293390.6× 3

= 144729598.8

The above calculation of collection expenses for fiscal year 2074/75 shows increasing trend of collection expenses (Appendix – V (b)).

4.7.3 Selling Expenses

These are the expenses incurred in the selling and distributing organization products. These expenses include salary and allowances of salesman, warehouse, rent, fuel etc. Selling and distribution expenses very much affect the cost of goods, So these should also be controlled thorough proper planning like other expenses DDC has system of developing budgets for the coming years but due to lack of term and unavailability of required budgeted data here an attempt has been made to analyze actual data.

Table 4.14

Dairy Development Corporation Selling and Distribution Expenses

Fiscal F/Y	Amount Rs.	%Change
2069/70	39302977	-
2070/71	41093440	4.55
2071/72	42681442	3.86
2072/73	46637552	8.79
2073/74	62355205	34.27

Source: Appendix VI (a)

The table above shows increasing in selling expanses in each year form F/Y 2069/70 to 2072/73 by small percentage that is desirable for organization buy it is increased by 34.271% in F/Y 2073/74 in relation to F/Y 2072/73 which is not good from profit point of view since it decrease net profit.

We have straight line by least square

$$Y = a + bX$$

$$a = \frac{Y}{n} X \frac{231870417}{5} X\ 46374083\ .4$$

$$b = \frac{XY}{X^2} X \frac{51448367}{10} X\ 5144836\ .7$$

Thus, selling expense for the fiscal year 2074/75 i.e. where x = 3

$$Y = 46374083.4 + 5144836.7 \times 3$$

$$= 200719184$$

The above calculation by least square method shows that selling expense of DDC for 2074/75 will be increased to Rs. 200719184.4 i.e. it is in increasing trend (Appendix-VI (b)).

4.7.4 Processing Expenses

These are the expenses incurred in converting raw milk into other milk product that includes salary, allowance packaging, transportation, water and electricity, travelling etc. Tabulation of processing expenses is as below:

Table 4.15

Dairy Development Corporation Processing Expenses

Fiscal Year	Amount in Rs.	% Change
2069/70	233845039	-
2070/71	346325345	43.10
2071/72	284171570	(17.94)
2072/73	28092202	(1.14)
2073/74	31864089	13.42

Source: Appendix VII (a)

The above result of processing cost shows mix behavior since it has increased in 2070/71 and then decreased continues in two fiscal year and then increased by 13.42% in Fy 2073/74

We have straight line by least square

$$Y = a + bX$$

Now

$$a = \frac{Y}{n} X \frac{1463905052}{5}$$

$$= 292781010.4$$

$$b = \frac{\sum XY}{\sum X^2} = \frac{-214452327}{10} = 21445232.7$$

The above calculation shows decreasing trend of processing expenses it will be decreased by Rs. 21448232.7 by in each year. Total processing expenses for 2074/75 is.

$$Y = 29278101.4 - 21445232.7 \times 3$$

Y = Rs 228445312.3. (Appendix- VII (b))

4.8 Cost Variability

Behavior of different costs involved in the organization is essential for planning and control of cost since cost planning and control is major part of budgeting. Cost behaviors refer to the behaviors show by different cost with the changes in volume of output or production. Thus, according to the variability of cost with volume of output they can be fixed variable and mixed cost.

Variable costs are those cost that changes with the volume of output i.e. the total cost are affected by level of activity but in this case cost per unit remains unchanged. Thus identification of variable cost is essential to control; cost since it can be controlled according to management view.

Fixed cost are those cost that remain unaffected by the volume of output i.e. they remain constant even the volume of output is change, but the cost per unit of output. Mixed cost or semi-variable cost is another cost, that consists the behavior of bother cost varies with the changes in volume of output but not proportionately. Cost like Deprecation, rent, properly tax, advertising are the example of mixed cost.

While analyzing the cost structure, of DDC we did not find the system of segregating court in fixed, variable and mixed. However based on some judgments DDC's cost have been classified as follows.

Table 4.16

Dairy Development Corporation Variable and Fixed Cost

Expenses	2069/70		2070/71		2071/72		2072/73		2073/74	
	Fixed	Variable	Fixed	Variable	Fixed	Variable	Fixed	Variable	Fixed	Variable
Administrative	49026	12107	59744	16918	59439	14092	64362	25850	94469	23199
Selling Cost	15882	23421	17176	23917	17683	24996	19050	27337	25578	36776
Processing Cost	57081	176764	87267	259061	63373	220796	61651	219270	69929	36776
Collection	37502	1090151	41532	1090786	42425	1102287	43343	1166168	46959	1263564
Dep^{n}	2993		29406	31778		34209		36435		
Gratuity Expenses	17450		3531		53753		16258		55386	
Expenses Written-off	2826		2826		600					
Interest	4319		4522		4663		3614			3213
Total	169959	1302443	246004	1390682	273714	1362171	242487	1428675	331969	1572251

Source: Appendix IV to VIII

Even if not having system of cost classification is DDC, here in the table above cost have been classified in fixed and variable. The table above shows in each year the total of fixed cost is higher than the total cost of variable.

4.9 Financial Analysis

Financial analysis a technique used to evaluate the financial position of a business. It shows arithmetic relationship between two figures. It helps to analyze and interpret the financial statement of particular period. The relationship between to accounting figures, expressed mathematically is known as financial ratio or simply ratio. Ratio helps to summarize the large quantities of financial data and to make qualitative judgment about the firms financial performance. Thus ratio shows the financial condition of a business and indicates whether it is strong or weak.

To analyze the financial figures of a DDC the following figures have been extracted from the balance sheet and income, statement.

Table 4.17

Ratio Analysis

Particular	2069/70	2070/71	2071/72	2072/73	2073/74
1.Total Sales	1535810	1589663	1536340	1680353	1800673
2. Total Cost	1533238	1640719	1578821	1678113	1904219
3. Profit (Loss)	10588.194	7367.717	2.5541	14702.531	89790.181
4. Net fixed Assets	304864	273618	270316	260172	243646
5. Current Assets	466154	496260	541335	558331	463426
6. Current liabilities	347112	358689	425004	431439	413123
7. Total Dis	771018	769878	811651	818503	707072
8.Closing Inv.	45188	41183	98248	91296	

Source: Appendix

Table 4.18

Dairy Development Corporation Ratio Analysis Table

S.N.	Particular	Formula Used	2069/70	2070/71	2071/72	2072/73	2073/74
1.	Current ratio	CA/CL	1.34	1.38	1.27	1.29	1.12
2.	Quack Ratio	QA/CL	1.21	1.26	1.04	1.08	0.90
3.	Inventory Turnover ratio	Net Seles/closing Inventory	33.98	38.59	15.63	18.40	19.72
4.	Fixed Turnover ratio	Sales / Net fixed assets	5.03	5.80	5.68	6.45	7.39
5.	Current Assts. Turnover	Sales / CA	5.29	3.20	2.83	3	3.88
6.	Total Assets turnover ratio	Sales /Total Assist.	1.99	2.06	1.89	2.05	2.45
7.	Return on Assets	NPAT/Total Assets	1.37 %	0.95%	(3.14%)	1.79%	12.69%
8.	Net Profit Margin	Net profit/ Sales	0.68%	0.46%	(1.66%)	0.87%	4.98 %

Source: Table 4.16

There is no hard and fast rule, about the current ratio, however 2:1 is said to be satisfactory, But in the above table, it has never been this optimum level, in all fiscal year, it is about 1.30 it shows bad, liquidity position of DDC.

Another term quick ratio also measures liquidity position of the firm; ratio being 1:1 is said to be satisfactory, but in our study its is grater than 1 in all fiscal year except 2073/74 which is 0.90. Inventory turnover ratio measures the velocity of conversion of stock into sales. Higher inventory turnover is said to be good. In case of DDC, it is higher in fiscal year 2069/70 and 2070/71, but it has been declared after that similarly,

higher fixed assets turnover ratio is said to better in case of DDC it has been ranged from 5 to 7 times in all fiscal year.

Current assets turnover ratio shows the conversion of current assets into sales. It has been ranging form 2 to 3 times. Return on total assets shows the rate of profit in total assets but in DDC it is negative in fiscal year 2071/72, which is (3.34) % and it is maximum in fiscal year 2073/74, which is 12.69%.

Another, net profit margin is a tool that shows the overall result of the business in terms of net profit but there is low rate of return in DDC its is maximum 4.98% in FY 2073/74 and it is negative FY 2071/72 which is (1.66)% .

4.10 Flexible Expense Budget

Flexible Expenses budget is related with expense. It focuses on both planning and controlling expenses in the organization. The budget which can be easily adjusted to any required level of activity is the flexible budget. It is designed to change in accordance with change in the level of activities. The concept of flexible budget is complementary to the tactical profit plan.

The concept of flexible budget is that all expenses are incurred because of the passage of time, output activities or combination of time and activities. Expenses or cost must be measurable. Flexible expanse budget for each expense must for specified time period and relevant of output.

4.11 Profit and Loss Account

Profit and loss account is the scoreboard of the firm's performance during the period of time. Profit and less account show one year events in terms of profit or loss of the firm. It is prepared at the end of fiscal year. The purposed of preparing profit and loss account is to see the situation of income and expenses of business. It analyzes the income and expenses also help to control the unnecessary expenses. The profit and loss account describes as a statement of the operations during a particular period of time. There are two columns first one is debit which involves all expenditure from business and second is condition which involves all income from business.

Profit/ loss are the difference of income (revenue) and expenses. Net profit or loss indicates whether the firm performance is good or bad.

Profit and loss account is prepared as the end of accounting period with a view to identify whether then is profit or loss in business and aims to control over the business

activities to direct activities according management will. However it would be better to prepare and analysis she effect of activities in short accounting period such as monthly, quarterly and half yearly but DDC prepares profit and loss account only in annual basis, Because of this system of preparing account only at the end of year, it is difficult to analyze the activities and correct it.

While analyzing the budgeting system of DDC we did not find the budgeted profit and loss account for a specified period due to lack of this system of preparing budgeted profit and loss amount it is impossible to compare the actual result of profit and less account.

Table 4.19

Dairy Development Corporation Profit and Loss Account

Particular	2069/70	2070/71	2071/72	2072/73	2073/74
Sales Revenue	1535810462.06	1589663476.25	1536340564.43	1680353715.64	1800673560.90
Sundry Income	11545735.15	13141374.88	16939055.56	12462762.46	13755732.78
Total Income (A)	1547356197.21	1602804851.13	1553279619.99	1692816478.10	1814429293.68
Less: Costs:					
Collection cost	1127653155.15	1132317996.93	1144708429.24	1209510351.34	1310523931.95
Processing cost	233845039.03	346325345.85	284171570.25	280922202.30	318640894.59
Add: Opening stock	64731817.32	45188469.00	41183989.00	98248772.79	91296744.31
	1426230011.50	1523831811.78	1470063988.49	1588681326.43	1720461570.85
Less: Closing stock	45188469.00	41183989.00	98248772.79	91296744.31	91296744.31
Total Product Cost	1381041542.50	1482647822.78	1371815215.70	1497384582.12	1629164826.54
Add: Selling cost	39302977.33	41093440.96	42681441.99	46437352.28	62355205.07
Add: Admin. cost	58304547.38	76692653.02	73529349.38	80209132.06	117665206.03
Add: Expenses Write.	2826500.00	2826500.00	600033.67		
Add: Depreciation	29993611.51	29406299.23	31778505.34	34209863.64	36434380.64
Add: Provision for Gratuity	17450023.17	3531055.40	53753234.99	16258298.22	55386751.09
Add: Interest and financial expenses	4319401.26	4522112.68	4663760.23	3614718.48	3213105.88
Total Costs (B)	1533238603.15	1640719884.07	1578821541.30	1678113946.80	1904219475.25
(A - B) EBT	14117594.06	-37915032.94	-25541921.31	14702531.30	-89790181.57
Less: Income tax prov.	3529400.00	2383310.00			
EAT	10588194.06	-40298342.94	-25541921.31	14702531.30	-89790181.57
Add: Income from Sales of Assets		47666060.38			
EAT with Sales of Assets	10588194.06	7367717.44	-25541921.31	14702531.30	-89790181.57
Less: Accum. P/L	218824939.35	229282276.29	221914559.08	247456480.39	246089469.68
Total Profit/Loss transfer to B/S	-208236745.29	-221914558.85	-247456480.39	-246089433.68	-335879651.25

Source: Appendix IX

From the above table of profit and loss account of DDC it is seen that DDC has low operating profit out of five fiscal year, there is losses in these fiscal year in operating result, there is profit in FY 2069/70 and 2072/73, but it is not sufficient from investment point of view, i.e. the rate of return is very low. While analyzing the net profit two fiscal years 2071/72 and 2073/74 are suffering losses. In other/ fiscal year also there is not satisfactory profit.

