

# **CHAPTER I**

## **INTRODUCTION**

### **1.1 Background**

Nepal is one of the least development countries of the world, in term of economic growth and social indicates of development. Agriculture remains Nepal's' principle activity employing 80% of the population and providing 37% of the GDP. Some 30% of the population is living below the poverty line. The service is now assuming a more prominent place in the economy, while the manufacturing sector is minor activity contributing about 10 percent of GDP (K.C. 2008)

Nepal started programmes of planned development since 2013 B.S. Industries and infrastructure were built from scratch following the import substituting industrialization strategy. The development attained, however was not adequate to address broader issue of poverty, employment and transformation of economy.

There is close relationship between general economic development and development of industries. Industrialization is an effective means of achieving economic development. It is the major hope, which can raise the living standards and provide better quality of life in the country. Looking at a history we find the most of the developed countries of today were once predominantly agricultural countries. Industrialization in universal accepted as a strategy of economic development and as well as fundamental goal of most developed countries. Other developing countries one of the important key factors on the economic development to bring a structural change that would transform its agricultural economy into industrial one.

The industry sector is most affected by this national planning exercise. In addition to the policy framework set for the development sector. The pattern of economic development in Nepal is very significantly affected by the system of National planning. The era of planned development started in Nepal with the

launching of the first five-year plan in 2013 B.S. The first plan (2013 - 2018) was launched with the basic objectives of social and economical development.

The history of industrial development was started in 1990 B.S. After that, many industrial activities were performed and exercised. But the result is not satisfactory. Thinking so, the government of Nepal was started planned development program in 2013 B.S. The main aims of the planned programme are to provide basic inputs and to show the framework of the government where budget and planned, programs, objectives and target are set and implementation of the policies.

## **1.2 Introduction of Dairy Development Corporation**

Nepal is a least developed mountainous country. Private sector is not excited for the development of industry and business. Before 2007 B.S. the environment was also unfavorable to develop the industrial sectors and government had no vision about this mater. After democracy, 6 years passed keeping the nation in political in consistency. From 2013 B.S. the government started 5 years development plan which are also running now and the government is conducting the development works according to these plans.

Along with the starting of five years planned development, government has established various enterprises in different sectors for the economic development of the country. Among them DDC is one of the major PEs established under Corporation Act 2021, B.S.

The dairy development activities in Nepal started in TUSAL village of Kavre district along with the establishment of "Central Dairy Plant" on experimental basis with a small scale milk processing plant under the department of agriculture in the year B.S. 2010 at the initiative of dairy development board.

The Dairy Development Commission was formed in B.S. 2012. Since the demand of milk and dairy products has been increasing day by day, the dairy plant become necessary. The "Central Dairy Plant" which was established in B.S. 2010 at Bhotahity shifted to Lainchour in 2013 B.S. due to the

inadequacy of space. The dairy development commission was constituted to guide the dairy development section. At that time, dairy experts were providing by "Swiss Association for Technical Assistance". Then, it starts milk collection processing and marketing activities from 2014. The dairy development commission was converted in to "Dairy Business Development Commission" in 2019. Ultimately in B.S. 2026 Shrawn 1, the DDC was established under the Corporation Act, 2021 by the government in the 3<sup>rd</sup> five years plan. DDC is totally owned by the government but its performance is not so good. Although it is financially supported by foreign grants and loans such as World Food Programme (WFP) New Zealand, Denmark government.

Before established Dairy Development Corporation, there is no potential market for the farmer. To provide the reasonable price for the milk producers of the rural side and also pasteurized milk DDC has been working from its set up. The demand of milk is increasing order because of rapid increase in population. So the DDC is trying to collect milk occupation base. DDC has its branch office in different parts of countries such as Katmandu, Biratnagar, Hetauda, Pokhara, Lumbini and DDC produce different products.

### **1.2.1 Introduction of Types Products**

1. Pasteurizes milk: - Milk is collected from rural areas standardized to contain 9% fat and 8% solid not fat (SNF) and pasteurized by a HTSI pasteurizes.
2. Dahi: It is formed by milk. Large scale people consume it in solid form of milk.
3. Ice cream: It is frozen dairy product having rich source of calcium phosphorous and other mineral. Ice cream produced by DDC is also available in 80ml. can and 1ltrs. Containers.
4. Cream:- It is obtained from cow and buffalo milk it is filled in ½ liters plastic containers and sealed well.
5. Butter:- Butter is solidified fat of milk obtained from cream usually by Churning.

6. Paneer: - Paneer is one of the indigenous varieties of milk products obtained from fresh buffalo milk.
7. Ghee: - Ghee is the pure clarified fat derives solely from cow or buffalo milk in which no colour is added.
8. Cheese: Other one most important products of DDC is cheese. There are three different cheese i.e. yak cheese, Kanchan cheese and Buffalo cheese.
9. Skim Milk Power: - DDC is also manufacturing skim milk powder in Biratnagar. Milk is dried to powder by evaporating its content in spray driers.

### **1.2.2 Objectives of Dairy Development Corporation**

The main objectives of DDC are to provide guaranteed market and fair price to the rural milk producers and supply hygienic pasteurized milk and their standard dairy products to the urban consumers. DDC provide qualitative milk and milk product to the consumers at National level. Other objectives are as follows:

- To provide guaranteed market and fair price to the rural milk producers.
- To supply hygienic pasteurized milk and their standard dairy products to the urban consumers.
- To develop milk collection system, processing system and distribution system.
- To promote for occupational milk producer.
- To provide quality milk and milk products.

Except the above objectives, DDC was established for providing incentives to the farmers by collecting and processing milk, supplying the hygienic milk to the customer. Milk is that type of food which contains protein, carbohydrate, mineral and vitamins. For this reason milk and milk products are realized very important to the public health.

Before the establishment, there was no potential market to the farmers and livestock occupation wasn't getting any return to improve the economic condition of Nepali farmers adopting this occupation. Along with the establishment of DDC, a revolution was started in milk business in some of few years.

### **1.2.3 Organization**

The board of directors formed by Nepal Government. Under the board of directors the corporation has been revising its organizational structure according to the changing need, at the regional level. Following this, the recent management structure of DDC at the central level is as follows:

- Department of Administration.
- Department of Production Management.
- Department of Financial Administration.
- Department of Planning, Monitoring and Evaluation.
- Department of Internal Audit.
- Department of Quality Control and Technology Development.
- Department of Marketing Management.

The chairman is nominated by this majesty's Government of Nepal. The general manager, which is appointed by Nepal government, holds the position of member secretary. These days Dal Ram Pradhan is the chairman and Ajav Lal Yadhav is the general managers of DDC.

When DDC started its operation it had only Katmandu milk supply scheme and one cheese production and supply scheme with four cheese production centers under its fold. Over the years, DDC has gradually extended its activity area outside Katmandu valley. There is now seven milk supply schemes and eleven cheese production centers in different parts of the country.

### 1.2.4 Staff Members

Group	Officers	Assistants	Total
Technical	49	490	539
Administration	30	288	318
Total	79	778	857

*Source: DDC, A Glimpse, 2061.*

### 1.3 Statement of the Problem

Many business enterprises is measured to their capacity utilization and generation of surplus to fulfill their object but it is strongly believed that rapid and desired economic development cannot be able to achieve their desired goal. In reference to Nepalese public enterprises it can be observed that most have not been able to contribute forward the generation of surplus. All public enterprises are in loss and are running with the help of government subsidy.

PES could be geared neither towards achieving their prescribed objectives nor towards providing social returns to the society. The PES poor performance or even negative results in some important respects may, therefore be ascribed to the factors such as system-lacking and inefficiency in management formal and informal intervention of the influential channels the prevalence of corruption and abuse of power, vested and self interest of some of the public authorities including PE official over PES' affairs.

The management problems in PES lie on such areas such as wastage control, quality control, repairs and maintenance. Accounting and management information system problems are acute in number of PES. Almost all the state manufacturing enterprises are running under capacity. One of the crucial deficiencies of the PEs are pointed out in several studies is related to materials management causing high burden on the scares foreign exchange accounting.

Autonomy and accountability of the enterprises are not clear and the rules and regulation have reminded only on papers and not in practice. They have problems of lower productivity because of lack of communication between line staffs and authorized person, poor decision, poor implementation,

lack of proper planning, impractical performance, monopoly bureaucracy tendency, poor profitability, lack of continuity and stability, etc. So most of the Nepalese PEs is unable to achieve their pre-established objectives and goals. DDC is also victim of above mentioned problems.

To saw the above problem the researcher selects the DDC in a sample of many PEs for the study. There are many questions arise in researcher mind they are:

- i) Is there any relationship between different cost elements in total cost?
- ii) Is there any specific relation between sales and cost?
- iii) Is there any significant relation between cost and profit?
- iv) How much these management involvements and commitment towards cost accounting system.

#### **1.4 Objective of the Study**

The basic objective of this study is to examine the cost structure applied by DDC.

- i) To assess of different cost elements in total cost.
- ii) To find out the relationship of sales and cost.
- iii) To analysis the relationship between cost and profit.
- iv) To provide suitable recommendation and suggestion.

#### **1.5 Limitation of the Study**

- i) This study attempts to find out the impact of cost structure in DDC only.
- ii) The cost figures of last 5 years will be analyzed.
- iii) Availability of relevant data and other information will determine its scope.
- iv) Accuracy of the study will be based on the data avalied from the management of DDC and the response made by respondents on the research questioner.

- v) The limited time available with the researcher and there source constraints will also limited in the work.

## **1.6 Importance of the Study**

- i) This study is helpful in profit planning system so that it will control the unnecessary expenses of the firm.
- ii) This study is helpful to the concern some bodies to keep their attention on reducing account irregularities.
- iii) This study is creative on related field, which may provide material for the interested concerns.
- iv) This study also directed towards providing necessary recommendation to related department of the company.

## **1.7 Research Methodology**

Information is the life blood of any research. To gather the pertinent information data collection procedure is the major task. To fulfill the objectives and requirement of this study primary as well as secondary data will be used. The source of primary data relating to this study is collected from interview technique and secondary data is collected from published and unpublished material available, some previous studies done in this field magazines and newspaper etc. To analyze the selected data some financial and statistical tools. Such as mean, standard deviation, co-efficient of variation, correlations and regression have been used. In this study research design will be more analytical in the sense that it will concentrate on analyzing the cost separately as element wise, function wise and variable wise to precise its cause and effects in other areas. This study will also focus on quantitative aspects of effectiveness of cost structure of DDC and theoretical prescriptions are elaborate wherever necessary. In this respect the present study has followed the descriptive as well as analytical approach to achieve the objectives.



## 1.8 Organization of the Study

These research paper content only 5 chapters they are as follows:

Chapter I	Introduction
Chapter II	Review of Literature
Chapter III	Research Methodology
Chapter IV	Presentation and analysis of data
Chapter V	Summary, conclusion and recommendation

Chapter I: Deals with introduction, this includes background, importance of the study, statement of problem, objective of the study, limitation of the study, research methodology and organization of the study.

Chapter II: Second chapter deals with the review of available literature. It includes theoretical framework, review of related books, journals articles and previous unpublished master degree dissertation etc.

Chapter III: Third chapter explains the research methodology used in the study. It includes research design population and sampling source of data, method of data analysis, research variable.

Chapter IV: The fourth chapter is the important chapter of the study will be the presentation and analysis of data as well as major finding of the study.

Chapter V: The fifth and last chapter covers the summary of the study the main conclusion that flows from the study and after some recommendations as well as suggestion for further improvement.

## **CHAPTER II**

### **REVIEW OF LITERATURE**

#### **2.1 Introduction**

This chapter deals with theoretical framework of cost structure and review studies of relevant. Under the theoretical framework of cost Structure Analysis. It reviews the meaning and concept, classification of cost, types of costing and so on.

Besides it also presents the relevant studies carried out in the cost structured including the available information of Dairy Development Corporation.

#### **2.2 Theoretical Framework**

##### **2.2.1 Concept of Cost**

Cost may be defined as the sacrifice or giving up of resources for a particular purpose. Cost is frequently measured by monetary units that must be paid for goods and services. Cost we grouped in different ways to help managers make decision such as evaluating subordinates and sub units for the organization expending or deleting equipments. To aid decision managers want to know the cost of something they want to do or acquire. This something is called a cost objective or cost object which may be defined as any activity for which a separate measurement of cost is desired.

Though the term 'cost' is commonly used by all, yet there does not exist one unique concept of cost. In fact different cost concepts exist for different purposes. A further complication arises when different people use the same cost term to represent different purposes.

The terminology of the **AMA has defined cost as** "The forgoing, in monetary terms, which may be manufacturing of a product or rendering of a service."