The reason of not achieving satisfactory profit may be due to high operating expense such as collection cost, processing court, which are in high amount. Thus by controlling this operating expense the profit level can be increased.

4.12 Cash Flow Statement

Cash flow statement shows the cash from operating financing and investing activities of an enterprise for an accounting period. It helps firm to identify its liquidity position, capital expenditure incurred dividend paid and external financing. A projected cash flow statement guides the management to plan the inflow and outflow of cash. It is useful internally to management and externally to investor and conducting. Management can use the statement of cash flow to assess liquidity of the business and determine dividend policy decision involving investment and financing. In other words management can use the statement of cash flows for such decision as determining whether or not short term financing is and necessary to pay its current liabilities to determine to whether to rise or lower its dividend and to plan it's investing and financing needs. Analysis of cash flow is useful for short term planning.

4.13 Balance Sheet

Balance sheet shows the financial position of a business for a particular time period. It shows the position of assists, liabilities, capital reserve, surplus etc. Balance indicates the financial strengths and weakness of the enterprise and is prepared at the and of accounting period.

Table 4.20

Dairy Development Corporation Balance Sheet

Particular	2069/70	2070/71	2071/72	2072/73	2073/74
Sources of Fund:					
Corporate Fund:					
Corporate Fund Investment	127140178.33	127140178.33	127140178.33	127140178.33	127140178.33
Fund received from neighborhood countries	331370883.40	331370883.40	331370883.40	331370883.40	331370883.40
Other Liabilities	90941732.95	90941732.95	92291327.56	92291327.56	92291327.56
Corporate Fund (A)	549452794.68	549452794.68	550802389.29	550802389.29	550802389.29
Grand Fund from neighborhood countries (B)	1545264.97	1545264.97	1545264.97		
Can Revolving Fund (C)	914210.00				
Long-term Debt (D)	85201701.53	84251595.19	83301488.85	82351382.51	79026010.32
Current Liabilities:					
Outstanding tax and Interest	36782875.22	41048699.07	44797385.77	47828301.70	45797810.90
Outstanding milk and potter wages	39391888.67	45924389.51	50783117.89	43343541.80	41503445.88
Deposit	12410425.37	10896250.07	11491243.97	10823653.42	10364148.74
Other outstanding	21043073.49	30189662.47	22348564.85	23306875.41	22317411.13
Other provisions	228284370.36	224717320.06	289671235.79	306137214.79	293140541.76
Provision for tax	9200270.79	5912710.00	5912710.00		
Total Current Liabilities and Provision (E)	347112903.90	358689031.18	425004258.27	431439587.12	413123358.41
Total Sources of Fund	**984226875.08**	**993938686.02**	**1060653401.38**	**1064593358.92**	**1042951758.02**

Utilization of Fund:					
Fixed Assets:					
Original Costs	744406036.04	701794493.87	728562343.83	757322770.87	773785111.25
Less: Accumulated Depreciation	451054707.47	438873818.55	468969524.98	503179388.62	539468867.46
Remaining value	293351328.57	262920675.32	259592818.85	254143382.25	234316243.79
Un-used and Un-installed fixed assets	11512830.97	10697865.49	10723578.23	6028960.30	9329718.48
Total Fixed Assets (A)	304864159.54	273618540.81	270316397.08	260172342.55	243645962.27
Investment and Inventory of grand fund (B)	1545264.97	1545264.97	1545264.97		
Current Assets:					
Cash and Bank Balance	192744001.85	300467557.25	273990365.19	301440837.19	240185522.29
Inventory-milk and dairy product	45188469.00	41183989.00	98248772.79	91296744.31	91296744.31
Inventory-other	124026566.97	63647591.30	70950805.40	77497117.40	61749050.96
Advance payment and Debtors	104195133.79	90961149.94	98145315.56	88096847.79	70194826.94
Total Current Assets (C)	466154171.61	496260287.49	541335258.94	558331546.69	463426144.50
Others:					
Profit and loss Account	208236745.29	221914559.08	247456480.39	246089469.68	335879651.25
Balance written-off expenses	3426533.67	600033.67			
Total (D)	211663278.96	222514592.75	247456480.39	246089469.68	335879651.25
Total Assets and Others (A+B+C+D)	**984226875.08**	**993938686.02**	**1060653401.38**	**1064593358.92**	**1042951758.02**

Source: Appendix X

1. Analyzing the liabilities side of balance sheet. It is seen that corporate fund is same for each financial year for 2069/70 to 2073/74. The case is same for fund received from neighboring countries.
2. Long-term debt is in decreasing trend, since it is 85201701.53 in fiscal year 2069/70 but decreased to 79026010.32 in F/Y 2073/74.
3. Total current liabilities is in increasing trend it has been ranged 347112903.90 to 413123358.41 from fiscal year 2069/70 to 2073/74
4. While analyzing in assets sides of balance sheet, the value of fixed assets in gross value is increasing trend, which shows addition of fixed in each fiscal year, which helps to generate revenue in long term.
5. The assets side of balance sheet shows, significance amount of unused and uninstalled fixed assets, this is not good for from profit point of view, so this asset should be used recently.
6. Balance sheet shows investment in first three fiscal year, 2069/70, 2070/71 and 2071/72.
7. Cash and bank balance has increased in first two fiscal year and then decreased in 2071/72, again increased in fiscal 2072/73 then decreased.

4.14 Major Findings

The research on the topic "Budgeting practices in public manufacturing enterprise a case study of DDC" the following points are found

1. Achievement over budgeted sales of crud is satisfactory since it is above 100% in two fiscal year and other are in about 90% level but in case of other product it is no satisfactory.
2. There is different between budgeted and actual production since most of products have been produced only up to 90% of budgeted but in case of curd it is about 100% in all fiscal year.
3. The positive correlation between budgeted and actual production is better but in some product such as Ghee, cheese, raswari, there is negative correlation.
4. Milk collection target of DDC have not been achieved since it is less than targeted collection in all fiscal years.
5. DDC has been using utilizing more than full capacity it provided straighten over market competition.

6. From the CVP analysis it is found that DDC has been operating below the Break even sales level in three fiscal years, DDC has not been able to cover cost.
7. The collection selling and producing expenses of DDC is high and it is increasing trend in each fiscal year due to this DDC is suffering from losses.
8. Classification of cost is essential for sound planning and control of cost but DDC has not been using cost classification system.
9. Ratio analysis shows poor figures in each fiscal year the return over total assets and net profit margin is in small figure and in negative in FY 2071/72.
10. There is no proper recording system in DDC three is difficult to obtain cost and price information about product and market for planning purpose even for management.
11. There is no system of preparing period performance report in DDC due to this it is not possible to analyze the performance achievement over period.
12. The interest expenses are in increasing trend over five year period along within line term debt financing.

CHAPTER -V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

Nepal has adopted the mixed economy system so both public and private organization are functioning in the country. Government has invested large amount of funds to fulfill the basic needs of peoples through public enterprises among them DDC is one of the main public enterprises.

However due to complex geographical structure, unstable political situation bureaucratic and political corruption, lack of development of industrial culture, lack of technical knowledge like other manufacturing enterprises DDC is not functioning well.

DDC is a manufacturing enterprise with a main objective to provided service to people by providing milk and milk products. The objective of DDC's and other public enterprises is to basic services to general public rather than earning profit, how each and every government enterprises should earn its operating profit to sustain is the environment. DDC's other objective is to upgrade economic condition of rural people by promotion the live stock occupation. Nepal is agro based country with more than 80% people engaged in agriculture. Thus, expansion and revolution in agro sector promoters the DDC goal also. But government has not given proper attention over these aspects and has made just investment in DDC without making into structure related to DDC activities. Besides this government action DDC management is equally responsible for the present situation since it has been unable to make environment effective long term plan. Proper human resources development using new and updated technology and building effective market network.

DDC has not extended its plans and programmer in all sectors planning is not based on proper logic and estimates. Now a days many other diary firms have be emerged in this field, but DDC don’t have not effective marketing and promotional strategies in this new trend. Due to this private diary industries have been dominating the dairy development role.

From the analysis of the budgeting system of DDC we find out operating losses in many fiscal year not effectively utilizing the budgeting system, being great differences in budgeted and actual data, this all have questioned about the continuity of DDC. Even the government the general public and management are aware about this deteriorated conditions of DDC and have expressed deep interest over the performance but unfortunately no one have give clear vision and to improve the current performance of DDC.

Definitely DDC have been producing right and good quality of product and these products have high demand even people do not purchase of other milk product if DDC product is available but even if utilizing the full capacity of plant and equipment DDC is unable to meet the market demand this problem have shown the necessity of installing far further plant and machinery.

The main objective of the study is to analyze and interpret the profit plan in DDC, capacity utilization and overall financial performance of the enterprises. From the analysis of data related to fiscal year 2069/70 to 2073/74, we calculated the mean, standard deviation, correlation coefficient regression analysis, coefficient of variance to identify the strength and weakness of DDC.

We find most of the budgeted mean are greater than actual mean, which, means that budgeted standard have not met. Again standard deviation of budget is greater than actual achievement in most of product this shows budgeted are more fluctuating than actual being budgeted prepared not based on system and logic. Even the correlation of some product are negative between budgeted and actual figures, which shows ineffective trend in budgeting practices since this shows increase in budget decrease in achievement and vice- versa. Out of, five fiscal year there is loss in operation in three fiscal year. There shows low level of net profit even after sales of assets. The reason of not generating satisfactory level of profit may be due to high collection, processing and administrative expenses. So, DDC management should focuses on this aspect of reducing cost. High staff expenses may be another problem of reducing problem, since due to lack of proper work division and utilization of staff. We observed most of staff talking to each other at office time. Another the most important issue of DDC to be addressed recently is to increase is actual sales, since in analysis

part while, calculating break even sales, we found actual sales less than break even sales; Because of this DDC has not revered its cost and suffering from losses.

5.2 Conclusions

Annual sales revenue trends have revealed that the budgeted and actual sales practices of organization are highly fluctuated. It also shows that there is no systemic and scientific analysis in determining budget sales of DDC product either researcher say that there is some deficiencies in marketing aspects since the actual sales are very low in comprising with standard. In case of sales standard deviation and coefficient of variation shows high degree of volatility in the figures. Thus in all case of sales. The budgeted figures are in wide fluctuation than actual; these show the inconsistency in planning of DDC.