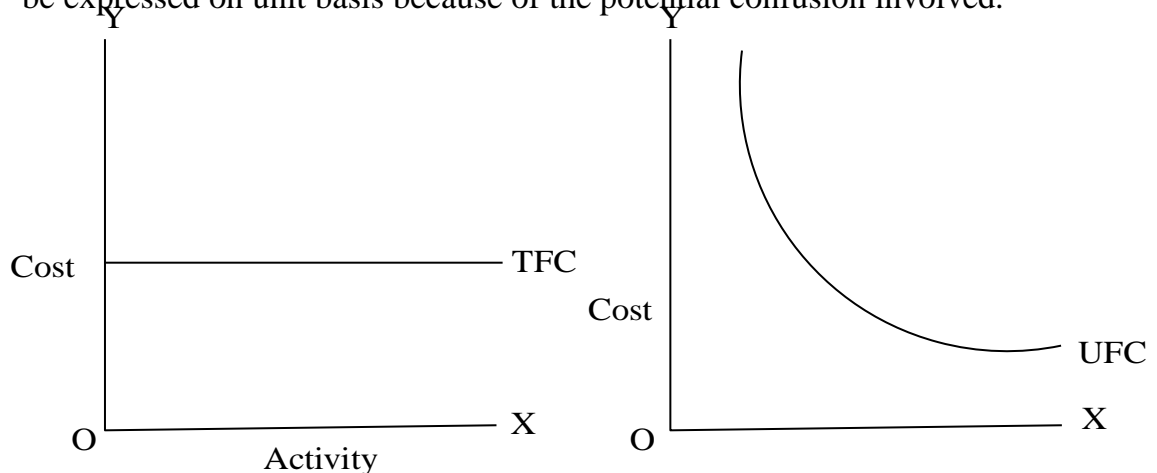
### 2.2.2 Types of Cost

Costs are classified according to their nature. Normally costs can be classified as (Sharma, at all, 2007)

1. Fixed cost
2. Variable cost
3. Semi-variable cost
4. Jumping cost (step fixed cost)
5. Step variable cost

#### 1. Fixed Cost

The cost which does not change with changing level of activity is known as fixed cost. Fixed costs are cost associated with these input which do not vary with the change in volume of output. Fixed cost remains constant in total amount despite the changes in the level of the activity, i.e. the fixed cost remain unchanged in total as the activity level varies. But the fixed cost per unit changes as activity varies. Fixed cost on per unit basis decrease as the level of the activity increases and vice versa. But for internal uses, fixed cost should not be expressed on unit basis because of the potential confusion involved.



*Figure 1: Fixed Cost Curve.*

#### 2. Variable Costs

Those cost which increase directly and proportionately with the level of activity are called variable costs. Variable costs vary in direct proportion changes in the activity level. If the activity level increases by 50%, the amount of the variable cost also increases by 50% as well- variable cost in total increases or decreases if the level of activity increases or decreases but it remains constant if expressed on per unit basis.

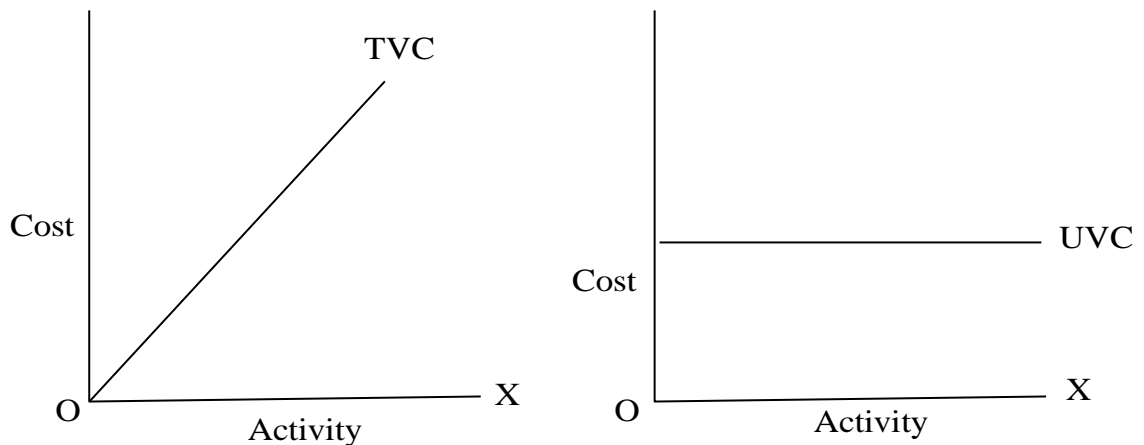


Figure 2: Variable Cost Curve.

### 3. Semi-Variable Cost

That cost neither perfectly fixed nor in perfectly variable in relation to volume change are called semi-variable cost (mixed cost). It contains both variable and fixed cost element. So, those kinds of cost should be separated into fixed and variable cost to know the level of cost activity.

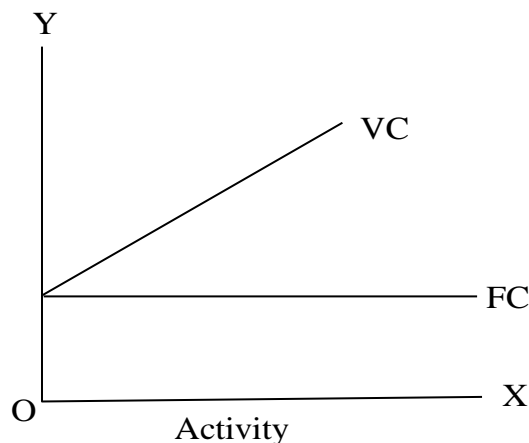


Figure 3: Semi-Variable Cost Curve.

#### 4. Step Fixed Cost (Jumping Cost)

Some cost remain fixed over a wide range of activity, but jump to a different amount for activity level outside that range, such costs are called step fixed cost or jumping cost.

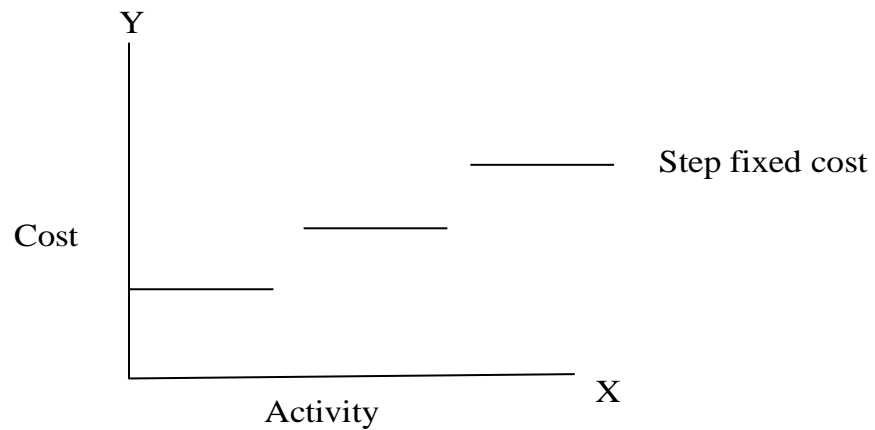


Figure 4: Step Fixed Cost Curve.

#### 5. Step Variable Cost

A cost that increases or decreases only in response to fairly wide changes in the activity level is known as step variable cost.

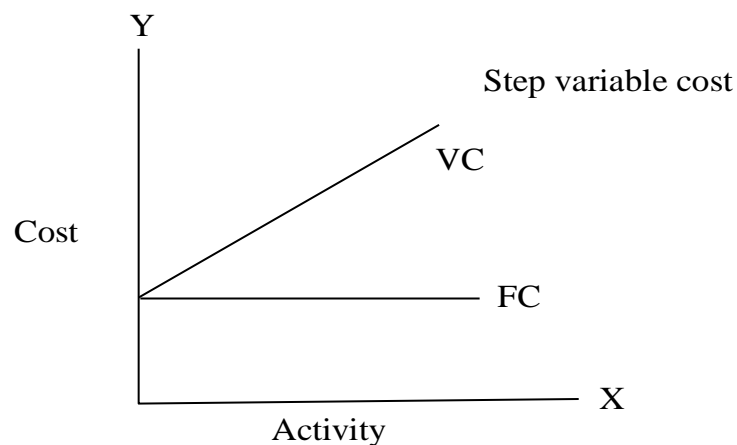


Figure 5: Step Variable cost curve.

### 2.2.3 Cost Classification

Costs are basic concerns of all types of organization. The kind of costs that are incurred and the way in which those costs are classified depends on the types of organization.

Cost classification is the process of grouping cost on the basis of their common features. Costs are to be classified suitably to identify with cost centers or cost unit.

## **1. Classification According to Functions**

This is traditional classification. A business has to perform a number of functions like manufacturing, administration, selling, distribution and research. Cost may have to be ascertained for each of these functions. On this basis, cost is classified into the following groups.

### **I. Manufacturing Cost**

Also named 'production cost' or factory cost, this is the cost of the sequence of operations which begins with supplying materials, labours and services and ends with completion of production. It includes materials, labours, factory rent, depreciation, power and lighting, insurance, storekeeping etc.

### **II. Administration Cost**

This is general administrative cost and include all expenditures incurred in formulating the policy, directing, the organization and controlling the operations of an under taking, which is not directly related to production, selling, distribution and research and development activity of functions. It includes account office expenses, audit fee, bank charges legal expenses, office rent, postage, telephone rates and directors remuneration etc.

### **III. Selling and Distribution Cost**

Selling cost is the cost of seeking to create and stimulating demand and of securing orders. Distribution cost is the cost of sequence of operations which begins with making the packed product available for dispatch and ends with making the re-conditioned returned empty package for re-use. It includes advertising, sample, showroom expenses, travel expenses, sales man salaries,

and commission, packing costs, carriage outward, warehousing cost, upkeep and running cost of delivery van.

#### **IV. Research and Development Cost**

Research cost is cost of searching new or improved products of method. It comprises wages and salaries of research staff, payment to outside research organization, material used in laboratories and research departments etc.

After the completion of research, the management may decide to produce a new or improved product or to employ a new or improved method. Development cost is the cost of process which begins with the implementation of the decision to produce a new product or employ a new or improved method and ends with the commencement of formal production of that product or by that method (Dangol, Gurung, Dangol, 2005 at all).

### **2. Cost Classification for Control**

#### **I. Controllable Cost**

An item of cost is controllable if the amount of cost incurred in a responsibility centre is significantly influenced by the actions of the managers of the responsibility centers; other wise it is non-controllable.

A cost is considered to be controllable if that can be managed or changed with in the responsibility center and within the given period of time. For example, hospitality expense would be controllable by sales manager. If she or he had the power to authorize the amount and type of entertainment for customers.

#### **II. Non Controllable Cost**

Any cost that is not subject to change within the related responsibility center and within the short time span is called a non-controllable cost. For example, depreciation of warehouse facilities would not be controllable by the sales manages, since he or she would have no power to authorize warehouse construction.

All costs are controllable at some level or other in a company. Only at the lower levels of management can some costs be considered non-controllable (Bajracharya, Ojha, Goet, Sharma, at all, 2004).

### **3. Classification for Decision Making**

Management decision involves a selection between alternative course of action and play a very important role in decision making is as follows:

#### **I. Marginal Cost**

Marginal cost is the total of variable cost i.e. prime cost plus variable overheads. It is based on the distinction between fixed and variable costs. Fixed costs are ignored and only variable cost is taken into consideration for determining the cost of products and value of work in progress and finished goods.

#### **II. Differential (or Incremental) Costs**

This cost may be regarded as the difference in total cost resulting from a contemplated change. In other words, differential cost is the increase or decrease in total cost that result from an alternative course of action. It is ascertained by subtracting the cost of one alternative from the cost of another alternative. The alternative choice may arise because of change in method of production, change in sales volume, change in product mix, make or buy decision, take or refuse decisions etc.

#### **III. Opportunity Cost**

It is the maximum possible alternative earning that might have been earned if the productive capacity or services had been put to some alternative uses. In simple words, it is the advantage, in measurable terms, which has been foregone due to not using the facility in the manner originally planned. For example, if an owned building is proposed to be used for a project, the likely rent of the building is the opportunity cost which should be taken into consideration while evaluating the profitability of the project (Dangol, Gurung, Dangol, at all, 2005).



#### **IV. Avoidable and Unavoidable Cost**

Avoidable cost are those cost, which can be eliminated if a particular product or department, with they are directly related, is discounted. For example salary of the clerk's employed in a particular department can be eliminated if the department is discounted. **Unavoidable cost** is that cost which will not be eliminated with the discontinuation of a product or department, for example, salary of factory manager or factory rent cannot be eliminated even if a product is eliminated (Jain and Narang, at all, 1999).

Sometime the terms **avoidable** and **unavoidable** costs are used instead of relevant and irrelevant cost. Avoidable costs are those costs that may be saved by not adopting a given alternative, whereas unavoidable costs cannot be saved. Therefore, only avoidable costs are relevant for decision-making purposes (Drury, at all, 2000).

#### **V. Relevant Cost**

Relevant costs are those future costs that represent differences between these decision alternatives and they are the key to effective decision making. Past transaction costs, while appropriately recorded in the accounting system as a result of the financial accounting process, represent costs that are never relevant and can only confuse of the manager presented with the challenge of correctly analyzing costs in any decision (Marshall, McManus, Viele, at all,2004).