On the basis regression equation which analyzes the possible sales trend, the sales are consistently changed. And total sales of DDC are in increasing trend in year 2073/74 by Rs. 1813.7 million. According to production budget of DDC. it is seen that in all fiscal year, in most case except in case of product curd the budgeted productions are greatest than actual production, which shows that the target set by management have never achieved. Similarly, in other product ghee, chess, ice-cream, paneer and raswari the targeted production have not be achieved the achievement. Rate is not satisfactory and there is high variability. But in case of curd the achievement rate is satisfactory.

Administrative overhead that have indirect contribution for the product. The mix behaviors of administrative cost over the study time period is highly fluctuated. Collection expenses which are related to collect milk and other material required for production process. In overall study period collection expenses in increasing trend. It may be due to the supply of milk. Unavailability of milk, reliable sources of milk and increasing in milk collection float and processing float. According to the variability of cost with volume of output or production they can be fixed, variable and mixed cost, fixed cost is higher than the total cost of variable. It shows utilization of capacity.

Current ratio which major the liquidity position of organization is not satisfactory. It is below than statement. Efficiency ratio shows the there is assets management of DDC effectively applied and all ratio are satisfactory. By referring profitability ratio measured by net profit margin is low rate of return in DDC. it is maximum 4.98% in 2073/74.

5.3 Recommendations

In this research we studied about the budgeting system adopted in the dairy development corporation and its effectiveness in the performance to generalize the budgeting practices of overall manufacturing public enterprises. During the course of research the sales budget, profit and loss account and balance sheet have been analyzed. Due to non-preparing budget profit and loss account and balance sheet the variance between budgeted and actual could not be studied, however with in limited time and resources and limited availability of DDC dates, some recommendations have been given within a view to improve the effectiveness of overall public manufacturing enterprise and DDC are as follows;

1. DDC product have high demand in the market, but DDC has been unable to meet the market demand, due to this it has been suffering from less revenue even operating below break seven sales in some financial year. The reason behind not meeting market demand is not collecting sufficient milk from the market and use of plant and machine with limited capacity so, DDC should expand milk collection network and install plant of high capacity.
2. DDC have been suffering from lack of long term vision directing day to day performance. Long term vision should be created and all the plans should be integrated with this long term vision.
3. DDC have not system of analyzing strength, weakness, opportunities and threats of the organization, so it should analysis overall environmental factors.
4. DDC have no system of classifications cost into fixed and variable, due to this cost control mechanism have not been developed, So it should divide total cost into fixed and variable, cost by some reasonable basis, so that it would facilitate cost control mechanism.
5. DDC don’t have integrated budgeting system so a system of budget should be established to develop and use all the budgets in integrated manner i.e. linking one with another.
6. DDC should invest on research and development programme develop new production items according to customers taste and preference.
7. DDC should study the possibility of exporting product in the foreign market by expanding production capacity.

8. DDC have been preparing budged but their benefits have not been achieve so to make it effective. Manpower specialized for budgeting should be develop by giving training and skill development programme by professional.
9. The overall objective of budgeting is to help in reducing cost and increasing profit for this purpose a separate budgeting and costing department should be established.
10. A periodic performance report should be prepared for each performance so that the performance on work could be analyzed.
11. A detailed profit plan should be proposed and should be communicate even to the operating level so that they would be responsible to achieve the targeted goal.
12. DDC should formulate clear goal about its business whether it should have profit goal or service goal.
13. Special effort should be made to reduce the gap between budgeted and actual sales and production.

In this research many weakness about DDC have been found many recommendation have been given to improve in performance however it is true that among other public manufacturing DDC is leading one, since other manufacturing enterprises have been suffered from heavy losses than DDC, still there is necessary to apply modern management technique to upgrade the DDC performance and other public manufacturing enterprises.

So to improve the deteriorated conditions of DDC various modern management technique such as management by objectives (MBO), continuous quality improvement, zero defect program, etc. should be applied along with integrated budgeting practices government can play important role in good functioning of public enterprise by facilitating and promoting its activities.

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APPENDICES

Appendix – I

Calculation of Mean, Standard Deviation, Coefficient of Variation Correlation Coefficient and Determination of Regression line

1) Milk Sales

('000000')

Fiscal Year	Budgeted(X)	Actual(Y)	X^2	Y^2	XY
2069/70	64.595	61.089	4172.5	373.86	3946.04
2070/71	69.05	63.926	4767.90	4086.53	4414.09
2071/72	58.809	53.327	3458.49	2843.76	3136.10
2072/73	60.828	52.171	3700.04	2721.81	3173.45
2073/74	55.456	52.094	3075.36	2713.78	2888.92
Total	$\sum X = 308.73$	$\sum Y = 282.60$	$\sum X^2 = 19174.29$	$\sum Y^2 = 16097.74$	$\sum XY = 17522.6$

→ Mean of Budgeted Sales = $\frac{\sum X}{n}$

$$(\bar{X}) = \frac{308.73}{5} = 61.74$$

→ St. Deviation of B.S $\sigma_X = \sqrt{\frac{1}{n}\left[\sum X^2 - \frac{(\sum X)^2}{n}\right]}$

$$= \sqrt{\frac{1}{5}\left[19174.29 - \frac{(308.73)^2}{5}\right]} = \sqrt{\frac{1}{5}[111.47]} = 4.72$$

→ Coefficient of variance of budgeted sales CV_X:

$$= \frac{\sigma X}{\bar{X}} = \frac{4.72}{61.74} = 0.07644$$

→ Standard deviation of Actual sales

$$\sigma Y = \sqrt{\frac{1}{n}\left[\sum Y^2 - \frac{(\sum Y)^2}{n}\right]}$$

$$= \sqrt{\frac{1}{5}\left[16097.74 - \frac{(282.60)^2}{5}\right]}$$

$$= \sqrt{\frac{1}{5}[125.188]} = 5.0037$$

→ Mean of Actual sales = $\bar{Y} = \frac{\sum Y}{n} = \frac{282.60}{5} = 56.52$

→ Coefficient of variation of actual sales (CV_Y) = $\frac{\sigma Y}{\bar{Y}} = \frac{5.0037}{56.52} = 0.08852$

→ Correlation coefficient between Budgeted and Actual sales,

$$r_{xy} = \frac{n\sum XY - \sum X.\sum Y}{\sqrt{n.\sum X^2 - (\sum X)^2}\sqrt{n\sum Y^2.(\sum Y)^2}}$$

$$= \frac{5 \times 17522.6 - 308.73 \times 282.60}{\sqrt{5 \times 19174.29 - (308.73)^2} \times \sqrt{5 \times 16097.74 - (282.60)^2}}$$

$$= \frac{365.902}{23.6058 \times 25.01} = \frac{365.902}{590.58}$$

$r_{xy} = 0.619$

→ Regression line of Milk Sales

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

Or, $Y - 56.52 = 0.619 \times \frac{5.0037}{4.72}(X - 61.74)$

Or, $Y - 56.52 = 0.6562\ (X - 61.74)$

Or, Y = 0.6562X – 40.513 + 56.52

Or, Y = 16 + 0.6562X ---------- (A)

2. Butter Sales

('000000')

Fiscal Year	Budgeted (X)	Actual (Y)	(X^2)	(Y^2)	XY
2069/70	0.318	0.255	0.101124	0.06502	0.08109
2070/71	0.288	0.226	0.082944	0.051076	0.065088
2071/72	0.196	0.15	0.038416	0.0225	0.0294
2072/73	0.253	0.201	0.064009	0.040401	0.050853
2073/74	0.273	0.165	0.074529	0.027225	0.045045
Total	$\sum X = 1.328$	$\sum Y = 0.997$	$\sum X^2 = 0.3610$	$\sum Y^2 = 0.20622$	$\sum XY = 0.271476$

Mean of budgeted sales : $\overline{X}$

$$\overline{X} = \frac{\sum X}{n} = \frac{1.325}{5} = 0.265$$

Standard deviation of budgeted sales $\sigma_X = \sqrt{\frac{1}{n}\left[\sum X^2 - \frac{(\sum X)^2}{n}\right]}$

$$= \sqrt{\frac{1}{5}\left[0.3610 - \frac{(1.328)^2}{5}\right]} = 0.04070$$

Mean of actual sales.

$$\overline{Y} = \frac{\sum Y}{n} = \frac{0.997}{5} = 0.1994$$

Standard Deviation of Actual sales

$$\sigma_Y = \sqrt{\frac{1}{n}\left[\sum Y^2 - \frac{(\sum Y)^2}{n}\right]}$$

$$= \sqrt{\frac{1}{5}\left[0.20622 - \frac{(0.997)}{5}\right]} = 0.0385$$

Correlation Coefficient between actual and budgeted sales

$$r_{xy} = \frac{n.\sum XY - \sum X.\sum Y}{\sqrt{n.\sum X^2 - (\sum X)^2}.\sqrt{n.\sum Y^2 - (\sum Y)^2}}$$

$$= \frac{5 \times 0.271476 - 1.328 \times 0.997}{\sqrt{5 \times 0.3610 - (1.328)2}.\sqrt{5 \times 0.20622 - (0.997)2}}$$

$$= \frac{-0.3650}{0.20350 - 0.80691} = \frac{0.3650}{0.1642}$$

Regression equation of Butter Sales

$$Y - \overline{Y} = r_{xy} \frac{\sigma Y}{\sigma X}(X - \overline{X})$$

Or, $Y - 0.1994 = 0.85 \times \frac{0.0385}{0.04070}(X - 0.2656)$

Or, $Y - 0.1994 = 0.8040\ (X - 0.2656)$

Or, $Y - 0.1994 = 0.8040\ X - 0.2135$

Or, $Y = 0.8040\ X - 0.0141$

Or, $Y = -0.0141 + 0.8040\ X$ _____(B)

$CV_x = \frac{\sigma X}{\overline{X}} = \frac{0.0407}{0.2656} = 0.153$

$CV_Y = \frac{\sigma Y}{\overline{Y}} = \frac{0.0385}{0.1994} = 0.1930$

3. Ghee Sales

('000000')

Fiscal Year	Budgeted (X)	Actual (Y)	(X^2)	(Y^2)	XY
2069/70	0.943	0.843	0.8892	0.7106	0.7949
2070/71	0.917	0.820	0.840	0.6724	0.75194
2071/72	0.730	0.658	0.530	0.4329	0.48034
2072/73	0.848	0.823	0.7191	0. 6773	0.697
2073/74	0.934	0.628	0.872	0.3943	0.586
	$\sum X = 4.372$	$\sum Y = 3.772$	$\sum X^2 = 3.854$	$\sum Y^2 = 2.887$	$\sum XY = 3.31$

→Mean of Budgeted Sales $(\overline{X}) = \frac{\sum X}{n} = \frac{4.372}{5} = 0.8744$

→Standard Deviation of Budgeted Sales $\sigma_X = \sqrt{\frac{1}{n}\left[\sum x^2 - \frac{(\sum X)^2}{n}\right]}$

$$= \sqrt{\frac{1}{5}\left[3.854 - \frac{(4.372)^2}{5}\right]} = 0.07889$$

→Coefficient of Variation of Budgeted Sales $CV_x = \frac{\sigma x}{\overline{x}} = \frac{0.07889}{0.8744} = \frac{0.873}{0.08726} = 0.090$

→Mean of actual sales.

$$\overline{Y} = \frac{\sum y}{n} = \frac{3.772}{5} = 0.7544$$

→Standard Deviation of Actual sales $(\sigma Y) = \sqrt{\frac{1}{n}\left[\sum Y^2 - \frac{(\sum Y)^2}{n}\right]}$

$$= \sqrt{\frac{1}{5}\left[2.887 - \frac{(3.772)^2}{5}\right]} = 0.0909$$

→Coefficient of variance of actual sales $CV_y = \frac{\sigma Y}{\overline{Y}} = \frac{0.0909}{0.7544} = 0.120$

→Correlation coefficient between Budgeted and actual sales.

$$r_{xy} = \frac{n.\sum XY - \sum X.\sum Y}{\sqrt{n.\sum X^2 - (\sum X)^2}.\sqrt{n.\sum Y^2 - (\sum Y)^2}}$$

$$= \frac{5 \times 3.31 - 4.372 \times 3.772}{\sqrt{5 \times 3.854 - (4.372)^2}.\sqrt{5 \times 2.887 - (3.772)^2}}$$

$$= \frac{0.0588}{0.39448 \times 0.4549} = \frac{0.0588}{0.1794} = 0.327$$

4. Cheese Sales

('000000')

Fiscal Yr	Budgeted (X)	Actual (Y)	(X^2)	(Y^2)	XY
2069/70	0.188	0.158	0.035	0.024	0.0297
2070/71	0.241	0.182	0.058	0.0331	0.0438
2071/72	0.172	0.143	0.0295	0.020	0.024
2072/73	0.251	0.137	0.0630	0.0187	0.034
2073/74	0.247	0.164	0.061	0.026	0.040
	$\sum X = 1.099$	$\sum Y = 0.784$	$\sum X^2 = 0.247$	$\sum Y^2 = 0.1242$	$\sum XY = 0.1725$

→ Mean of budgeted Sales $(\bar{X}) = \frac{\sum X}{n} = \frac{1.099}{5} = 0.2198$

→ Standard deviation of Sales $\sigma_X = \sqrt{\frac{1}{n}\left[\sum x^2 - \frac{(\sum X)^2}{n}\right]} = \sqrt{\frac{1}{5}\left[0.247 - \frac{(1.099)^2}{5}\right]} =$ 0.032

→ Coefficient of variation of X = $CV_x = \frac{\sigma X}{\bar{X}} = \frac{0.032}{0.2198} = 0.15$

→ Mean of actual sales $= \bar{Y} = \frac{\sum Y}{n} = \frac{0.784}{5} = 0.1568$

→ Standard deviation of actual sales.

$$(\sigma Y) = \sqrt{\frac{1}{n}\left[\sum Y^2 - \frac{(\sum Y)^2}{n}\right]}$$

$$= \sqrt{\frac{1}{5}\left[0.1242 - \frac{(0.784)^2}{5}\right]} = 0.0159$$

→ Coefficient of variation of actual sales.

$$CVy = \frac{\sigma y}{\bar{y}} = \frac{0.0159}{0.1568} = 0.101$$

→ Correlation of coefficient between Budgeted and actual sales.

$$r_{xy} = \frac{n\sum XY - \sum X.\sum Y}{\sqrt{n.\sum X^2 - (\sum X)^2}.\sqrt{n\sum Y^2 - (\sum Y)^2}}$$

$$= \frac{5x0.1725 - 1.099\,x\,0.784}{\sqrt{5\,x\,0.247 - (1.099)2}.\sqrt{5\,x\,0.1242 - (0.784)2}}$$

$$= \frac{0.8625 - 0.8616}{0.0271 \times 0.0796} = 0.4172$$

5. Curd Sales

('000000')

Fiscal Year	Budgeted (X)	Actual (Y)	(X^2)	(Y^2)	XY
2069/70	1.101	1.062	1.212	1.1276	1.169

2070/71	1.182	1.158	1.397	1.340	1.3687
2071/72	1.158	1.274	1.3409	1.623	1.475
2072/73	1.35	1.704	1.822	2.903	2.3004
2073/74	1.685	2.009	2.839	4.036	3.385
	$\sum X = 6.476$	$\sum Y = 7.209$	$\sum X^2 = 3.612$	$\sum Y^2 = 11.03$	$\sum XY = 9.69$

→ Mean of budgeted sales $(\overline{X}) = \frac{\sum x}{n} = \frac{6.476}{5} = 1.295$

→ Standard deviation of Sales $= \sigma_X \sqrt{\frac{1}{n}\left[\sum X^2 - \frac{(\sum X)^2}{n}\right]} = \sqrt{\frac{1}{5}\left[8.612 - \frac{(6.476)^2}{5}\right]} =$ 0.211

→Coefficient of variation (CVx) $= \frac{\sigma X}{\overline{X}} = \frac{0.211}{1.295} = 0.162$

→ Mean of Actual Sales $= \overline{Y} = \frac{\sum Y}{n} = \frac{7.209}{5} = 1.44$

→ Standard deviation of actual sales.

$$(\sigma Y) = \sqrt{\frac{1}{n}\left[\sum Y^2 - \frac{(\sum Y)^2}{n}\right]}$$

$$= \sqrt{\frac{1}{5}\left[11.03 - \frac{(7.209)^2}{5}\right]} = 0.356$$

→ Coefficient of variation of actual sales.

$$CVy = \frac{\sigma y}{\overline{y}} = \frac{0.356}{1.44} = 0.247$$

→ Correlation of coefficient between Budgeted and actual sales.

$$r_{xy} = \frac{n\sum xy - \sum x.\sum y}{\sqrt{n.\sum x2 - (\sum x)2}.\sqrt{n\sum y2 - (\sum y)2}}$$

$$= \frac{5X\,9.69 - 6.476 \times 7.209}{\sqrt{5 \times 8.612 - (6.476)^2} \times \sqrt{5 \times 11.03 - (7.209)^2}}$$

$$= \frac{48.45 - 46.68}{1.058 \times 1.783} = \frac{1.77}{1.8864} = 0.938$$

6. Ice-cream Sales

('000000')

Fiscal yr	Budgeted (X)	Actual (Y)	(X^2)	(Y^2)	XY
2069/70	0.042	0.038	0.001764	0.00144	0.001596
2070/71	0.186	0.15	0.0345	0.0225	0.0279
2071/72	0.091	0.037	0.008281	0.001369	0.003367
2072/73	0.163	0.052	0.0265	0.002704	0.008476
2073/74	0.152	0.053	0.023	0.002809	0.008056
	$\sum X = 0.634$	$\sum Y = 0.33$	$\sum X^2 = 0.0943$	$\sum Y^2 = 0.0308$	$\sum XY = 0.04939$

→Mean of budgeted sales $(\bar{X}) = \frac{\sum X}{n} = \frac{0.634}{5} = 0.1268$

→ Standard deviation of Sales $\sigma_X = \sqrt{\frac{1}{n}\left[\sum X^2 - \frac{(\sum X)^2}{n}\right]} = \sqrt{\frac{1}{5}\left[0.0943 - \frac{(0.634)^2}{5}\right]} =$ 0.0527

→Coefficient of variation (CVx) $= \frac{\sigma x}{\bar{x}} = \frac{0.0527}{0.1268} = 0.4159$

→ Mean of actual sales $= \bar{Y} = \frac{\sum Y}{n} = \frac{0.33}{5} = 0.066$

→ Standard deviation of actual sales.

$$(\sigma Y) = \sqrt{\frac{1}{n}\left[\sum Y^2 - \frac{(\sum Y)^2}{n}\right]} = \sqrt{\frac{1}{5}\left[0.0308 - \frac{(0.33)^2}{5}\right]} = 0.0424$$

→ Coefficient of variation of actual sales.

$$CVy = \frac{\sigma y}{\bar{y}} = \frac{0.0424}{0.066} = 0.643$$

→ Correlation of coefficient between Budgeted and actual sales

$$r_{xy} = \frac{n\sum XY - \sum X.\sum Y}{\sqrt{n.\sum X^2 - (\sum X)^2}.\sqrt{n\sum Y^2 - (\sum Y)^2}}$$

$$= \frac{5 \times 0.04939 - 0.634 \times 0.33}{\sqrt{5 \times 0.0943 - (0.634)^2}.\sqrt{5 \times 0.0308 - (0.33)^2}}$$

$$= \frac{0.0377}{0.2637 \times 0.2123} = 0.673$$

7. Paneer Sales

('000000')

Fiscal Year	Budgeted (X)	Actual (Y)	(X^2)	(Y^2)	XY
2069/70	0.067	0.068	0.004489	0.00642	0.004556
2070/71	0.132	0.121	0.0174	0.01597	0.01464
2071/72	0.092	0.058	0.008464	0.003364	0.005336
2072/73	0.157	0.078	0.02464	0.006084	0.012246
2073/74	0.104	0.096	0.0108	0.009984	0.009216
	$\sum X = 0.552$	$\sum Y = 0.421$	$\sum X^2 = 0.0658$	$\sum Y^2 = 0.0379$	$\sum XY = 0.04809$

→Mean of budgeted sales $(\bar{X}) = \frac{\sum X}{n} = \frac{0.552}{5} = 0.1104$

→ Standard deviation of Sales $(\sigma_X) = \sqrt{\frac{1}{n}\left[\sum x^2 - \frac{(\sum X)^2}{n}\right]} = \sqrt{\frac{1}{5}\left[0.0658 - \frac{(0.552)^2}{5}\right]} =$ 0.0311

→Coefficient of variation (CVx) $= \frac{\sigma X}{\bar{X}} = \frac{0.0311}{0.1104} = 0.28$

→ Mean of actual sales $\bar{Y} = \frac{\sum Y}{n} = \frac{0.421}{5} = 0.0842$

→ Standard deviation of actual sales

$$(\sigma Y) = \sqrt{\frac{1}{n}\left[\sum Y^2 - \frac{(\sum Y)^2}{n}\right]} = \sqrt{\frac{1}{5}\left[0.0379 - \frac{(0.421)^2}{5}\right]} = 0.0221$$

→ Coefficient of variation of actual sales

$$CVy = \frac{\sigma Y}{\bar{Y}} = \frac{0.0221}{0.0842} = 0.262$$

→ Correlation of coefficient between Budgeted and actual sales.

$$r_{xy} = \frac{n\sum XY - \sum X.\sum Y}{\sqrt{n.\sum X^2 - (\sum X)^2}\sqrt{n\sum Y^2 - (\sum Y)^2}}$$

$$= \frac{5 \times 0.04809 - 0.552 \times 0.421}{\sqrt{5 \times 0.0658 - (0.552)2}\sqrt{5 \times 0.0379 - (0.421)2}} = \frac{0.008058}{0.0172} = 0.46$$

8. Raswari Sales

('000000')

Fiscal yr	Budgeted (X)	Actual (Y)	(X^2)	(Y^2)	XY
2069/70	0.085	0.092	0.00722	0.008464	0.0782
2070/71	0.14	0.131	0.0196	0.0171	0.01834
2071/72	0.138	0.087	0.0190	0.00756	0.01200
2072/73	0.187	0.086	0.0349	0.007396	0.0160
2073/74	0.173	0.074	0.0299	0.005476	0.0128
	$\sum X = 0.723$	$\sum Y = 0.47$	$\sum X^2 = 0.1107$	$\sum Y^2 = 0.0460$	$\sum XY = 0.0670$

→Mean of budgeted sales $(\bar{X}) = \frac{\sum X}{n} = \frac{0.723}{5} = 0.1446$

→ Standard deviation of budgeted sales $\sigma_X = \sqrt{\frac{1}{n}\left[\sum x^2 - \frac{(\sum X)^2}{n}\right]} = \sqrt{\frac{1}{5}\left[0.1107 - \frac{(0.723)^2}{5}\right]} =$ 0.0350