Relevant costs are the out of pocket cost that will change with the decision. They should better be called as future, incremental or differential cost by entering the new line of action. Differ entail costs have two characteristics that is distinguished from other product cost. First, they are estimated future costs. Second, they include only cost that changes as a result of decision being analyzed. Cost that will not change e.g. rent of building and costs previously incurred are ignored. The use of differential costs may facilitate the managerial decision are:

- i. Determining the sale price and the volume of output.

- ii. Accepting an offer of additional sale at a price below the current price.
- iii. Differentiating prices in different markets.
- iv. Replacing assets (Dangol, Gurung, and Dangol, at all 2005).

#### **4. Replacement Cost**

Replacement cost is the amount that the firm would have to spend if it were to replace its assets on the current condition. (Pandey, at all, 1994).

##### **I. Sunk Cost**

Those costs that have already been incurred in the past and will not require any current cash expenditure are sunk costs. Sunk cost is the result of a past commitment. They should be ignored while making decision while out of pocket cost is relevant for decision-making purpose. Mostly sunk cost deserves fixed behavior. While out of pocket cost deserves variable behaviors. But in the same situation, some times-sunk cost might be variable while out of pocket cost bear to be fixed.

A sunk cost is that cost which has already been incurred and there cannot be any decision now or in the future. All sunk costs are irrelevant for decision making because there are past costs, which do not alter with the change in decision. For example depreciation of the machinery bought in previous years is a sunk cost which will remain unaltered till the life of the machinery or the replacement of it. Sunk costs are the costs, which have been incurred by a decision in the past and cannot be changed or avoided by any decision that is made in the future (Bajracharaya, Ojha, Goet, Sharma, at all, 2004).

#### **5. Cost Relating to Income Measurement**

##### **I. Product Cost**

The costs which are better matched against products than they are against period of time are product cost. Cost of this type consists of the cost that is involved in the manufacturing of goods and includes direct materials, direct labor and manufacturing overhead. These cost viewed as "Attaching to

units of products as the unit sales takes place, at that time, the cost are released as expenses and matched of against sales revenue (Garrison, at all 1985).

## **II. Period Cost**

Period costs are costs, which vary with the passage of time and not with volume of production. Rent, insurance, salary type expenses, vary passage with time period (Khan and Jain, 1993: 144).

## **III. Absorbed Cost and Unabsorbed Cost**

Fixed cost help create value in the product the benefit of fixed cost will lapse with the passage of time and must be absorbed by the revenues of that period. The part of fixed cost which is absorbed during the revenue of the particular period is known as absorbed cost. Absorbed cost is those cost which have been charged to production cost which remain uncharged is known as unabsorbed cost (Mure and Jaedicke, at all 1972).

## **IV. Expired and Unexpired Cost**

An expired cost is one which cannot contribute to the production of future revenue. In contrast unexpired cost e.g. of unexpired cost is inventory, which can be sold in subsequent years and will influence total revenues (Khan, 1993: 1995).

## **V. Joint Product Cost and Separable Cost**

Joint product costs are the cost of a single process or a series of processes that simultaneously produce two or more products of significant sales value such cost are not attributable to different individual products until attar a certain stage of production knows as the split off point. Separable cost that can be attributed exclusively and wholly to a particular product, process, division or department (Horngren, at all, 1994).

## **6. Cost Relating to Profit Planning**

Profit planning is quite concerned with decision making; planning deals with the future, future cost are relevant cost in profit planning. The relevant

cost concept is fixed costs, variable cost, mixed cost, future cost and budgeted cost. Here future cost and budgeted cost only present.

## **I. Future Costs**

Future costs are relevant costs in profit planning function of management. Those costs which are reasonably expected to be incurred at some future date as a result of a current decision are called future costs. As they deal with a future period, they are estimated costs based on expectation. Future cost is controllable within a management. Future cost can be planned for and planned to be reduced if they are too high. This is not possible with historical cost (Khan and Jain, at all 1993).

## **II. Budgeted Cost**

When an operating plan involving future cost is accepted and incorporated formally in the budget for a specific period, such costs get converted to what may be referred to as budgeted costs. Budgeted costs are important elements in that they provide the basis for measuring the actual performance of different cost centres and therefore, constitute an important input of responsibility accounting (Khan and Jain, at all, 1992).

### **2.2.4 Definitions of Cost Accounting**

Cost accounting is accounting for cost. It is made of two words- cost and accounting. The term cost denotes the total of all expenditures involved in the process of production. Thus, it covers the cost involved in production and cost involved while receiving it. Accounting, on the other hand, collects and maintains financial records of each income and expenditure and makes available such information to the concerned officials. Thus cost accounting is a practice and process of cost which determines the profitability of a business concern by controlling the cost with the application of accounting principles, processes and rules.

Cost accounting includes the presentation of information derived therefrom for purposes of managerial decision making. Thus cost accounting is an art as well as science. It is science because it is a body of systematic knowledge

having certain principles which a cost accountant should possess for proper discharge of his responsibilities. It is an art as it requires the ability and skill with which a cost accountant is able to apply the principles of cost accounting to various managerial problems. Practices include the continuous effort of a cost accountant in the field of cost accountancy. Such efforts also include the presentation of information for the purpose of managerial decision making and keeping statistical records (Dangol, Gurung, Dangol, at all, 2005).

Cost accounting is a subset of managerial accounting that relates primarily to the accumulation and determination of product, process or service costs for the primary purpose of income measurement and inventory valuation in accordance with generally accepted accounting principles for external financing reporting. The costing system used to accumulate, assign and report these cost must be flexible enough to provide answers. For internal questions of planning and control. "What does it cost ?" may be the single most important question addressed by an organizations accounting information system because accurate cost information is necessary to guide managers in making pricing decision, evaluating productivity and efficiency, developing operating budgets, determining if component product parts will be manufactured internally or outsourced, analyzing whether production technology.

"Cost accounting is the application of costing and cost accounting principles, methods and techniques to the science art and practice of cost control and the ascertainment of profitability. This includes the presentation of information derived there from for the purpose of management decision making" (Munakarmi at all, 2003).

Cost may be defined as the sacrifice or giving up of resources for a particular purpose. Monetary units that must be paid for goods and services frequently measure cost. Cost is initially recorded in elementary form. Then these costs are grouped in different ways to help managers make decision such as evaluating subordinates and sub-units for the organizations, expanding or deleting equipments. Cost accounting also plays a very important role in financial accounting for the manufacturing organization. You will recall that

the fundamental focus of financial accounting is external to the organization: providing information to stockholders, creditors, the government and others about the financial position of the organization and the results of its operations in accordance with generally accepted accounting principles. To that end the cost accounting system will report the cost of goods manufactured and sold, as well as the cost of goods manufactured and not sold, along with other costs that are carried in the inventory accounts of a manufacturing company (Marshall, McManus, Viele, et al., 2004).

Cost accounting also helps in planning. Planning is a process of setting goals and allocating resources to achieve these goals. The expected financial outcome of planning is expressed in terms of budgets. A firm can increase its profits in two ways (i) by increasing unit sale price sales volume and (ii) by reducing costs (Khan and Jain, et al., 1999).

Cost Accountancy is the application of costing and cost accounting principles, methods and techniques to the science, art and practice of cost control and the ascertainment of profitability. It includes the presentation of information derived therefrom for the purpose of managerial decision-making one of the scopes of cost accounting is cost ascertainment, which deals with the collection and analysis of expenses the measurement of production of the different products at the different stages of manufacture and the linking up of production with the expenses. In fact, the varying procedures for the collection of expenses give rise to the different systems of costing as historical or actual costs, estimated costs, standard costs etc. Again the varying procedures for the measurement of production have resulted in the different methods of costing as job costing, process costing, unit costing, Batch costing etc. For linking up of production with the expenses the different techniques of costing such as marginal cost technique, the total cost technique, direct cost technique etc. have been evolved. All the three, i.e. systems, methods and techniques can be used in one concern simultaneously (Jain and Narang, et al., 1993).

Cost accounting should be considered the key managerial partners in the planning and control activities, furnishing management with the necessary accounting tools to plan, control and evaluate the operations.

In the planning phase, cost accounting deals with the future. It helps management to budget the future or predetermined materials, costs, wages, and salaries and others costs of manufacturing and marketing products. These costs might be used to set prices or to assist in disclosing the profit that will result with the existence of these cost and expenses, considering competition and other economic conditions. Cost information is also provided to assist management with problems such as product pricing, capital expenditures decision, expansion of facilities for increased sales or production, make-or-buy decision, or purchase-or-lease decision.

In the control phase, cost accounting deals with the present, comparing current results with predetermined standards and budgets. Cost control, to be effective, depends upon proper cost planning for each activity, function, and condition via the cost accounting media, management is informed frequently of those operating functions that fail to contribute their share to the total profit or that perform inefficiency, thereby leading to profit erosion. Periodically, generally at the end of the fiscal period, cost accounting deals with past costs for the purpose of profit determination and there by with the allocation of historical cost to periods of time. Cost accounting measures cost in accordance with the plans and needs of business management. Cost must be based on relevant facts, competently observed and significantly measured to enable management to make valid decision. Cost accounting is a means to an end, not an end in itself (Matz/Curry, at all, 1972).

Broadly speaking the functions of cost accounting can be grouped under the following three heads.

- a. Ascertainment and analysis of cost and income by product, function and responsibility.
- b. Accumulation and utilization of cost data for control purpose to have the minimum possible cost consistent with maintenance of quality. This

objective is achieved through fixation of targets, ascertainment of actual comparison of actual with targets, analysis of reasons of deviations between actual and targets and reporting deviations to the management for taking corrective action.

- c. Providing useful data to the management for taking decision (Jain Narang, at all, 1995).

### **2.2.5 Cost Accounting in Management**

Costing a branch of accounting has developed because of limitations of financial accounts. These limitations will be apparent from the advantages of costing. Costing has been defined as classifying recording and appropriate allocation of expenditure for the determination of cost of product or service and guidance of the management. It includes the ascertainment of the cost of every orders. Job contract process services or such unit of output as may be appropriate. It deals with the cost of production selling and distribution. Costing means such an analysis of information to enable management. To know the cost and producing and selling that is the total cost of various products and services and also to know how the total cost is continued (Shukla, at all 1990).

Now a days the function of accounting is the same as that of the nervous system in a human being just as nevers convey news of happenings to the mind it is the duty of the account division to collect all information analysis. It in to what is ordinary and what is extra ordinary and draw the attention of management to everything that was not in the ordinary course or was not expected. Also, management need detailed but significant data and information about various alternative course of action so that decision made is correct future planned action is a necessity and significant information must be collected for the formulations of plans. If accounting assumes the function of providing information for all such needs of management it becomes management accounting (Shukla, at all, 1990).

Cost accounting is an integral parts of the management process. It is regarded as a tool of management it provides the management with detailed



record of the relating to products or operations or activities cost accounting refers to the process of determine the cost of product or activity.

Management accounting uses all techniques of financial accounting. Cost accounting and statistics to collect and process data for making it available to management so that it can take decision in a scientific manner (Shukla, at all, 1990).

Management accounting plays a vital role in research planning, decision making and controlling in the field of study of what has happened in the concern itself also (Shukla, at all, 1990).

## **2.2.6 Cost Centre, Profit Centre Cost Unit**

### **I. Cost Centre**

Cost centre is used to describe a responsibility centre in a functional organization structure where a manager is responsible for costs but not profits (Drury, at all, 2000).

Cost center is a location, person or equipment in respect of which costs may be ascertained and related to cost units for control purpose. Broadly speaking, a cost centre may be of two types:

**Personal cost centre** which consists of a person or group of persons; impersonal cost centre which consists of a location or item of equipment from the stand point of functions, a cost centre may be of two types. **Production cost centre**, i.e., a cost centre on which production is carried on this may embrace one specific operation, e.g. machining, or a continuous process, e.g. distillation is **service cost centre**, i.e. a cost centre which renders services to the production cost centers. When the output of an organization is a services, rather than goods, it is usual to use same alternative term such as support cost centre or utility cost centre for supporting services (ICMA Terminology, at all 1984).

The determination of a suitable cost center is very importation for ascertainment and control of cost. The manager in charge of a cost center is held responsible for control of cost of his cost center. It enables the

accumulation of all such cost of one place for which a common base of recovery may be used. Cost center may be a product center or service center. Product center refers to a center through which a product passes and generally corresponds to a product department. In such centers raw materials are converted into finished goods. Service center is a department or center, which incurs direct and indirect costs but does not work directly on products. Maintenance department and general factory office are examples of such centers. Such centers are ancillary and render service to production centers to enable them to carry out the work of production smoothing.

## **II. Profit Centre**

When a manager cannot control the investment and its responsible only for the profit abstained from operating the fixed assets assigned to him or her by corporate headquarters, the segments is referred to as profit centre.

Profit is the different between revenue and costs therefore, a profit centre represents segment of a business that is responsible for both revenue and costs this may also be called a business centre, business unit, or strategic business unit (ICMA Terminology, at all, 1984).

A profit centre is that segment or activity of a business, which is responsible for both revenue and expenditure and discloses the profit of a particular segment of activity, profit centers are created to delegate responsibility to individuals and measure their performance (Jain and Narang,at all, 1990).

## **III. Cost Units**

It is a device for the purpose of breaking up or separating cost into smaller sub division attributable to products and services. It is the unit of product, service or time in relation to which cost may be ascertained, e.g. tonne is case of coal. It must be clearly defined and selected before the process of cost finding can be started. It must not be too big or too small and must be so selected that expenditure can be associated with it and is appropriate to the needs of the business. For instances, in case of brick kiln, the unit should not be

each brick but 1000 bricks. Normally, it is the same unit by which wholesale truncations are entered into. In case of industries rendering service, usually the unit is a compound of two measures since the single measure may be meaningless. For example, in case of goods transport the unit will be tonne-km-the effort in carrying one tonne of goods for a distance of one km.

### **2.2.7 Methods of Costing**

The term "Costing" refers to the techniques and processes of determining costs of a product manufactured or a service rendered. Different methods are applied in business enterprises to ascertain costs depending upon the nature of the product, production method and specific business conditions. For example, in a textile or steel company, raw material passes through different stages (Processes) and production is done continuously. In some other industries, production is done at different customers' specific order and each job is obviously different from the other job. In service industries like transport, hospital, banks etc. all activities and costs, incurred relate mainly to performing certain services (or activities). In spite of different methods of costing used in different industries, there are mainly two methods of costing used in different industries; there are mainly two methods of costing.

#### **I. Job costing**

#### **II. Process costing.**

All other methods of costing are only variants of the above two methods of costing. All possible variations of job and process costing are as follows:

##### **I. Job Costing**

a) Batch costing

b) Contract or terminal costing

c) Multiple or composite costing

##### **II. Process Costing**

a) Unit or single output costing

b) Operating costing

c) Operation costing

#### **I. Job Costing**

Job costing is used in those business concerns where production is carried out as per specific order and customer specifications. Each Job (or product) is separate and distinct from the other jobs or products. The method is

popular in enterprises engaged in house-building, ship-building machinery production and repairs. Job costing has the following variants.

**a) Batch Costing**

Batch costing is based on the concept of contract costing. This method is used to determine the cost of a group of identical or similar products. The batch consisting of similar products is the unit and not the single item within the batch. This method can be usefully applied for the production of nuts and bolts, medicines components and other items which are manufactured in distinct batches.

**b) Contract or Terminal Costing**

This method of costing, based on the principle of job costing is used by house builders and civil contractors. The contract becomes the cost unit for which relevant costs are accumulated.

**c) Multiple or Composite Costing**

This costing method is used in those industries where the nature of the product is complex, such as motor cars, aero planes, etc. In such cases costs are accumulated for different components making the final product and then totaled to ascertain the total cost of the product.

**II. Process Costing**

This costing method is used in those industries where manufacture is done continuously, such as chemicals, oil gas, paper, etc. It is difficult to trace the costs to specific units and the total cost is averaged for the number of units manufactured. Sometimes, total cost and per unit cost is calculated in each stage of production for control purposes. Process costing has the following variants.

**a) Units or Single Output Costing**

This method is used where a single item is produced and the final production is composed of homogenous units. The per unit cost is obtained by dividing the total cost by the total number of units manufactured.

**b) Operating Costing**

Operating costing method is used by those organizations which render services and do not manufacture any physical item, such as transport, powerhouse, and hospital. The cost units differ among these service organizations depending upon the nature of service being rendered. But usually the units are passenger-mile, tonne-mile, a bed in hospital, per student in a college.

**c) Operation Costing**

This costing method aims at ascertaining the costs of each operation in place of each process. In this method the assumption is that output is achieved through a number of different operations.

**2.2.8 Types of Costing**

In each of the costing method various techniques may be used in ascertaining costs. These techniques may be grouped according to their approaches as follows:

**I. Standard Costing**

Standards may be defined as measured quantities, which should be attained in connection with some particular operation or activity. Stated in terms of a test of efficiency, a standard is a test of efficiency, a standard is a test of efficiency, a standard is a precise measure of what should occur if the performance is efficient (Khan, Jain, Subba, at all 1996).

Standard costing method that tracks direct cost to a cost object by multiplying the standard price is rate times the standard inputs allowed for actual outputs achieved and allocates indirect costs on the basis of the standard

indirect rates times the standard inputs allowed for the actual outputs achieved (Horgren, Foster and Datar, at all, 1997).

Standard cost is pre determined cost base on technical estimates for material, labor and overhead for a selected period of time and for a prescribed set of working condition. It is determined in advance of product of what should be the cost, when standard costs are used for the purposes a cost control, the technique is known as standard costing. Therefore standard costing is predetermined of cost and applying them to measure the variations from standard costs and analyzing the cases of variations with a view to maintain minimum efficiency in production. This technique is complementary to the actual costing or historical costing system. The system of standard costing can be useful in all types of industries but it is more commonly used in industries producing standardized products, which are repetitive nature.

## **II. Variable Costing**

Variable cost is a cost that changes in direct proportion to changes in the cost driver. Activities that affect costs are often called cost drivers. Variable and fixed costs refer to how cost behaves with respect to change in a particular cost driver. Fixed cost is not immediately affected by changes in the cost driver. The cost of most merchandise, material parts, supplies, commission and many types of labor are generally variable with respect to most volume related cost drivers. Real estate taxes, real estate insurance and many executive salaries tend to be fixed with respect to any volume related cost drivers. Fixed cost does not change in total, but it becomes progressively smaller on a per unit basis as the volume increases.

If cost drives activity level increases (or decreases)

<i>Type of Cost</i>	<i>Total cost</i>	<i>Increase or decrease</i>
Fixed cost	No change	Decrease/or increases
Variable cost	Increase (or decrease)	No change

## **III. Uniform Costing**

Uniform costing refers to a system of costing under which several undertakings use the same costing principles or practices. ICMA London Terminology defines uniform costing as "A common system using agreed concepts, principles and standard accounting practice adopted by different entities in the same industry to ensure that they all deal with accounting information in a like manner, the objective being to facilitate inter-firm comparison."

It is neither a separate method of cost accounting like specific order costing and operation costing but is only a particular system of costing which takes the help of both methods and techniques of costing. The most important characteristic of uniform costing is that whatever may be the method of ascertaining cost, it is adopted uniformly in a number of undertakings in the same industry or even in different industries. This enables the member undertaking to compile the cost and accounting data on a comparable basis, which ultimately may be useful and helpful to the management for taking crucial decisions.

#### **IV. Full or Absorption Costing**

Inventory costing method is which all variable manufacturing costs and all fixed manufacturing costs are included as inventor able costs (Horngren, Foster and Datar, at all, 1997).

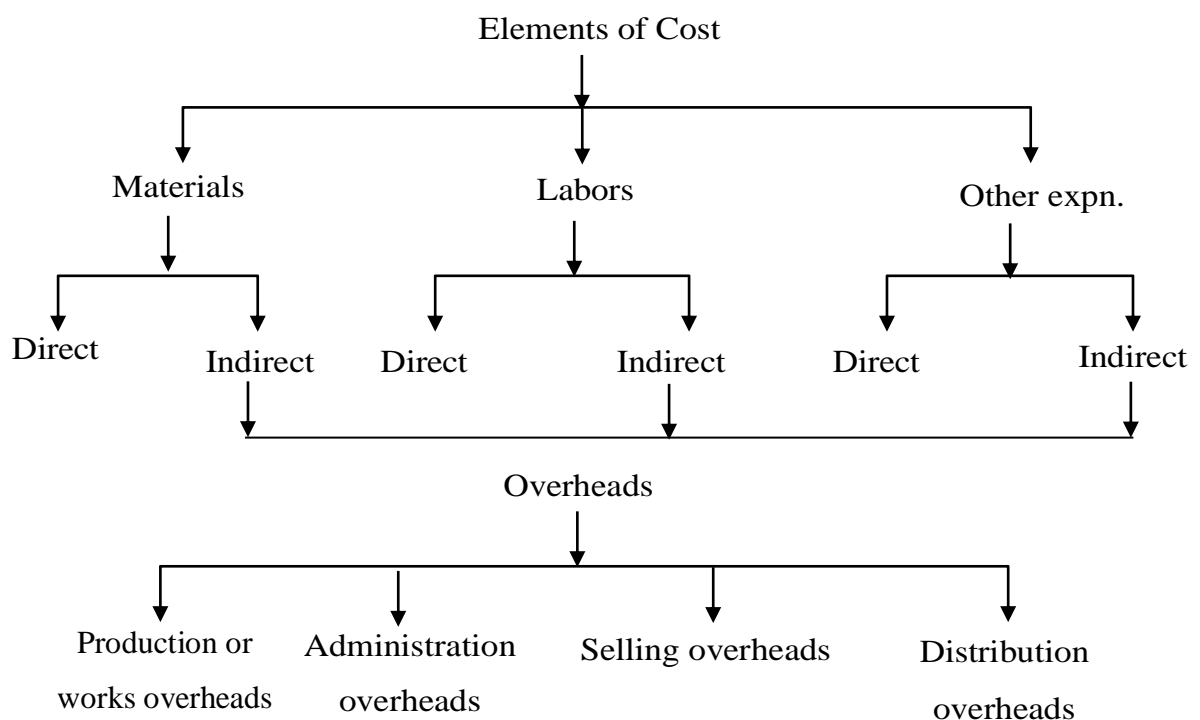
A method of product costing for purposes of external reporting is known as absorption costing; under this technique product cost include both direct and indirect cost of production. Fixed overhead costs are absorbed by the product and are part of cost of goods sold and ending inventories. The bases differences between absorption and variable costing are as follows:

- I. Absorption costing values the stock of finished goods and work in progress at total cost which includes both fixed and variable. But variable costing always values at marginal cost. As a result, valuation of stock under absorption costing is always higher than variable costing.

- II. Absorption costing is the total cost technique under which product cost include both fixed and variable cost. Whereas under variable costing only.
- III. Marginal costing excludes fixed costs and the question of under or over absorption of fixed cost does not arise. On the other hand absorption costing includes fixed cost and over or under absorption of fixed costs arises under absorption costing.
- IV. The management decision making is based on net income under absorption costing. But it is the contribution which plays vital role for the managerial decision under variable costing.

### 2.2.9 Elements of Cost

More knowledge of total cost cannot satisfy the needs of management. For proper control and managerial decisions, management is to be provided with necessary data to analyze by elements of cost, i.e. by the nature of expenses. Strictly speaking, the elements of cost are three i.e. materials, labor and other expenses, these elements of cost are further analyzed into different elements as illustrated in the following chart.





By grouping the above elements of cost, the following divisions of cost are obtained.

1. Prime cost = Direct materials + direct labor + direct expenses
2. Works or factory cost = prime cost + works or factory overheads
3. Cost of production = works cost + administration overheads
4. Total cost or cost of sales = cost of production + selling and distribution overhead

The difference between the cost of sales and selling price presents Profit or loss (Jain and Narang, 1995: 1-23).

### **2.2.10 Cost Accounting System in Service Organizations**

The cost accounting system has emphasized the need to collect and assign costs in manufacturing environments. But the reality of competing in today's service and information- oriented economy in that non manufacturing business also have a fundamental need to accurately determine the cost of the services they provide. Think about the unique sequence of service activities represented by each of the following examples when trying to answer the questions, "what does it cost "?

- The accounting firm of Ernst and Young provides audit or tax services for clients and many professional from the firm participate in these engagements.
- Fed Ex delivers your priority package to a client by 10:00AM tomorrow morning.
- The emergency room at country general hospital treats an auto accident victim.
- Tony's Auto Repair replaces the transmission on a Chrysler Sebring.
- American Airlines operates a St. Louis Chicago route that carries passengers multiple times everyday between the two cities.
- ADP processes a small business's pay roll checks every two weeks.

Regardless of the type of services a company provides, the basic cost accounting principles are identical to those of manufacturing firms. Certain cost will be direct to a particular service activity being measured and other costs will be common to all services provided by the organization. For Tony's Auto Repair a system similar to job order costing. Many software companies specialize in providing cost accounting Solution for specific service industries which not only efficiently collect direct time and materials costs and provide a basis for applying overhead, but also automate many other important activities such as estimating job costs and job scheduling (Marshall, McManus, Viele, et al, 2004).

## **2.3 A Brief Review of Previous Research**

### **2.3.1 Books Review**

Costs do not always fit into fixed variable classifications and not all variable costs are variable with change in sales. Some costs mixed, contain both fixed and variable elements and some step-variable are fixed over small ranges of activity but at different levels for different ranges. Income taxes vary with income, some manufacturing costs will income, and some manufacturing costs will vary with the numbers of units. Manufactured, some selling costs may vary with the number of orders placed by customers, and so on. It is not always easy to isolate an appropriate measure of volume to use in the planning of a given cost. But the identification of critical relationships is important to the manager for planning. Scatter diagrams, high-low estimates and regression analysis are useful tools for analyzing cost behavior, but must be used with care. Actual costs will probably differ from planned costs, and predictions of cost behavior based on a single measure of volume may be in accurate.