→ Coefficient of variation of Budgeted sales (CVx) = $\frac{\sigma_X}{\bar{X}} = \frac{0.0350}{0.1446} = 0.242$

→ Mean of actual sales $\bar{Y} = \frac{\sum Y}{n} = \frac{0.47}{5} = 0.094$

→ Standard deviation of actual sales

$$(\sigma Y) = \sqrt{\frac{1}{n}\left[\sum Y^2 - \frac{(\sum Y)^2}{n}\right]} = \sqrt{\frac{1}{5}\left[0.0460 - \frac{(0.47)^2}{5}\right]} = 0.0190$$

→ Coefficient of Variation of Actual Sales

$$CVy = \frac{\sigma_Y}{\bar{Y}} = \frac{0.0190}{0.094} = 0.202$$

→ Correlation of Coefficient between Budgeted and Actual Sales

$$r_{xy} = \frac{n\sum XY - \sum X.\sum Y}{\sqrt{n.\sum X^2 - (\sum X)^2}.\sqrt{n\sum Y^2 - (\sum Y)^2}} = \frac{5 \times 0.0670 - 0.723 \times 0.47}{\sqrt{5 \times 0.1107 - (0.723)^2}\sqrt{5 \times 0.0460 - (0.47)^2}}$$

$$= \frac{0.335 - 0.3398}{0.1754 \times 0.0953} = -0.28$$

→ Regression equation of Ghee Sales

$$Y - \bar{Y} = r\frac{\sigma y}{\sigma x}(X - \bar{X})$$

or $y - 0.7544 = 0.327 \times \frac{0.0909}{0.07889}(X - 0.8744)$ .....(C)

or $y - 0.7544 = 0.3767 (X - 0.8744)$

or $y - 0.7544 = 0.3765 X - 0.3294$

or y= 0.3767 x + 0.4249

→ Regression line for chees

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

Or Y- 0.1568 = 0.4172 $\frac{0.0159}{0.032}$ (X – 0.2198)

Or Y- 0.1568 = 0.2072X – 0.0455

Or Y : 0.111 + 0.2072 X …… (D)

→ Regression line for card

$$Y - \bar{Y} = r \frac{\pm_Y}{\pm_X} (X - \bar{X})$$

Or y- 1.44 : 0.938 0.983 | $\frac{0.356}{0.211}$ (X – 1.295)

Or y = 1.582 X -0.609 …… (E)

→ Regression line for Ice-cream

$$Y - \bar{Y} = r \frac{\sigma Y}{\sigma X} (X - \bar{X})$$

Or y – 0.066 = 0.673 | $\frac{0.0424}{0.0527}$ (X – 0.1268)

Or y- 0.66 = 0.5414 X – 0.0686

Or y = 0.5414 X – 0.00265 …….(F)

→ Regression line for Paneer

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

Or y- 0.0842 = 046 $\frac{0.0221}{0.0311}$ (X – 0.1104)

Or y - 0.0842 = 0.326 X – 0.0360

Or y = 0.048 + 0.326 X ……. (G)

→ Regression line for Raswari

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

Or y-0.094 = - 0.28 $\frac{0.0190}{0.0350}$ $(X\ Z 0.1446)$

Or y-0.094 = -0.152 x + 0.021

Or y= 0.1159 – 0.152x …….(H)

Sales Trend Analysis of DDC by Fitting Straight Line Trend

(000000)

Fiscal Years	Sales Revenue (y)	Deviation of 2071/72 (x)	xy	X^2
2069/70	1535.81	-2	-3071.62	4
2070/71	1589.66	-1	-1589.66	1
2071/72	1536.34	0	0	0
2072/73	1680.35	1	1680.35	1
2073/74	1800	2	3600	4
Total	∑Y = 8142.16	∑X= 0	∑XY = 619.07	$\sum X^2$ =10

Appendix –II

Calculation of Mean Standard Deviation, Coefficient of Variance Correlation of Coefficient and Determination of Regression Line of Production Units

1. Milk Production

('000000')

Fiscal Year	Budgeted Produ. (X)	Actual Product (Y)	X^2	Y^2	XY
2069/70	78.85	74.07	621.32	5486.36	5840.41
2070/71	83.65	76.12	6997.32	5794.25	6367.43
2071/72	77.71	67.61	6038.84	4505.09	5253.97
2072/73	74.50	62.66	5550.25	3926.27	4668.17
2073/74	71.55	63.53	5119.40	4036.06	4545.57
	$\sum X = 386.26$	$\sum Y = 343.99$	$\sum X^2 = 29923$	$\sum Y^2 = 23748$	$\sum XY = 26675.57$

- Mean of Budgeted of Production 6y :

$$\bar{x} = \frac{x}{n} \times \frac{386.26}{5} : 77.25$$

- Standard deviation of Budgeted production : 6y:

$$\sqrt{\frac{1}{Q} \quad x - \frac{5x}{n}^2} = \sqrt{\frac{1}{5} \quad 29923 - \frac{386.26^2}{5}}$$

- Coefficient of Variance of budgeted production (cvx) = $\frac{6x}{\bar{x}} \times \frac{4.09}{77.25}$ = 5.29%

- Mean of Actual Product : $\bar{y} \times \frac{y}{n} \times \frac{343.99}{5}$ = 68.79

- Standard deviation of Actual Production

$$\pm y \times \sqrt{\frac{1}{n} \quad y^2 - \frac{y^2}{r}} \times \sqrt{\frac{1}{5} \quad 23748 - \frac{343.99^2}{5}} \times 4.05$$

- Coefficient of variation Actual Production

$$cvy \times \frac{\pm y}{\bar{y}} \times \frac{4.05}{68.79} = 5.9\%$$

- Correlation coefficient between budgeted and actual production

$$R_{xy} = \frac{r\sum XY - \sum X.\sum Y}{\sqrt{r\sum X^2 - (\sum X)^2}\sqrt{r\sum Y^2 - (\sum Y)^2}}$$

$$= \frac{5 \times 26675.57 - 386.26 \times 343.99}{\sqrt{5 \times 29923 - (386.26)^2}.\sqrt{5 \times 23748 - (343.99)^2}}$$

$$\frac{505}{20.45 \times 2027} \times \frac{508}{414.52} = 1.000015 \approx 1$$

→ Regression line of y on x

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

or $Y - 68.79 = 1.\ \frac{4.05}{4.09}(X - 77.25)$

or $Y - 68.79 = 0.99\ (X-77.25)$

or $Y - 68.79 = 0.99\ (X-77.25)$

or $Y - 68.79 = 0.99X - 76.49$

or $y = 7.70 + 0.99\ x$ …… (A)

2. Butter Production

('000000')

Fiscal Year	Budgeted (X)	Actual (Y)	X^2	Y^2	XY
2069/70	1.518	1.372	2.304	1.882	2.08
2070/71	1.318	1.252	1.737	1.567	1.65
2071/72	0.731	0.665	0.534	0.442	0.486
2072/73	1.207	1.125	1.456	1.265	1.357
2073/74	1.395	0.0894	1.946	0.799	1.247
	∑X = 6.169	∑Y = 5.308	$\sum X^2 = 7.97$	$\sum Y^2 = 5.96$	∑XY= 6.820

→Mean of Budgeted Production = $\bar{x} \text{ X} \frac{y}{n} \text{ X} \frac{6.169}{5} = 1.233$

=→Standard deviation of Budgeted sales

$$\pm x \text{ X} \sqrt{\frac{1}{n} \quad x^2 \text{ Z} \frac{f \quad xÅ^2}{n}} \quad \text{X} \sqrt{\frac{1}{5} \quad 7.97 \text{ Z} \quad \frac{6.169}{5}^{\ 2}} \quad \text{X}0.267$$

→ Coefficient Variance (CVx) = $\frac{\pm x}{\bar{x}} \text{ X} \frac{0.267}{1.233} = 21.72\%$

→ Mean of Actual Production = $\bar{\text{Y}} \text{ X} \frac{\text{Y}}{\text{n}} \text{X} \frac{5.308}{5} = 1.06$

=→Standard Dev. Of Actual Production = $\pm_{Y}$

$$\pm y = \sqrt{\frac{1}{\text{n}} \quad \text{Y}^2 \text{ Z} \frac{f \quad \text{Y}Å^2}{\text{n}}} = \sqrt{\frac{1}{5} \quad 5.96 \text{ Z} \frac{f 5.308Å^2}{5}} = 0.254$$

→ Coefficient of Various of Actual Product = $(CV_Y) = \frac{\sigma Y}{Y} = \frac{0.254}{1.06} = 24\%$

→ Correlation Coefficient Behavior Budgeted and Actual Production

$$rxy \text{ X} \frac{r \quad xy \text{ Z} \quad x. \quad y}{\sqrt{r \quad x2 \quad \text{Z} f \quad xÅ^2} . \sqrt{r. \quad y2 \text{ Z} f \quad yÅ^2}}$$

$$= \frac{5 \mid 6.820 \text{ Z} 6.169 \mid 5.305}{\sqrt{5 \mid 7.97 \text{ Z} (5.169)^2} \sqrt{5 \mid 5.96 \text{ Z} (5.308)^2}} = \frac{34.1 \text{ Z} 32.74}{1.707}$$

Rxy = 0.79

→ Regression of Y on x

$$Y - \bar{Y} = r\frac{\sigma Y}{\sigma X}(X - \bar{X})$$

$$\text{or } Y = 1.06 = 0.79\ \frac{0.25}{0.267}(X - 1.233)$$

$$\text{or } Y = 1.06 - 0.75\ X - 0.926$$

$$\text{or } Y = 0.133 + 0.75\ X \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(B)}$$

3. Ghee Production

('000000')

Fiscal Year	Budgeted (X)	Actual (Y)	X^2	Y^2	XY
2069/70	10.951	0.806	0.904	0.649	0.7665
2070/71	0.917	0.186	0.840	0.034	0.170
2071/72	0.693	0.665	0.450	0.442	0.460
2072/73	0.788	0.803	0.620	0.644	0.632
2073/74	0.934	0.617	0.872	0.350	0.576
	∑X = 4.283	∑Y = 3.077	$\sum X^2 = 3.71$	$\sum Y^2 = 2.15$	∑XY= 2.60

→ Mean of Budgeted Production = $\bar{X}$ X$\frac{X}{n}$ X$\frac{4.283}{5}$ X0.656

→ St. Deviation of budgeted production = ± $_X$

$$\sqrt{\frac{1}{r} \quad X^2 \; Z \frac{\int \; XÅ^2}{r}} = \sqrt{\frac{1}{5} \quad 3.71 Z \frac{\int 4.283Å^2}{5}} = 0.90$$

→ Coefficient of Various (CV_X) = $\frac{\sigma_X}{\bar{X}}$ X$\frac{0.90}{0.856}$ = 10.60%

→ Mean of Actual Production = $\bar{Y}$ X$\frac{Y}{n}$ = $\frac{3.077}{5}$ = 0.61

→ Standard deviation of Actual production = ± $_Y$

$$\pm y = \sqrt{\frac{1}{n} \quad y^2 \; Z \frac{(3.077)^2}{5}} = 0.226$$

→ Coefficient of Variance (CVY) = $\frac{\pm y}{y}$ = $\frac{0.226}{0.61}$ = 37.12 %

→ Correlation coefficient between budgeted and actual production.

$$rxy \; X \frac{n \; Z 5xy \; Z \quad x. \quad y}{\sqrt{n \quad x^2 \; Z \int \quad xÅ^2 \; .\sqrt{5 \; x} \;\; 2.15 \; Z (3.077)^2}} = \frac{Z0.178}{0.513} X \frac{0.346}{K}$$