Fixed costs are generally described or either discretionary or committed. Discretionary fixed costs, while not variable with volume are set by managers at planned levels. These levels may be changed on relatively short notice. Committed fixed costs have been set at particular levels by previous decisions that have long-term effects. In general, only future levels of committed costs may be affected by present management.

The relative proportions of fixed and variable cost structure of a firm can be greatly influenced by management. Although to some extent the proportions are dictated by the nature of the business, in many cases it is possible to do the same job in different ways. Expected sales, potential for variations from expectations and the attitudes of managers towards risk-return relationships are some of the factors that will influence management, decisions in planning firms cost structure (Dominiak, Loudesback, at all, 1984).

\*A part from the fact that the manufacturing firm combines three element of cost in its cost of goods sold-direct material, direct labour and factory overhead whereas only one merchandise is found in the merchandising concern, the flow of costs is essentially the same.

The direct cost elements-materials and labour is commonly referred to or prime cost. Direct labours and factory overhead combined are frequently called conversion cost.

In the typical manufacturing process cost follow the flow of production through three stages. Stores work in process and finished goods. These three stages mark the flow of cost within the company; therefore each marks a different from of inventory that is unexpired product cost. When the goods are sold, the cost expires and become expenses under the heading cost of goods sold.

The familiar input output analysis from used for reporting cost of goods sold for income statement purposes is extremely useful in accumulating costs at each of the three stage of production cycle. It also depicts the flow of costs from one step to the next highlighting the fact that output at one stage becomes input for the next stage (Lynch, at all, 1995).

\*Cost structure refers to the relative proportion of fixed and variable cost in an organization. The relationship of a company's variable and fixed costs is reflected in its operating leverage. The highly labour intensive organization has high variable cost and low fixed cost and thus has low operating leverage and a relatively low break-even point. Conversely, organization that are highly capital intensive have a cost structure that includes low variable and high fixed costs. Such a structure

reflects high operating leverage and relatively high break-even point. Company with lower fixed costs and higher variable costs will enjoy greater stability in net income and will be more protected from losses during bad years. But at the cost of lower net income in good years (Munakarmi, 2003: 145).

\*Cost Accounting is an accounting discipline which is more concerned with the collection, analysis and presentation of cost information. Cost accounting overcomes the serious limitations that financial accounting suffers from. Cost information for decision making and control of operations consists of cost accumulation by segments. Costs standards are provided by Cost Accounting. Similarly, cost information for product decisions and pricing decisions are made available by cost accounting.

A manager of a manufacturing firm pays money for materials, labour, electricity, rent, repairs maintenance and so on. Payment of money or money's worth to get something is very common and pervasive. This payment is called expenses as expenditure or cost.

Management has to take decisions. Those decisions have a bearing on the long term objectives of an organization. Therefore, those decisions need reliable and authentic data. Thus, cost accounting provides management with decision (Singh, Ojha, Acharya, at all, 2004).

\*Many times we might have paid as were obliged to pay the price in some forms in exchange for the commodities or services that we got currently. It might be the price paid for break fast, vehicle fuel, stationery, clothes, lunch, and medicine and so on. Again, these might be some past commitments to pay for such as salary of a watchman, rent of building, insurance of a vehicle, and so on. Further, some payments might be towards the consumption of water, electricity and telephone. All these payments or obligations to pay in future account for costs, some times called expenses as expenditures. If the world would be free of costs there would be no business (Bajracharya, Ojha, Goet, Sharma, at all, 2004).

Considering the based scope and function of an organization's activities helps one to appreciate how important quality cost information is to the

manager. Too often cost accounting is viewed in its traditional role of determining the cost of producing products or providing services and the related accounting for those activities a results oriented, short-term view of cost. A more contemporary view is that cost must be understood and managed at each stage of an organization's value chain to provide an awareness of cost over the entire life cycle of a product or service -a prescriptive, long-term view of cost where cost management clearly becomes a strategic initiative. The value chain is the sequence of functions and related activities that, over the life of a product or service, adds value for the customer. The significance of seeing each function as a link in a chain is that each is crucial to managing the firm's activities for each product or service to achieve management desired quantitative and qualitative goals (Marshall, McManus, Viele, at all,2004).

\*Cost refers the amount of expenses spent to generate product or services. There are many terms used to refer the term cost. Cost refers expenditure that may be actual or nominal expenses incurred to generate output. In organization, a manager uses cost information for taking decisions and making plans, programs and policies and strategies. Therefore, cost accounting defines cost objects and traced the to cost to each object or cost centre. Therefore cost accounting is concerned with both accumulation of cost and cost estimation (Fago, Subedi, Gyawali, at all, 2004).

\*Cost accounting was emerged and developed because of some limitations observed in financial accounts in financial accounting detailed information pertaining to cost of production are not maintained. This type of detailed records is maintained under cost accounting system. It has facilitated to determine the unit cost of a product easily. Cost per unit provides the basis to determine the selling price.

Besides, cost accounting provides a guideline to prepare a future action plan as well as to take an appropriate decision by the top level. Many useful information such as detailed cost, adequate information and accurate data can be obtained from this accounting system which could be an immense help to top management for taking appropriate decision. Cost accounting has thus emerged as an effective means to provide such information. Therefore, this

accounting system has its own importance and has been widely used in this world of business (Dangol, Gurung, Dangol, at all, 2005).

### 2.3.2 Thesis Review

**Mr. Dhurba Raj Bishowkarma** had conducted a research on a topic "A study on profit planning and control of Katmandu Milk Supply Scheme." Mr. Bishowkarma had mainly focused his research in examining the techniques of comprehensive profit planning system applied by KMSS. Time period covered by the research was five years from FY 2050/51 to FY 2054/55.

Necessary data and other information have been collected from the secondary and primary source of data. In his research Mr. Bishowakarma had pointed out various findings. Some remarkable finding of research was:

- No proper practice of segregating cost into fixed and variable.
- There is no periodic report.
- There is no specific goals and objectives (Bishowkarma, Dhurba Raj, 1996)

**\*Mr. Madan Bahadur Badu** had conducted a research entitled "Profit Planning in Dairy Development Corporation." Mr. Badu has centralized his study in current practice of profit planning in DDC. Time period covered by the research is five years FY 2049/50 to FY 2053/54.

The data and other necessary information were collected from secondary and primary source of data. In his research Mr. Badu had pointed out various findings. Some remarkable finding was as follows:

- No proper practice of segregation of cost into fixed and variable.
- No maintenance of periodic performance report systematically.
- Lower level participation in planning, decision making is not encouraged.
- Plan is prepared on traditional basis.
- Inadequate authority and responsibility to planning department.
- No proper analysis of environment variables (Badu, 1999).

**Thapa Pukar, 2000** had conducted a research entitled "**Profit planning in manufacturing enterprises in Nepal (A comparative study in Dairy Development Corporation and Siraram Dairy Industry).**"

The main objective of this study were to analysis of functional budget on sales and production sectors of the concern to analysis various accounting ratios to measure the profitability and efficiency of concern to study of present process to find its usefulness and limitation and to analyze of budget target and its achievement along with reason of deviation if any etc.

**Major Findings**

- i. DDC has concentrated its whole effort to the survival of the company and has been trying to minimize the loss. Both industries have to in depth analysis of company's strength and weakness.
- ii. Employees are more careful of their duties and responsibilities in SRD than DDC no fair system of reward and punishment to them on the basis of their performance is maintained in both industries.
- iii. SRD's capacity utilization is proper than DDC's capacity utilization.
- iv. Both companies have positive correlation between target and actual sales.
- v. Both companies have not proposed profit planning except sales and production plan.

These companies are facing the problem of under capitalization by which production is affect so to enhance the production capacity the necessary financial management should be over viewed (Thapa, Pukar, 2000).

**Sharma Sagar, 2002** has conducted a research study on "Management Accounting Practices in the listed companies of Nepal." The following points were concluded in his research.

- i. New tools, techniques such as; zero base budgeting, activity costing, target costing value engineering have been developed around the globe but practice of it is almost nil in Nepalese.

- ii. While preparing budgets most of the companies prepared it on the basis of actual past expenses. Almost 87% of the companies took actual past expenses as a base for budget preparation 26% of the companies used past budget estimate to prepare budget. The reason behind not practicing these budgeting was lack of information about the format and the way of developing it.
- iii. While preparing the, budget, there was no practice of taking consultancy service.

### Recommendations

The major remarkable recommendations pointed out by Sharma are as follows.

- I) to strength the competitiveness of Nepalese listed companies and to carry out managerial activities, the uses of management accounting tools are recommended. For planning activities, tools like budgeting. Cost volume profit analysis, linear programming model for planning can be used. For control variance analysis tools like budgetary control, variance analysis standard costing and responsibility accounting can be used. For decision making marginal analysis can be used while implemented any tools of management, it is recommended to analysis cost and benefit tools.
- II) While preparing budgeting and planning activities, companies should hire professional expert.
- III) Budget preparation should not be based on "actual past expenses" only. Along with actual expenses environmental factors should also be taken into consideration. It is because what happened in the past might not occurs in the future (Sharma Sagar, 2002).

**Subba Preeti ,2002** has conducted a research entitled "Cost structure analysis of Nepalese public enterprises with reference to dairy development corporation" this research of miss Subba was mainly centered with to the



proposition of different cost elements in total cost and managerial involvement towards cost accounting system of DDC.

The time period covered by this research was five year from FY 2052/053 to 2056/057. The data and other necessary information's were collected by using secondary as well as primary sources of data. In this research Miss Subba has pointed out various finding and recommendations. Some remarkable findings were as follows:

### **Her Major Findings**

- DDC was able to acquire profit in the FY 2052/053 but from the last four year it is suffering from loss.
- Total expenses of D.D.C. are in increasing trend except in FY 2056/57 where the company has been able to decrease its total expenses slightly.
- DDC has no pre-estimation of cost and probable cost.
- It has not separate costing departments.
- Material cost covers the larger part of total cost.
- Processing expenses comprise the cost part and the collection expenses comprise the smallest part of the total overhead cost of DDC.
- Material and overhead costs of DDC are in increasing trend and have increased to 24% and 30% respectively from FY 2052/053 where as the labor cost of DDC has increased by more than 50% in the recent year.
- Both fixed and variable cost of DDC is in increasing trend.
- Variable cost of DDC comprises the greater part of the total cost.
- Collection expenses cover the largest part of the total variable cost.
- Production and administration costs have increased in the past five years and it seems that the company has no plan to control these costs. Selling and distribution cost has decreased in the past 5 years.
- Production cost occupies the most part of the total costs of DDC.
- DDC has no separate production cost department and it has no pre estimation of the cost as most of the components of production cost are in fluctuating trend.

- The company has neither analyzed the break even point properly nor has taken seriously taken any measure to reduce the BEP volume. BEP in the past 5 years is always higher. The company has not been able to cross its BEP point, where variable cost ratio is 91.07% and PV ratio is 8.93% (Preeti, Subba, 2002).

**Rijal Madhav, 2005 has conducted a research entitled "Cost-volume-profit. Analysis as tools to measure Effectiveness of Profit Planning and Control; A case study of Nebico Private limited.** He has centered his study to examine CVP analysis as a tool in manufacturing industry and to analysis the CVP and its impact in profit planning.

Mr. Rijal's study is based on primary and secondary data. The study period has covered five years. Mr. Rijal has pointed out various finding and recommendations. Some remarkable findings were as below.

- The company's variable cost is high in proportion than fixed cost in total cost amount, which contribute for lower contribution margin.
- In Nepalese manufacturing company especially in Nebico, there is no any plan to reduce cost. There is lack of effective cost control programs or techniques.
- The profit trend of the company is not satisfactory. As compared to profit proposition is very low with fluctuated trend.
- The company has no detailed any systematic expenses plan. The fixed variable and mixed expenses plan is the necessary elements for profit planning and control.
- In the company there is no effective inventory policy. The inventory management, raw material handling and controlling system are not efficient and effective.
- The board of directors is the main authority in price fixing and it directly interferes to price of biscuit and confectionary products.
- There is not proper co-ordination among production administration, distribution, inventory and sales department.

- Nebico, Pvt. Ltd, has not utilized its capacity (Rijal Madhav, 2005).

Jaydev Gautam has conducted a unpublished research entitled "A case study for cost classification and estimation of Bottlers Nepal Limited. This research was mainly centered to make classification and estimation of costs of BNL. In this research MR Gautam has pointed out various finding and recommendation. Some remarkable finding was as follows.

- I. The trend of the production of soft drinks is rising upward meaning that the demand of soft drinks is increasing. Thus the company has potentiality of expanding market and earning more. This may somehow contribute to deduct the unemployment problem of the nation.
- II. The overhead cost of BNL is explained at 90.25% by the production of soft drinks and only a few percent (i.e. 9.75%) are unexplained. This means management efficiency is high.
- III. The hypothesis that overhead costs and production of soft drinks are correlated is accepted by student's t-test. This implies that costs increase only when the production is increased. So the company has relatively low amount of overhead costs that should be incurred if there is no production.
- IV. BNL should maintain its quality of the product to catch up the increasing demand of soft drinks (Gautam, 2006)

### **2.3.3 Review of Journals and Article**

**\*Praticia Evans, Sheila Bellamy** this article is focused on performance evaluation in Australian public sectors. At all levels of the Australian public sectors, cost constraints coupled with the adoption of a total quality culture and associated performance evaluation techniques, have turned the attention of senior management away from Financial accounting to the management of costs within a strategic framework. Argues that management accounting, planning and control systems can play a leading role in today's dynamic and challenging public sector environment. Unlike traditional costing (ABC)-operate on the premises that it is the activities and processes undertaken with in

the organization which add costs and value to the products and services. An ABC system also focuses management's attention on the underlying cause of costs. However warns that, in applying total quality management and ABC approaches, it is important to recognize the fundamental differences between the manufacturing industries in which they originated and the service industries which dominate the public sector (Evans, Bellamy, at all, 1995).

**\*Richard, Thomas studied the evolution of standard costing in the UK and US: From Decision making to control.** This article traces the evolution of standard costing in the UK and US and describes how it has served these two purpose overtime. At the start of the industrial revolution, standard costing, in the form of past actual costs, aided managers in make-or-buy, pricing, outsourcing and other routine and special decisions. In the late nineteenth century, as the mass production of homogenous products became more common, pre-determined, norm-based standard costs were promoted as the means to control operations and reduce waste. The use of pre-determine costs was recommended by both academic and professional branches well into the twentieth century. Since the mid-1980s, norm-based standards have come under fire for not providing appropriate strategic signals in an era of global competition, continuous improvement and perpetual cost reduction.

This article compares the nature of standard costing practices in the British Industrial Revolution with those that evolved in the U.S. under scientific management. The enquiry is not limited to double-entry system; the domain is broadend to include others forms of cost keeping practices. They utilize primary and secondary sources to argue that the environment and rationales for standard costs have changed fundamentally over time. It is speculated that in the future standard costing will be used for less for individual accountability or operational control, but will return to its decision making roots in the form of long-run cost targets that bench mark the success of continue our cost-reduction efforts (Fleischman Tyson-1998).

**\*John C. Lere** explains the differences between traditional cost behaviors, which divides costs into variable and fixed categories, and activity-

based costing (ABC); which divides these same costs into those that vary with unit-level activities, batch-level activities, and product-level activities and facility-level costs. Describes how recognition that cost may vary with something other than volume can make ABC a powerful tool for industrial marketers in three ways: yielding cost estimates to use in pricing that reflect significant difference among product specifications; providing the industrial marketer with guidance as to which product specification may be adjusted in negotiations to yield significant cost reduction; and indicating areas in which to change company operations to yield cost reduction that will allow the company to satisfy customs wishes better (Lere, at all,2000).

**\*Mark C., Rajiv D. and Surya, N.** studied a fundamental assumption in cost accounting is that the relation between cost and volume is symmetric for volume increase and decrease. In this study they inversing ate whether costs are "sticky" that is, whether costs increase more when activity falls by an equivalent amount. They find, for 7629 firms over 20 years, that selling, general and administrative costs increase on average 0.55% per 1% increase in sales but decrease only 0.35% per 1% decrease in sales. Their analysis compares the traditional model of cost behavior in which cost more proportionately with changes in activity with an alternative model in which sticky costs occur because managers deliberately adjust the resources committed to activities. They test hypothesis about the properties of sticky costs and how the degree of stickiness of SG and A costs varies with firm circumstances (Andesron, Banker and Janakiraman, at all, 2003).

**\*Jim Smith has studied the cost Budgeting in conservation management plans for heritage buildings.** This article focused that the conservation management plan for heritage building establishes the nature of the work required to conserve, maintain and enhance the cultural heritage significance of the property. A missing element from many CMPs has been a realistic consideration of the cost of the work as this early stage. The papers aims to show how cost planning of works in a heritage building's conservation environment can be achieved. It finding that the CMP provides a comprehensive working management guide for owners and other stakeholders

to follow when carrying out works to the heritage property and includes components such as current condition, legal responsibilities and statutory obligations, sequencing and timing of proposed actions. The addition of significant financial information such as maintenance programmers, finding sources, long and short term costs, financial resources of owners, technical constraints, current owners needs and requirement and conflict resolution provides the possibility of making the CMP a more valuable document to the funding agencies and the building's users (Jim Smith, at all, 2005).

## **2.4 Research Gap**

Many research studies have been conducted by different students, exports and researcher about cost structure analysis but they have not focused on the impact on profitability present researcher has focused on impact of cost on profitability. On the side, many previous studies were conducted with the help of old data but the present researcher has used new data. Therefore this study will be fruitful to those interested persons, parties, scholars, professors and businessman for academic as well as policy perspectives.

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

Research methodology is the way to solve systematically about the research problem. In this section, efforts have been made to present and explain the specific research design for the sake of attaining the research objectives. This study attempts to analyze the cost structure of Dairy Development Corporation. Researcher methodology refers to the various sequential steps to adopt by a researcher in studying a problem with certain objectives in view. It is necessary for the researchers to know not only the research methods/techniques but also the methodology. Researchers should not only aware about certain financial and statistical tools but also need to know whether there tools are appropriate or not to be used and the reason behind using these tools also should be known. The research methodology includes research design, population and sample, source of data, data collection procedure, and data processing procedure and analysis tools.

#### **3.2 Research Design**

An architect prepares a blue print before he/she approves a construction. An army prepares a strategy before launching an attack. An artist makes a design before he/she executes his/her ideas. So also researcher makes a plan of his/her study before undertaking the research work (Joshi, 2001). A research design is the specification of methods and procedure for acquiring the information needed. It is the overall operational pattern of framework of the project that stipulates what information is to be collected from which source by what procedure. If it is a good design, it will ensure that the information obtained is relevant to the research questions and it will be collected by objective and economical procedures.

Research design is highlighted for ascertaining the basic objective of the study. Research design includes definite procedure and techniques which guide to sufficient way for analyzing and evaluating the study. As already mentioned, the main objective of the study is to examine the cost structure of DDC, so the

research design of this study is based on descriptive and analytical study. That means to conduct the study, descriptive and analytical research design is to be adopted.

### **3.3 Population and Samples**

There are altogether 36 PEs, which have been considered as total population. Out of 36 PEs, Dairy Development Corporation is selected as sample, which lies in Lainchour Katmandu.

### **3.4 Nature and Source of Data**

To achieve objective of the study, the secondary data has been used. The main secondary sources of data are annual reports and audited financial statement of the DDC.

The major sources of secondary data are as follows:

- Various documents (i.e. accounting and financial reports) of Dairy Development Corporation.
- Different bulletin and annual reports of DDC.
- Related act and regulation published by government.

### **3.5 Collection of Data**

Financial data required to achieve the set objective of the study have been directly extracted from the balance sheet and income statement of DDC. In order to collect the supportive data, a detail review of the related document has been carried on and qualitative information has been collected through interview with the officials of DDC.

### **3.6 Data Processing Procedure**

This study is mainly based on secondary data. The collected financial statements and necessary data have been tabulated as per the need of this study. In order to process the data, financial statement and other available information were reviewed. These data were grouped in different tables and charts according to their nature.



### 3.7 Period Covered

This research concentrates on short-term period. Only the data and information of five years; 2058/59 - 2062/063, have been analyzed.

### 3.8 Research Variable

Major cost accounting tools such as materials cost, labour cost, overhead cost, fixed cost, variable cost, production cost, administration cost, selling and distribution cost and cost volume profit analysis techniques were the major research variables.

### 3.9 Statistical Tools

To analyzing the data were categorized into three groups like element wise, variable wise and function wise.

#### 3.9.1 Arithmetic Mean

The arithmetic means is a set of observation is the sum of all the observations divided by the number of observation.

The formulas:

$$\bar{X} = \frac{x_1 + x_2 + \dots \dots \dots x_n}{N} = \frac{\sum x_n}{N}$$

N = Number of observation

$\sum x_n$  = Sum of observation

#### 3.9.2 Standard Deviation

A standard deviation is the positive square root of average sum of square of deviation of observations from the arithmetic means of the distribution. The square of standard deviation is called variance.

Formulas of standard deviation.

$$\sqrt{\frac{\sum (X - \bar{X})^2}{N}}$$

It is an improvement over the mean deviation and is free from the defects of other measure of dispersion.

### 3.9.3 Co-efficient of Variation

The percentage measure of coefficient of standard deviation is called co-efficient of variation (C.V.).

$$\text{C.V.} = \frac{\sigma}{\bar{X}} \times 100$$

The C.V. is used for comparing the homogeneity, uniformity, consistency and variability of two or more distributions.

Less the C.V. more will be the uniformity, consistency, etc. and more the C.V. less will be the uniformity, consistency etc.

### 3.9.4 Correlation

Correlation is the measure of relationship between two or more characteristics of a population or a sample. It simply measures the change between the phenomenons. One of the widely used mathematical methods of calculating the correlation coefficient between two variables is Karl Pearson's correlation coefficient. It is denoted by  $r_{xy}$  or simple  $r$  and is defined by:

$$r = \frac{\sum xy}{\sum x^2 \sqrt{\sum y^2}}$$

Where,

$$x = X - \bar{X}$$

$$y = Y - \bar{Y}$$

Multiple correlations are the study of three or more variable at a time. In case of multiple correlations the effect of all the independent variables on a dependent variable is studied.

The multiple correlation coefficients are computed by using the following formula:

$X_1$  on  $X_2$  and  $X_3$

$$R_{1,23} = \sqrt{\frac{r_{12}^2 + r_{13}^2 - 2r_{12}r_{13}r_{23}}{1 - r_{23}^2}}$$

$X_1$  on  $X_2$  and  $X_3$

$$R_{1,13} = \sqrt{\frac{r_{12}^2 + r_{23}^2 - 2r_{12}r_{13}r_{23}}{1 - r_{13}^2}}$$

$X_3$  on  $X_1$  and  $X_2$

$$R_{1,12} = \sqrt{\frac{r_{13}^2 + r_{23}^2 - 2r_{12}r_{13}r_{23}}{1 - r_{12}^2}}$$

### 3.9.5 Regression Analysis

The measurement of the form of relationship between variables is called regression analysis. Thus regression is the average relationship between two or more variables. There are two types of variables in regression analysis viz. Independent and dependent. A variable, which predicts, estimates explains other variable is called independent and a variable, which is estimated or predicted or explained by other variable, is called dependent variable. There are two lines of regression equations, Y on X and X on Y.

Let  $Y = a + bx$

Y on X

$$\Sigma Y = na + b\Sigma x$$

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

X on Y

$$\Sigma X = na + b\Sigma y$$

$$\Sigma XY = a\Sigma y + b\Sigma y^2$$

In multiple regressions analysis two or more independent variables are used to estimate the values of dependent variable is used to estimate the values of a dependent variable.

There exists a least square regression plane fitting a set of N points ( $X_1$ ,  $X_2$  and  $X_3$ ) in a three dimensional scatter diagram.

The regression plan of  $X_1$  on  $X_2$  and  $X_3$  can be written as:

$$X_1 = a_{1.23} + b_{12.3} X_2 + b_{13.2} X_3$$

The value of  $a_{1.23}$ ,  $b_{12.3}$ ,  $b_{13.2}$  can be determined by solving simultaneously the three normal equations given below.

$$\Sigma X_1 = Na_{1.23} + b_{12.3} \Sigma X_2 + b_{13.2} \Sigma X_3$$

$$\Sigma X_1 X_2 = a_{1.23} \Sigma X_2 + b_{12.3} \Sigma X_2^2 + b_{13.2} \Sigma X_2 X_3$$

$$\Sigma X_1 X_3 = a_{1.23} \Sigma X_3 + b_{12.3} \Sigma X_2 X_3 + b_{13.2} \Sigma X_3^2$$

Similarly, the regression equation of  $X_2$  on  $X_1$  and  $X_3$  is expressed as:

$$X_2 = a_{2.13} + b_{21.3} X_1 + b_{23.1} X_3$$

The normal equations for fitting this equation are:

$$\Sigma X_2 = Na_{2.13} + b_{21.3} \Sigma X_1 + b_{23.1} \Sigma X_3$$

$$\Sigma X_1 X_2 = a_{2.13} \Sigma X_1 + b_{21.3} \Sigma X_1^2 + b_{23.1} \Sigma X_1 X_3$$

$$\Sigma X_2 X_3 = a_{2.13} \Sigma X_3 + b_{21.3} \Sigma X_1 X_3 + b_{23.1} \Sigma X_3^2$$

The regression equation of  $X_3$  on  $X_1$  and  $X_2$  is expressed as:

$$X_3 = a_{3.12} + b_{31.2} X_1 + b_{32.1} X_2$$

The normal equations for fitting this equation are:

$$\Sigma X_3 = Na_{3.12} + b_{31.2} \Sigma X_1 + b_{32.1} \Sigma X_2$$

$$\Sigma X_1 X_3 = a_{3.12} \Sigma X_1 + b_{31.2} \Sigma X_1^2 + b_{32.1} \Sigma X_1 X_2$$

$$\Sigma X_2 X_3 = a_{3.12} \Sigma X_2 + b_{31.2} \Sigma X_1 X_2 + b_{32.1} \Sigma X_2^2$$

### 3.9.6 Hypothesis Testing (Student's T-test)

To test the validity of the assumptions, t-test is used when the sample size is less than thirty. Student t-value is calculated first compared with the table value of 't' at a certain level of significance for given degree of freedom.

$$\text{Symbolically: } t = \frac{r}{\sqrt{1-r^2}} \sqrt{n-2}$$

Where,

r = Correlation coefficient

n = No. of observation

On testing, the null hypothesis will be rejected if the calculated t-value is greater than the table value at 5% level of significance for the n-2 degree of freedom and vice-versa.