→ Regression equation of y or x

Or $Y- \bar{Y} X\frac{\sigma_Y}{\sigma_X} \int X Z \bar{X}$

Or $y- 0.61 XZ0.346 \frac{0.226}{0.090} \int X Z 0.856$

Or Y = 0.61 = - 0.868 X +0.743

Or Y = 1.353 – 0.868 X ……. ©

4. Chess Production

('000000')

Fiscal Year	Budgeted (X)	Actual (Y)	X^2	Y^2	XY
2069/70	0.2140	0.186	0.045	0.0345	0.039
2070/71	0.241	0.215	0.058	0.046	0.0518
2071/72	0.186	0.168	0.034	0.028	0.0312
2072/73	0.287	0.166	0.082	0.027	0.047
2073/74	0.266	0.174	0.070	0.0302	0.0462
	$\sum X = 1.194$	$\sum Y = 0.909$	$\sum X^2 = 0.289$	$\sum Y^2 = 0.167$	$\sum XY = 0.215$

→ Mean of Budgeted Production = $\bar{X} = \frac{X}{n} = \frac{1.194}{5} = 0.238$

→ St. Dev. of Budgeted Production = σ_X

$$\pm_Y = \sqrt{\frac{1}{n} X^2 - \frac{(X)^2}{n}} = \sqrt{\frac{1}{5} 0.289 - \left(\frac{1.194}{5}\right)^2} = 0.027$$

→ Coefficient of Variation (CVX) = $\frac{\pm_X}{\bar{X}} = \frac{0.027}{0.238} = 11.69\%$

→ Means of Budgeted Production $\bar{Y} = \frac{Y}{n} = \frac{0.909}{5} = 0.181$

→ Standard Deviation of B.P. = $\pm_Y$

$$\pm Y = \sqrt{\frac{1}{r} Y^2 - \frac{(Y)^2}{n}} = \sqrt{\frac{1}{5} 0.167 - \left(\frac{0.909}{5}\right)^2} \quad \pm y = 0.0186$$

→ Coefficient of variance = $\frac{0.0186}{0.181} = 10.31\ \%$

→ Regression equations of Y or X

$Y - 0.181 = 0.83 \frac{0.0186}{0.027} (X - 0.238)$

$Y - 0.181 : -0.571 X + 0.136$

$Y = 0.317 - 0.571$ …….. (D)

→ Correlation coefficient between budgeted and actual production

$$XYZ: \frac{XY\,Z \quad X \quad Y}{\sqrt{n \quad X^2\,Z \quad X}\,\sqrt{n \quad Y^2\,Z \quad Y}}$$

$$Rxy = \frac{n \quad XY\,Z \quad X. \quad Y}{\sqrt{n \quad X^2\,Z \quad X}\,\sqrt{n \quad Y^2\,Z \quad Y}}$$

$$= \frac{5 \mid 0.215\,Z1.194 \mid 0.909}{\sqrt{5 \mid 0.289\,Z1.194}\,\sqrt{5 \mid 0.167\,Z0.9.9}} \quad \frac{0.101}{0.012} = -0.83$$

5. Curd Production

('000000')

Fiscal Year	Budgeted (X)	Actual (Y)	X^2	Y^2	XY
2069/70	01.108	1.067	1.227	01.138	1.182
2070/71	1.182	0.194	1.397	1.425	1.411
2071/72	1.105	1.282	1.221	1.643	1.416
2072/73	1.35	1.712	1.822	2.93	2.31
2073/74	1.659	2.03	2.752	4.120	3.36
	$\sum X = 6.404$	$\sum Y = 7.285$	$\sum X^2 = 8.419$	$\sum Y^2 = 11.25$	$\sum XY = 9.689$

→ Mean of Budgeted Production = $\bar{X}$ X$\frac{X}{n}$ X$\frac{6.404}{5}$ = 1.28

→Standard deviation of B.P $\pm_X$

$\pm x = \sqrt{\frac{1}{n} X^2 Z \frac{f XÅ^2}{r}} = \sqrt{\frac{1}{5} 8.419 Z \frac{f6.404Å^2}{5}} = 0.208$

→ Coefficient of variables (CVX) = $\frac{\sigma_X}{\bar{X}}$ $\frac{0.208}{1.28}$ = 0.162 = 16.2%

→ Mean of Actual Production = $\bar{Y}$ X$\frac{Y}{r}$ X$\frac{7.2838}{5}$ X1.457

→ Standard deviation of Actual Production

$= \sqrt{\frac{1}{n} Y^2 Z \frac{f YÅ^2}{n}} = \sqrt{\frac{1}{5} 11.25 Z \frac{f7.285Å^2}{5}} = 0.356$

→ Correlation coefficient rxy

=

$$\frac{n \quad xy Z \quad y. \quad y}{\sqrt{n \quad x^2 Z f \quad xÅ^2} \sqrt{n \quad y^2 Z f \quad yÅ^2}}$$

$$\frac{5 | 9.689 Z 6.404 | 7.285}{\sqrt{5 \ x 8.419 Z (6.404)^2} \ \sqrt{5 | | 11.25 Z (7.285)^2}}$$

$$= \frac{1.791}{1.856} = 0.964$$

→ Regression equation of y or x

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

or $Y - 1.457 = 0.964 \frac{0.556}{0.208}(X - 1.28)$

or Y -1.457= 01.649 X – 2.11

Y = -0.654 + 1.649 X …….. (t)

6. Ice-cream Production

('000000')

Fiscal Year	Budgeted (X)	Actual (Y)	X^2	Y^2	XY
2069/70	0.041	0.038	0.00168	0.00144	0.001558
2070/71	0.186	0.14	0.0945	0.0196	0.0260
2071/72	0.06	0.038	0.0036	0.00144	0.00228
2072/73	0.165	0.055	0.0272	0.0030	0.00907
2073/74	0.152	0.0555	0.023	0.00308	0.00843
	$\sum X = 604$	$\sum Y = 70.3265$	$\sum X^2 = 0.090$	$\sum Y^2 = 0.030$	$\sum XY = 0.0473$

→ Mean of Budgeted production = $\bar{X} X \frac{Y}{n} X \frac{0.604}{5} = 0.1208$

→ Standard deviation of Budgeted Production = $\pm x$

$$\pm_X = \sqrt{n \quad X^2 Z \frac{f \quad XÅ^2}{n}} = \sqrt{\frac{1}{5} \quad 0.090 Z \frac{f 0.604Å^2}{5}} = 0.058$$

→ Coefficient of variance (CVx) = $\frac{\sigma_X}{\bar{f}XÅ} X \frac{0.058}{0.1208} = 0.480 = 48\ \%$

→ Mean of Actual Production = $\bar{Y} X \frac{Y}{n} X \frac{0.32.65}{5} = 0.065$

→ St. Deviation of Actual Production = $\sigma_Y X \sqrt{\frac{1}{5} \quad Y^2 Z \frac{f \quad YÅ^2}{5}}$

$$= \sqrt{\frac{1}{5} \quad 0.030 Z \frac{f 0.3265Å^2}{5}} \quad \pm_Y = 0.041$$

→ Coefficient of variable (CVy) = $\frac{\sigma_Y}{\bar{Y}} X \frac{0.041}{0.065} = 64.90\%$

→ Correlation coefficient (rxy)

$$\frac{n \quad xy Z \quad x. \quad y}{\sqrt{n. \quad x^2 \quad Z f \quad xÅ^2 .} \sqrt{n. \quad y^2 Z f \quad yÅ^2}}$$

$$= \frac{5 \mid 0.0473 Z 0.604 \mid 0.3265}{\sqrt{5 \mid 0.090 Z (0.604)^2} . \sqrt{5 \mid 0.030 Z (0.3256)^2}} = \frac{0.039}{0.060} = 065$$

→Regression equation of Y on X

$$Y-\overline{Y}\ Xr\frac{\sigma_Y}{\sigma_X}(X\ Z\overline{X})$$

or $Y - 0.065 - 0.65\ \frac{0.041}{0.058}\ (X - 0.1208)$

or $Y- 0.065 = 0.459\ X - 0.056$

or $Y= 0.01 + 0.459\ X$ ……. (f)

7. Paneer Production

('000000')

Fiscal Year	Budgeted (X)	Actual (Y)	X^2	Y^2	XY
2069/70	0.068	0.068	0.00462	0.00462	0.00462
2070/71	0.132	0.127	0.0174	0.0161	0.016
2071/72	0.074	0.062	0.00547	0.00384	0.0045
2072/73	0.157	0.078	0.0247	0.00608	0.0122
2073/74	0.105	0.099	0.011	0.0098	0.010
	$\sum X = 0.536$	$\sum Y = 0.434$	$\sum X^2 = 0.0631$	$\sum Y^2 = 0.040$	$\sum XY = 0.0473$

→ Standard deviation of Budgeted production $\pm y$

$$\pm_Y = \sqrt{\frac{1}{n} X^2 Z \frac{f X^2}{n}} = \sqrt{\frac{1}{5} 0.0631 Z \frac{f 0.536^2}{5}} = 0.0335$$

→ Coefficient of Variance (CVx) = $\frac{\sigma_X}{\bar{X}} X \frac{0.0335}{0.107} = 31.39$

→Mean of Actual Production = $\bar{Y} X \frac{Y}{n} X \frac{0.434}{5} = 0.0868$

→ St. Deviation of Actual Production

$$\sigma_Y X \sqrt{\frac{1}{n} Y^{2Z} \frac{f Y^2}{5}} = \sqrt{\frac{1}{5} 0.040 Z \frac{f 0.434^2}{5}} = 0.021$$

→Coefficient of variance (CV_Y) = $\frac{\varsigma_Y}{\bar{Y}} = \frac{0.021}{0.0868} = 24.86\ \%$

→ Correlation coefficient rxy

$$= \frac{5 | 0.0486 Z 0.536 | 0.434}{\sqrt{5 | 0.0631 Z (0.536)^2} \sqrt{5 | 0.040 Z (0.434)^2}} = \frac{0.010}{0.018} = 0.55$$

→ Regression equation of y on x

$$Y - \bar{Y} X r \frac{\sigma_Y}{\sigma_X} (X Z \bar{X})$$

or $Y - 0.0868 = 0.55 \frac{0.021}{0.0335} (X Z 0.107)$

or $y - 0.0868 = 0.344x - 0.036$

or $y = 0.0499 + 0.344\ x$ …….. (g)

8. Raswari Production

('000000')

Fiscal Year	Budgeted (X)	Actual (Y)	X^2	Y^2	XY
2069/70	0.085	0.092	0.0072	0.00846	0.00782
2070/71	0.14	0.127	0.0196	0.0161	0.0177
2071/72	0.139	0.089	0.0193	0.00792	0.0123
2072/73	0.185	0.089	0.0193	0.00792	0.0164
2073/74	0.177	0.081	0.0313	0.006561	0.0143
	∑X = 0.726	∑Y = 00.478	$\sum X^2 = 0.1117$	$\sum Y^2 = 0.046$	∑XY= 0.0687

→ Mean of Budgeted product $\bar{x} = \frac{x}{n} = \frac{0.726}{5} = 0.1452$

St. Deviation of B.P $\pm x$:

$$\sqrt{\frac{1}{n} x^2 - \frac{\int x^2}{n}} = \sqrt{\frac{1}{5} 0.117 - \frac{\int 0.726^2}{5}} = 0.0354$$

→ Coefficient of Variation CVX : $\frac{\pm_X}{\bar{X}} = \frac{0.0354}{0.1452} = 24.41\ \%$