## **CHAPTER IV**

### **DATA PRESENTATION AND ANALYSIS**

#### **4.1 Introduction**

The basis objectives or the main purpose of this chapter are to fulfill the objective of the study by presenting data and analyzing them with the help of various statistical tools followed by methodology. This chapter has been presented the cost structure and assesses the proposition of different cost element in total cost of DDC. In order to accomplish this objective the cost of DDC will be analyzed into different types of costs and their relationship. This research has focused mainly on five years data from FY = 2058/059 to 2062/063.

#### **4.2 Cost Structure of DDC**

In any organization cost is a most important factor, which is so much affected from every decision taken by management in each working process. Every PEs or business institution has a goal to generate profit. So for this purpose it is necessary to reduce-prime cost, factory cost, cost of production, cost of sales, etc. In each work the records of cost should be recorded obviously. The cost should not account on the basis of estimation and it should be recorded at the exact time when it occurs.

DDC has no pre estimation of cost and probable cost. DDC has no separate costing department and has followed the traditional system of costing, scientific classification or modern classification of cost such as fixed, semi-variable and variable, controllable and uncontrollable, direct and indirect, etc are not used by DDC. Hence the cost data is not serving the purpose, what they ought to do as the costing information is compiled with a view to know the total product cost. By analyzing cost system of DDC, it is clearly seen that DDC has not adopted the scientific classification system of cost. Cost separation from the joint product is not practiced and the percentages of each expense in different operational activities are significantly changing. The amount of total expenses has been increasing.

### **4.3 Classification of Cost**

Since DDC has followed only the traditional method of costing i.e. the total cost of DDC are segregated into collection expenses, processing expenses, selling expenses, administration expenses, depreciation expenses and interest on loan; this research attempts to classify the cost of DDC as element wise, function wise and variable wise (appendix I).

The various cost of DDC has been classified and presented as below:

#### **4.3.1 According to Elements**

All costs are classification into three distinct elements.

i) Materials    ii) labors                    iii) overhead

Material is rated at the first element of cost because without material to work upon nothing can be manufactured. Labour is considered to be the second element cost because without labor the form, shape or nature of material cannot be changed to increase its usefulness. All other manufacturing costs are classified as the third element of cost because, unless certain other costs are incurred, material cannot work upon by labor. Classification of costs into their elements is important because it is necessary to know the cost of each element that enters into product both for valuation purposes and for managerial control of operation.

The cost availed by DDC has been classified into three different ways for the purpose of the research study which is shown in appendix-II. Following table represents the summary of cost classification according to element for five years.

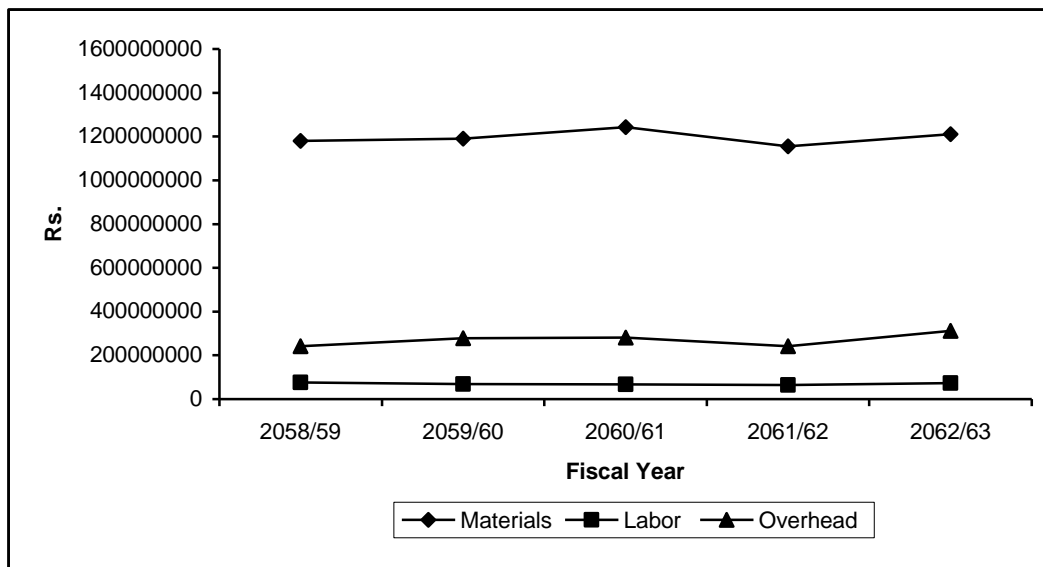
**Table 1**  
**Element Wise Cost**

*(Amount in Rs/.)*

Year	Materials cost	%	Labor cost	%	Overhead cost	%	Total
2058/59	1179757668	78.7	76320423	5.1	241476486	16.1	1497554577
2059/60	1190264338	78.4	68885908	4.5	278058052	18.1	1537208298
2060/61	1242399949	78.1	67632265	4.3	280666491	17.6	1590698705
2061/62	1154726641	78.9	65006778	4.5	242198799	16.7	1461932218
2062/63	1210435734	75.8	73736739	4.6	312256961	19.6	1596429434

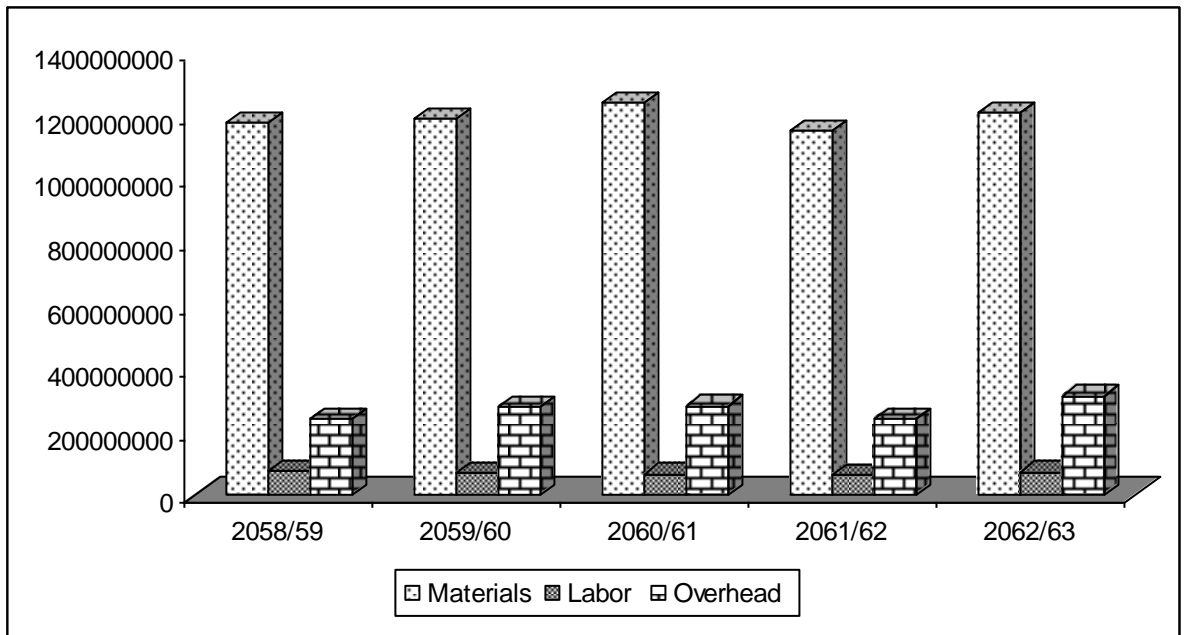
*Source: Appendix No. II.*

**Figure 6**  
**Element Wise Cost**





**Figure 7**  
**Element Wise Cost**



Appendix I and II shows the classification of cost into element wise, i.e. into material cost, variable cost and overhead cost. Table No. 1 shows the cost of DDC as element wise in the total figure. It shows that the labour cost are decreasing trend and overhead cost are increasing trend except 2061/062 and material cost are in increasing by 78.99 % trend except year 2061/062. The groups 1 and 2 show that the material cost of DDC comprises the greater part of total cost in comparison to labor and overhead costs. It shows the material cost has been increased by greater amount than other costs.

### 4.3.2 According to Variables

According to variability, cost can be classified into fixed costs, variable cost and semi-variable cost. In this analysis the broad and general perspective of variability has been considered i.e., only fixed cost and variable cost.

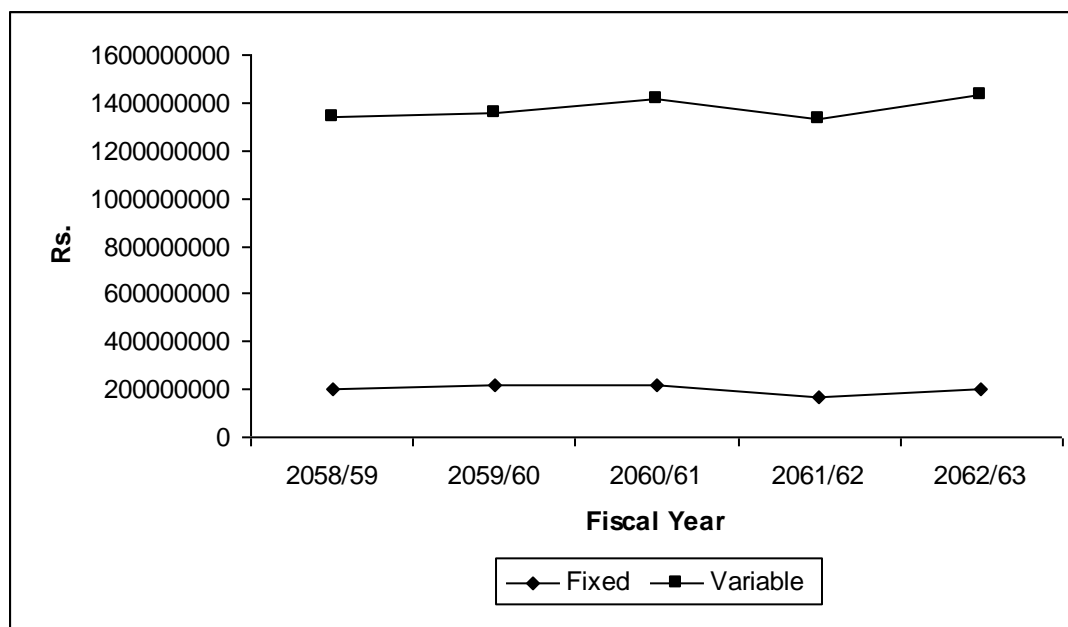
Costs that tend to remain constant over a fairly wide range of changes in operating activity are referred to as fixed costs. Variable costs are those that vary in direct proportion to change in productive output.