→ Mean of Actual Production $\bar{Y} = \frac{Y}{n} = \frac{0.478}{5} = 0.0956$

→ St. Deviation of Actual Production

$$\sigma_Y = \sqrt{\frac{1}{n} Y^2 - \frac{\int Y^2}{n}} \quad \sqrt{\frac{1}{5} 0.06 - \frac{\int 0.478^2}{5}} = 0.00778$$

→ Coefficient of Variation = CVY = $\frac{\pm y}{\bar{y}} = \frac{0.00778}{0.0956} = 8.14\%$

→ Correlation coefficient : CXY

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

$$= \frac{5 \mid 0 - .0687 - 0.726x0.478}{\sqrt{5 \mid 0.1117 - (0.726)^2} \sqrt{5 \mid 0.046 - (0.478)^2}} = \frac{0.00352}{0.00690} - 0.51$$

→ Regression equation of y on x

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

Or Y- 0.0956 = - 0.51 $\frac{0.00778}{0.0354}$ (X Z 0.1452)

Or Y- 0.0956 = 0.112 X - + 0.1062

Or Y= 0.11-0.112X …… (h)

Appendix –III

Calculation of Mean, Standard Deviation, CV and Correlation Coefficient of Milk Collection

('000000')

Fiscal Year	Budgeted (X)	Actual (Y)	X^2	Y^2	XY
2069/70	55.062	053.41	3.031.82	02352.62	2.944086
2070/71	34.293	52.12	2947.72	2716.49	2829.75
2071/72	55.22	54.12	3049.24	292897	2988.5
2072/73	57.11	053.684	3261.55	2881.97	3065.89
2073/74	53.306	50.641	02841.52	2564.51	2899.46
	$\sum X = 0274.99$	$\sum Y = 263.97$	$\sum X^2 = 15131.88$	$\sum Y^2 = 139944.56$	$\sum XY = 14524.48$

→ Mean of Budgeted Collection =

$$\sigma_X \text{ X} \sqrt{\frac{1}{n} \quad \text{X}^2 \text{ Z} \frac{\int \quad \text{XÂ}}{n}} \quad = \sqrt{\frac{1}{5} \quad 15131.88 \text{ Z} \frac{\int 274.99 \text{Â}}{5}} \quad = \pm_X \text{ X}1.263$$

→ Coefficient of variable of (X): $\frac{\pm_X}{\int \overline{X} \text{Â}} \text{X} \frac{1.263}{54.99} = 2.29\ \%$

→ Mean of Actual Collection = $\overline{\text{Y}} \text{ X} \frac{\text{Y}}{\text{n}} \text{X} \frac{263.97}{5} = 52.79$

→ Standard Deviation of Actual Collection = $\pm_Y$

$$\sigma_Y \text{ X} \sqrt{\frac{1}{n} \quad \text{Y}^2 \text{ Z} \frac{\int \quad \text{YÂ}}{n}} \quad = \sqrt{\frac{1}{5} \quad 13944.56 \text{ Z} \frac{\int 263.97 \text{Â}}{5}} \quad = 1.305$$

→ Coefficient of Variation $(CV_Y) = \frac{\sigma_Y}{\overline{\text{Y}}} \text{X} \frac{1.305}{52.79} \text{X}2.47\%$

→ Correlation coefficient between Budgeted and actual collection

$$\text{Rxy} = \frac{n \quad xy \text{ Z} \quad x. \quad y}{\sqrt{n \quad x^2 \text{ Z} \int \quad x\text{Â}^2} \cdot \sqrt{n. \quad y^2 \text{ Z} (\quad y)^2}}$$

$$= \frac{5 \mid 14524.48 \text{ Z} 274.99 \mid 263.97}{\sqrt{5 \mid 15131.88 \text{ Z} (274.99)^2} \sqrt{5 \mid 13944.56 \text{ Z} (263.97)^2}} = \frac{33.28}{41.24} \text{X}0.80$$

Trend Analysis of Milk Collection

('000000')

FY	Actual Milk Collection	Deviation from 2071/72 (x)	XY	X^2
2069/70	53.41	-2	-106.82	4
2070/71	52.122	-1	-52.122	1
2071/72	54.12	0	0	0
2072/73	53.684	1	53.684	1
2073/74	50.641	2	101.282	4
	∑Y = 263.97	∑x = 0	∑Xy= -3.976	∑x2 =10

Appendix – IV (a)

Administrative Cost Statement of DDC

(Amount in Rs.)

Particular	2069/70	2070/71	2071/72	2072/73	2073/74
Salaries	27120786.47	25427878.69	33329986.77	30936836.51	45629263.09
Allowance	3827859.84	7550379.63	5501120.97	7434392.33	10965110.91
Travelling Expenses	1362236.29	1695271.85	1809265.54	1682456.75	2481483.90
Guest Host & Entertainment	1064828.29	1245945.95	1339429.89	1335762.74	1970139.04
Provident Fund	1733782.83	1738294.43	2024968.20	2022504.17	2983025.59
House Rent	84000.00	84000.00	96000.00	96000.00	96000.00
Water & Electricity	24571.76	21430.31	20208.46	23861.83	35194.22
Ticket, Wire & Telephone	1170747.21	1026709.83	1232509.72	1513516.03	2232310.38
Stationary & Printing	1080079.46	1134420.85	1088475.12	1292238.73	1905944.75
Fuel for Transportation	1649188.47	1800388.45	1595305.90	1806689.88	2664717.44
Motor Repairs	968287.47	1378187.76	800525.97	1079704.07	1592473.78
Building Repairs	248908.41	213164.70	283949.44	299883.18	442302.77
Office Equipment Repairs	123564.28	166891.57	229207.00	434024.34	640149.84
Other Repairs	191587.20	188286.65	184909.00	263094.38	388042.35
Membership Fee	10000.00	28460.32	37977.07	31353.13	46243.26
Bus Fair	1324520.25	1170264.00	789207.88	835981.92	1233003.86
Training	510195.29	474730.86	614835.00	1989950.29	2935011.32
Executive Meeting Fee	157000.00	233000.00	188000.00	227000.00	334806.14
Auditor's Fee	82461.50	180000.00	99000.00	364535.00	537658.83
Sub-committee Fee	282000.00	396250.00	619175.00	526500.00	776543.75
Recruitment Fee	21040.00	41035.00	127500.00	899093.00	1326087.46
Advisory Fee	183200.00	180767.54	449635.00	207054.00	305387.44
Advertisement & Publication	1478774.07	1880643.94	1852141.62	3535118.71	5214006.34
Bank Commission	65481.82	87901.46	65078.10	72026.00	106232.36
Non-durable Office Goods	209729.94	395523.25	344207.12	455687.02	672100.49
Paper & Journals	145876.85	117329.25	122814.50	149260.50	220146.83
Employees Welfare	64513.52	98500.63	126106.44	94899.20	139968.43
Tax & Charges	803019.99	683718.04	506384.25	1913605.54	2822409.16
Insurance	8740206.09	8551673.31	9158078.14	10850534.68	16003637.00
Donation & Gifts	179900.00	281000.00	427648.00	471326.50	695167.42
Sanitation	276612.60	283354.40	335806.14	436019.55	643092.60
Discount	281372.35	508638.55	88588.60	115118.29	169789.91
Anniversary Expenses	499475.98	923609.95	812204.21	877722.40	1294567.60
Business Promotion	1332063.66	1720040.77	1245593.93	1348327.60	1988671.17
Gratuity Expenses	470036.46		5091127.82		
Meeting	108101.00	14315203.92	163875.00	3184627.37	4697060.74
Software	318860.00	80000.00	261557.00	119050.00	175588.86
Accidental Expenses	104678.03	165520.00	318890.58		
Gosti and Program		113049.16	130556.00	712921.42	1051499.85
Other Exp. Related to AC	5000.00	111188.00	17500.00	570455.00	250367.15
Deferred	2826500.00				
Total	**61131047.38**	**76692653.02**	**73529349.38**	**80209132.06**	**117665206.03**

Source: Annual Report of DDC

Appendix – IV (b)

Trend Analysis of Administrative Expenses

F/Y	Administrative (x) (Rs)	Deviation from 2071/72 (x)	XY	X^2
2069/70	61131074	-2	-122262094	
2070/71	76692653	-1	-76692653	
2071/72	73529349	0	0	
2072/73	80209132	1	80209132	
2073/74	117665206	2	235330412	
	∑Y = 409227387	∑Y= 0	∑XY=116584797	∑X =10

Appendix – V (a)

Collection Cost Statement of DDC

Particular	2069/70	2070/71	2071/72	2072/73	2073/74
Salaries	21066451.66	21963708.04	24480597.38	23964201.53	25965598.05
Allowance	2644598.32	5985895.36	3836177.68	5623213.16	6092841.96
Purchase of Milk	1045469720.35	1038124379.03	1044700125.73	1101355621.96	1193336541.99
Provident Fund	1321992.25	1290949.15	1436564.21	1436200.69	1556146.56
House & Land Rent	982488.00	985415.29	1006814.00	1020991.30	1106260.51
Water & Electricity	6400818.84	5706222.78	5464553.57	5692481.33	6167895.14
Stationery & Printing	302899.22	332315.09	320773.26	428762.95	464571.56
Ticket, Wire & Telephone	157576.31	156434.69	146937.26	184857.58	200296.16
Traveling Expenses	3368771.99	3935705.10	3641507.36	4620130.90	5005986.19
Motor Repairs	10184123.97	10092905.16	10654802.96	11985016.89	12985958.69
Machine Repairs	1650316.49	2375593.09	3166035.57	3233275.90	3503306.48
Building Repairs	215080.17	557171.38	476941.37	677662.59	734258.32
other Repairs	157603.64	145180.81	169905.40	214715.46	232647.66
Fuel for Transportation	28993318.15	30691413.54	36270111.66	38613926.99	41838811.36
Fuel for Boiler Generator		2518863.49	3915981.73	5146344.66	5576147.27
Bank Commission	1573256.66	1286808.66	1341277.35	1436359.70	1556318.85
Chemical & Detergents	654579.16	659516.43	756269.65	966237.38	1046933.75
Other Dairy Goods	593228.99	631607.80	656784.95	626628.03	678961.56
Insurance	496202.55	625611.76	606674.83	708966.89	768177.04
Non-durable Office Goods	91370.50	101246.90	150639.25	171097.00	185386.35
Tax & Charges	940161.98	1169040.28	1360626.54	1314683.45	1424480.65
Gratuity Expenses	249124.29	2869167.92			
Prize Given to Farmers	77357.84	78445.98	67852.13		
Porters' wages & Transportation	33903.82	3595.92	500.00		
Sanitation	18210.00	28590.30	56995.40	87975.00	95322.33
Other Transportation Expenses			22980.00	1000.00	1083.52
Other Expenses Related to CC	10000.00	2212.98			
Total	**1127653155.15**	**1132317996.93**	**1144708429.24**	**1209510351.34**	**1310523931.95**

Source: Annual Report of DDC

Appendix – V (b)

Collection Expenses

F/Y	Collection Exp^n (y)	Deviation from 2071/72 (x)	XY	X^2
2069/70	1127653155	-2	-2255306310	4
2070/71	1132317997	-1	-1132317997	1
2071/72	144708429	0	0	0
2072/73	1209510351	1	1209510351	1
2073/74	1310523931	2	2621047862	4
	$\sum y$ = 5924713863	$\sum x$= 0	$\sum xy$=	$\sum X^2$ =10

Appendix – VI (a)

Selling Cost Statement of DDC

Particular	2069/70	2070/71	2071/72	2072/73	2073/74
Salaries	12007907.50	11663446.98	13775714.56	14279915.72	19174802.81
Allowance	2174863.72	4512406.24	3423905.41	4482024.45	6018378.31
Provident Fund	717090.21	683578.09	778817.17	818058.83	1098474.04
House and Godown Rent	293734.88	256451.88	341534.87	366634.87	492310.42
Stationary & Printing	266138.02	302033.93	327297.12	414736.72	556900.68
Water & Electricity	153825.64	150153.31	235461.06	300432.58	403415.23
Fuel	3450546.17	3426593.14	4123124.88	4757910.11	6388832.40
Motor Repairs	2003692.91	1828805.50	2575161.41	3179295.49	4269098.31
Building Repairs	466400.19	4100.00	59440.98	36675.71	49247.46
Other Repairs	13260.50	21671.40	61258.65	55782.27	74903.39
Milk Transportation Expenses	16678805.04	14971034.97	16224960.79	16604194.87	22295801.23
Traveling Expenses	88446.00	92254.00	75484.00	109282.00	146741.82
Business Promotion	61763.80	117040.00	166050.00	269717.00	362170.93
Discount, Milk & Milk Product loss	130288.14	200290.16	74762.70	113771.27	152769.93
Insurance	134530.83	171524.23	68747.25	102375.94	137468.48
Tax & Charges	234672.00	324858.50	279461.50	439320.00	589910.65
Non-durable Office Goods	112442.74	64274.06	90259.64	107224.45	143978.98
Gratuity Expenses	240154.78	2269411.38			
Dealer's Facility	74414.26	33513.19			
Total	**39302977.33**	**41093440.96**	**42681441.99**	**46437352.28**	**62355205.07**

Source: Annual Report of DDC

Appendix – VI (b)

Trend Analysis of Selling Expenses

F/Y	Expenses Rs(Y)	Deviation of 2071/72 (x)	XY	X^2
2069/70	39302977	-2	-78605954	4
2070/71	41093441	-1	-41093441	1
2071/72	42681442	0	0	0
2072/73	46437352	1	46437352	1
2073/74	62355205	2	124710410	4
	$\sum Y = 231870417$	$\sum Y = 0$	$\sum XY = 51448367$	$\sum X^2 = 10$

Appendix – VII (a)

Processing Cost Statement of DDC

(Amount in Rs.)

Particular	2069/70	2070/71	2071/72	2072/73	2073/74
Salaries	33589010.27	33443627.23	39239185.17	38753231.96	43956527.46
Allowance	4519829.60	8819809.28	6674836.64	9431594.34	10697949.94
Packaging Goods	60355588.09	63035827.27	68795056.48	73933331.81	83860167.67
Powder Transportation Expenses	899705.26	661420.25	19911.75		
Transportation Exp. Of Butter, Cheese, etc.	927164.02	1582723.69	1552421.52	1661348.17	1884413.06
Provident Fund	1830992.24	1799554.29	2103394.84	2126093.55	2411558.59
House & Land Rent	375494.01	396566.91	434453.34	414985.13	470704.10
Water & Electricity	29685053.60	27899062.27	25957881.39	25644284.47	29087475.74
Traveling Expenses	985453.33	1017243.04	901279.00	945115.50	1072013.70
Stationary & Printing	285456.25	312526.82	319364.75	461128.24	523042.73
Fuel & Other Provision	33126213.98	36135760.22	42234275.38	45466232.25	51570864.81
Motor Repairs	924432.90	408829.58			
Machine Repairs	10049992.01	8611971.48	14375127.69	12546834.56	14231465.35
Building Repairs	1259950.77	633819.37	1516198.63	1999920.36	2268444.46
Other Repairs	471386.27	429902.14	574828.90	559852.48	635022.41
Skimmed Milk Powder	39656568.54	98229165.50	69783185.99	56143902.27	63682197.77
Sugar & Other	1892398.00	2729604.51	3674318.86	4460992.22	5059958.02
Bank Commission	27329.66	24930.20	33973.50	46716.90	52989.46
Chemicals & Detergents	2982760.83	3592866.30	3475776.10	4048949.38	4592591.27
Other Dairy Goods	1275886.63	1188623.80	1474299.74	1611325.72	1827674.23
Insurance	241526.08	438078.45	524000.37	360225.27	408591.78
Non-durable Office Goods	122620.80	157681.43	225963.05	217277.87	246451.20
Tax & Charges	80969.00	131015.00	230714.00	2269.50	2574.22
Production Loss	6642116.69	7866090.26			
Gratuity Expenses	1549558.62	3268484.95		21882.50	24820.61
Ticket, Wire & Telephone	63540.08	59029.23	51123.16	64707.85	73396.01
Feed Purchased	19041.50				
Other Exp. Related to PC	5000.00	43451132.38			
Total	**233845039.03**	**346325345.85**	**284171570.25**	**280922202.30**	**318640894.59**

Source: Annual Report of DDC

Appendix – VII (b)

Trend Analysis of Processing Expenses

F/Y	Expense in Rs (Y)	Deviation 2071/72 (x)	XY	X^2
2069/70	233845039	-2	-467690078	4
2070/71	346325346	-1	-346325346	1
2071/72	234171570	0	0	0
2072/73	280922202	1	280922202	1
2073/74	318640895	2	318640895	4
	$\sum Y$ = 1463905052	$\sum X$ = 0	$\sum XY$= -214452327	$\sum X^2$ = 10

Appendix - VIII

Other Fixed Cost Statement of DDC

Particular	2069/70	2070/71	2071/72	2072/73	2073/74
Depreciation	29993611.51	29406299.23	31778505.34	34209863.64	36434380.64
Gratuity Expenses	17450023.17	3531055.40	53753234.99	16258298.22	55386751.09
Interest on Loan	4319401.26	4522112.68	4663760.23	3614718.48	3213105.88
Expenses Written-off	2826500.00	2826500.00	600033.67		
Total	**54589535.94**	**40285967.31**	**90795534.23**	**54082880.34**	**95034237.61**

Source: Annual Report of DDC

Appendix - IX

Profit and Loss Account Statement of DDC

Particular	2069/70	2070/71	2071/72	2072/73	2073/74
Sales Revenue	1535810462.06	1589663476.25	1536340564.43	1680353715.64	1800673560.90
Sundry Income	11545735.15	13141374.88	16939055.56	12462762.46	13755732.78
Total Income (A)	1547356197.21	1602804851.13	1553279619.99	1692816478.10	1814429293.68
Less: Costs:					
Collection cost	1127653155.15	1132317996.93	1144708429.24	1209510351.34	1310523931.95
Processing cost	233845039.03	346325345.85	284171570.25	280922202.30	318640894.59
Add: Opening Inventory	64731817.32	45188469.00	41183989.00	98248772.79	91296744.31
	1426230011.50	1523831811.78	1470063988.49	1588681326.43	1720461570.85
Less: Closing Inventory	45188469.00	41183989.00	98248772.79	91296744.31	91296744.31
Total Product Cost	1381041542.50	1482647822.78	1371815215.70	1497384582.12	1629164826.54
Add: Selling cost	39302977.33	41093440.96	42681441.99	46437352.28	62355205.07
Add: Administrative cost	58304547.38	76692653.02	73529349.38	80209132.06	117665206.03
Add: Expenses written-off	2826500.00	2826500.00	600033.67		
Add: Depreciation	29993611.51	29406299.23	31778505.34	34209863.64	36434380.64
Add: Provision for Gratuity	17450023.17	3531055.40	53753234.99	16258298.22	55386751.09
Add: Interest and financial expenses	4319401.26	4522112.68	4663760.23	3614718.48	3213105.88
Total Costs (B)	1533238603.15	1640719884.07	1578821541.30	1678113946.80	1904219475.25
Operating Profit (A - B) EBT	14117594.06	-37915032.94	-25541921.31	14702531.30	-89790181.57
Less: Income tax provision	3529400.00	2383310.00			
EAT	10588194.06	-40298342.94	-25541921.31	14702531.30	-89790181.57
Add: Income from Sales of Assets		47666060.38			
EAT with Sales of Assets	10588194.06	7367717.44	-25541921.31	14702531.30	-89790181.57
Less: Accumulated Profit/Losses	218824939.35	229282276.29	221914559.08	247456480.39	246089469.68
Total Profit/Loss transfer to B/S	-208236745.29	-221914558.85	-247456480.39	-246089433.68	-335879651.25

Source: Annual Report of DDC

Appendix - X

Balance Sheet of DDC

(Amount in Rs.)

Particular	2069/70	2070/71	2071/72	2072/73	2073/74
Sources of Fund:					
Corporate Fund:					
Corporate Fund Investment	127140178.33	127140178.33	127140178.33	127140178.33	127140178.33
Fund received from neighborhood countries	331370883.40	331370883.40	331370883.40	331370883.40	331370883.40
Other Liabilities	90941732.95	90941732.95	92291327.56	92291327.56	92291327.56
Corporate Fund (A)	549452794.68	549452794.68	550802389.29	550802389.29	550802389.29
Grand Fund from neighborhood countries (B)	1545264.97	1545264.97	1545264.97		
Can Revolving Fund (C)	914210.00				
Long-term Debt (D)	85201701.53	84251595.19	83301488.85	82351382.51	79026010.32
Current Lialibilities:					
Outstanding tax and Interest	36782875.22	41048699.07	44797385.77	47828301.70	45797810.90
Outstanding milk and potter wages	39391888.67	45924389.51	50783117.89	43343541.80	41503445.88
Deposit	12410425.37	10896250.07	11491243.97	10823653.42	10364148.74
Other outstanding	21043073.49	30189662.47	22348564.85	23306875.41	22317411.13
Other provisions	228284370.36	224717320.06	289671235.79	306137214.79	293140541.76
Provision for tax	9200270.79	5912710.00	5912710.00		
Total Current Liabilities and Provision (E)	347112903.90	358689031.18	425004258.27	431439587.12	413123358.41
Total Sources of Fund	**984226875.08**	**993938686.02**	**1060653401.38**	**1064593358.92**	**1042951758.02**
Utilization of Fund:					
Fixed Assets:					
Original Costs	744406036.04	701794493.87	728562343.83	757322770.87	773785111.25
Less: Accumulated Depreciation	451054707.47	438873818.55	468969524.98	503179388.62	539468867.46
Remaining value	293351328.57	262920675.32	259592818.85	254143382.25	234316243.79
Un-used and Un-installed fixed assets	11512830.97	10697865.49	10723578.23	6028960.30	9329718.48
Total Fixed Assets (A)	304864159.54	273618540.81	270316397.08	260172342.55	243645962.27
Investment and Inventory of grand fund (B)	1545264.97	1545264.97	1545264.97		
Current Assets:					
Cash and Bank Balance	192744001.85	300467557.25	273990365.19	301440837.19	240185522.29
Inventory-milk and dairy product	45188469.00	41183989.00	98248772.79	91296744.31	91296744.31
Inventory-other	124026566.97	63647591.30	70950805.40	77497117.40	61749050.96
Advance payment and Debtors	104195133.79	90961149.94	98145315.56	88096847.79	70194826.94
Total Current Assets (C)	466154171.61	496260287.49	541335258.94	558331546.69	463426144.50
Others:					
Profit and loss Account	208236745.29	221914559.08	247456480.39	246089469.68	335879651.25
Balance written-off expenses	3426533.67	600033.67			
Total (D)	211663278.96	222514592.75	247456480.39	246089469.68	335879651.25
Total Assets and Others (A+B+C+D)	**984226875.08**	**993938686.02**	**1060653401.38**	**1064593358.92**	**1042951758.02**

Source: Annual Report of DDC