**Table 2**  
**Variable Wise Cost**

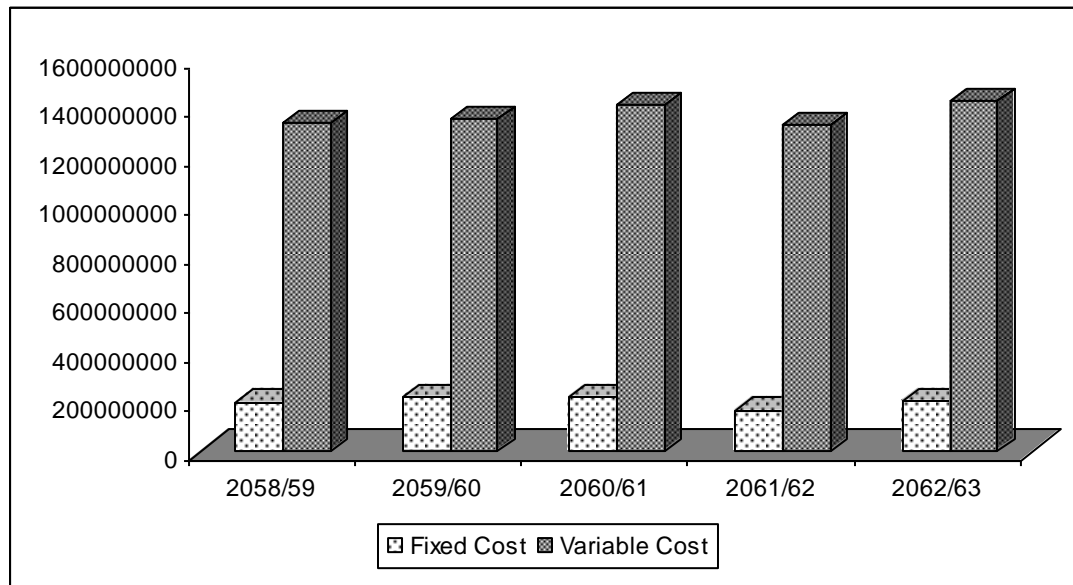
Year	Fixed cost	%	Variable cost	%	Total cost
2058/59	200051766	12.98	1341308672	87.02	1541360438
2059/60	220012299	13.93	1358832282	86.06	1578844581
2060/61	217079279	13.30	1414632053	86.70	1631711332
2061/62	166188347	11.10	1330056884	88.89	1496245231
2062/63	200556849	12.30	1429801007	87.70	1630357850

*Source: Appendix No. III.*

**Figure 8**  
**Variable Wise Cost**



**Figure 9**  
**Variable Wise Cost**



Cost of DDC has been classified according to the variables i.e., into fixed cost and variable cost in appendix III. Table No. 2 shows the total amount of fixed and variable cost are in increasing by 88.89 % tend except 2061/062. Figure No. 3 and 4 shows that the variable cost is increasing by 13.30 % in 060/61 of DDC comprise the greater part of the total cost when classified according to variability.

### 4.3.3 According to Function

According to function, cost is divided according to the purpose of which they are incurred. It leads to grouping of cost according to the broad decisions or functions of a firm, which are:

- i) production
- ii) administration and other
- iii) selling and distribution

Production or manufacturing cost is the sum of the cost of direct material, direct labour and factory overhead.

Administration cost includes expenses incurred in the direction, control and administration of the company.

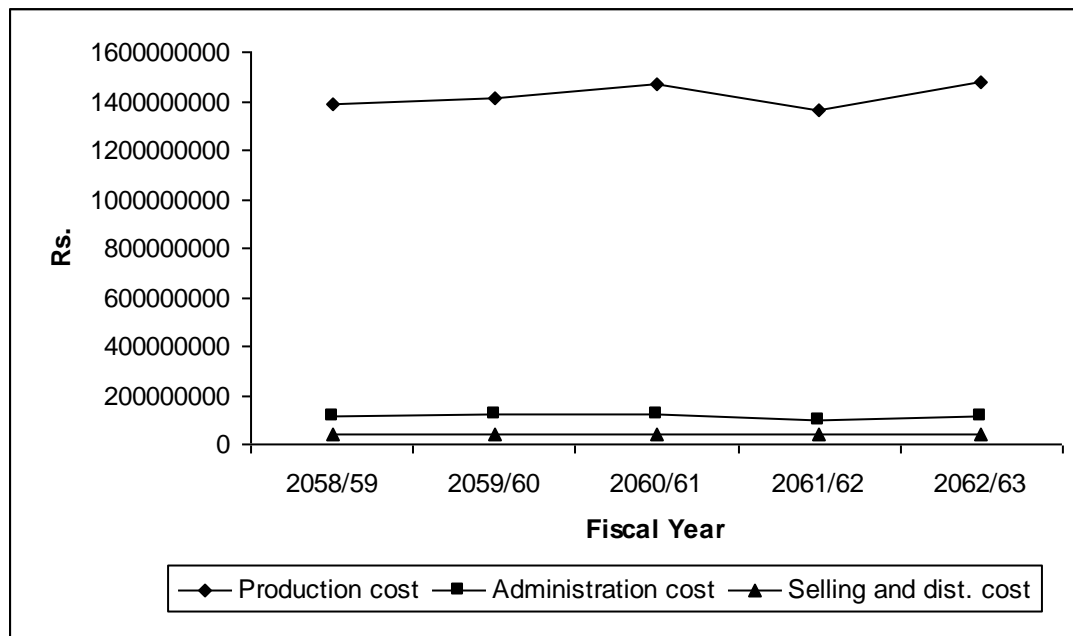
Selling and distribution cost covers the expenses of making sales and delivering products.

**Table 3**  
**Function Wise Cost**

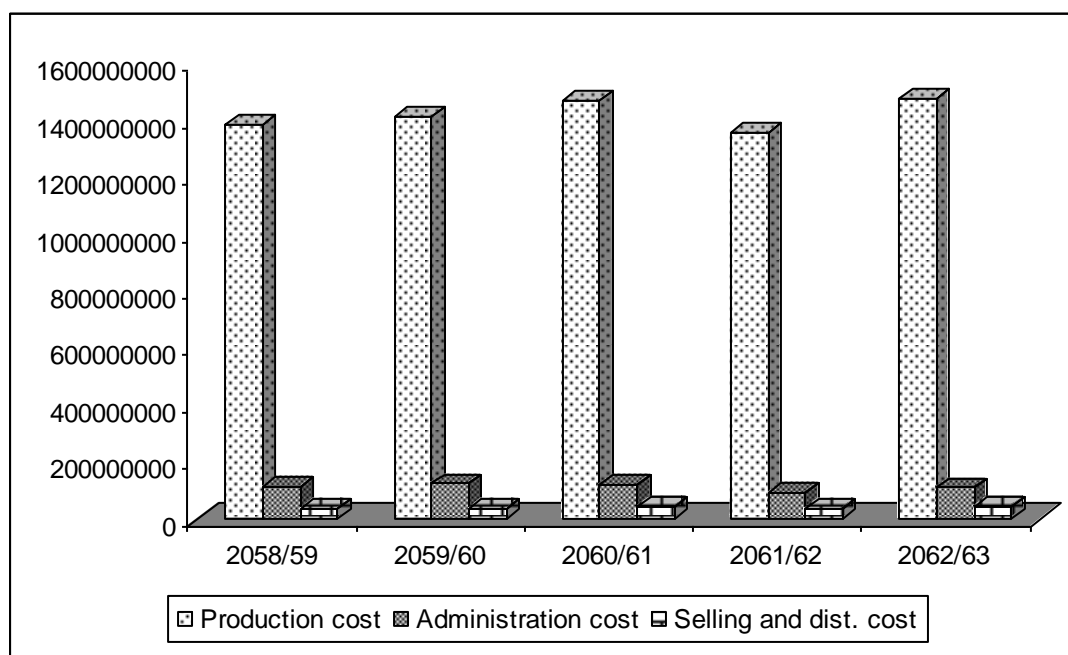
Year	Production Cost	%	Administration Cost	%	Selling and Distri. Cost	%	Total
2058/59	1390095147	90.1	112894853	7.3	38370438	2.5	1541360438
2059/60	1415568345	89.6	124643007	7.8	38633228	2.4	1578844580
2060/61	1469794680	90.0	121011488	7.4	40905163	2.5	1631711331
2061/62	1361498194	90.9	95444060	6.3	39302977	2.6	1496245231
2062/63	1478643342	90.6	110621064	6.7	41093440	2.5	1630357846

*Source: Appendix No. III*

**Figure No. 10**  
**Function Wise Cost**



**Figure No. 11**  
**Function Wise Cost**



Appendix IV shows the cost of DDC as classified according to the function, i.e. into production cost, administration cost and selling and distribution cost. Total amount of each cost for the last five years have been shown in Table No. 3. It shows that the production and selling & distribution cost are increasing by 90.9% trend except 2060/061 and administration & other expenses are decreasing.

#### 4.4.1 Element Wise Analysis

##### 4.4.1. a. Material Cost Structure

**Table 4**

**Material Cost Structure**

Cost FY	2058/59	%	2059/60	%	2060/61	%	2061/62	%	2062/63	%
Collection	1098041	93.07	1055928	88.71	1113666	89.64	1046717	90.64	1039415	85.87
Transport.	81716	6.93	134336	11.29	128733	10.36	108009	9.36	171020	14.13
Total	1179757	100	1190264	100	1242399	100	1154726	100	1210435	100

*Source: Appendix No. II.*

Table No. 4 shows the material cost structure of DDC. Material cost includes collection and processing cost and the percentage of each cost has

been shown in the table. Collection cost comprises the greater part of material cost; more than 85% is collection cost in each year of material cost. Total material cost has increased yearly except in the year 2061/062. Collection and processing cost has been fluctuated in the last 5 years.

#### 4.4.1b Labour Cost Structure

**Table 5**  
**Labour Cost Structure of DDC**

*(Amount in Rs. '000')*

Cost FY	2058/59	%	2059/60	%	2060/61	%	2061/62	%	2062/63	%
Collection	31878	41.76	27410	39.79	26354	38.97	25066	38.56	29243	39.66
Processing	44442	58.24	41475	60.21	41277	61.03	35939	61.43	44493	60.34
Total	76320	100	68885	100	67631	100	65005	100	73736	100

*Source: Appendix No. II.*

Labour cost structure of DDC is shown in Table No. 5. Labours cost contains collection cost and processing cost. The percentage of both costs is also shown in the table. Collection cost has been decrease but in fiscal year 2062/063 it is increased. Processing cost also decrease but in fiscal year 2062/063 increase. Table No. 5 shows that collection cost comprise nearly 42% of the total labours cost in each year.

#### 4.4.1. c. Overhead Cost Structure

**Table 6**  
**Overhead Cost Structure DDC**

*(Amount in Rs. '000')*

Cost FY	2058/59	%	2059/60	%	2060/61	%	2061/62	%	2062/63	%
Collection	51489	21.32	58816	21.15	58461	20.83	55869	23.06	63659	20.39
Processing	82527	34.17	97601	35.60	101302	36.09	85896	35.46	130812	41.89
Selling/Dist.	38370	15.89	38633	13.89	40905	14.57	39303	16.24	41093	13.16
Administ.	69089	28.62	83006	29.86	79999	28.51	61131	25.24	76692	24.56
Total	241475		278056		280667	100	242199	100	312256	

*Source: Appendix No. II.*

Table No. 6 shows the overhead cost structure of DDC. Collection cost, processing cost, selling and dist. cost and administration cost are included in the overhead cost. The table also shows the percentage of each of these costs. The collection cost has increased up to 2059/060 and decrease 2060/061 to 2061/062 and again increase in 2062/063. Processing cost has fluctuated in the last five years. It has increase fiscal year up to 2060/061 and decrease in 2061/62 again increase in fiscal year 2062/63. Selling & distribution and administration cost is also in fluctuated in the last 5 years.

#### 4.4.2 Variable Wise Analysis

##### 4.4.2a Fixed Cost Structure

**Table 7**  
**Fixed Cost Structure of DDC**

*(Amount in Rs. '000')*

Cost FY	2058/59	%	2059/60	%	2060/61	%	2061/62	%	2062/63	%
Collection	33720	16.86	36746	16.70	32630	15.03	27701	16.67	34890	17.40
Processing	50903	25.45	56786	25.81	61162	28.17	42188	25.39	48297	24.08
Selling/Dist.	17564	8.78	16935	7.70	17854	8.22	15865	9.55	21052	10.5
Administ.	54058	27.02	67909	30.87	64419	29.67	46122	27.75	62390	31.11
Depreciation	32129	16.06	30002	13.64	29428	13.56	29993	18.04	29406	14.66
Int. on Loan	11676	5.84	11634	5.28	11584	5.35	4319	2.6	4522	2.25
Total	200050	100	220012	100	217077	100	166188	100	200557	100

*Source: Appendix No. III.*

Table No. 7 shows the amount and percentage of each expenses included in the fixed cost structure of DDC for 5 years. Table No. 7 shows that the fixed are in fluctuated trends. Although collection expenses, processing expenses and depreciation expenses are fluctuated trend but interest on loan is decrease slightly. Table No. 7 shows that the collection, processing, administration and depreciation exp<sup>n</sup>. Comprise most of the fixed cost of DDC.

#### 4.4.2b Variable Cost Structure

**Table 8**  
**Variable Cost Structure of DDC**

*(Amount in Rs. '000')*

Cost FY	2058/59	%	2059/60	%	2060/61	%	2061/62	%	2062/63	%
Collection	1147689	85.56	1105408	81.34	1165851	82.41	1099952	82.7	1097428	76.75
Processing	157783	11.77	216627	15.94	210151	14.86	191658	14.41	298028	20.84
Selling exp <sup>n</sup>	20806	1.55	21699	1.60	23051	1.63	23438	1.76	20042	1.40
Administ.	15030	1.12	15097	1.12	15579	1.10	15009	1.13	14303	1.0
Total	1341308	100	1358831	100	1414632	100	1330057	100	1429801	100

*Source: Appendix No. III.*

Variable cost structure of DDC can be viewed in table no. 8. The total amount and percentage of each components of variable cost for the five years have been shown in the table. Variable cost consists of collection expenses, processing expenses, selling and distribution expenses & administration expenses. The table shows that the total amount of variable cost is in increasing trend except FY 2061/062. In table no. 8 shows that the collection expenses are fluctuated trend. Whereas processing selling, administration expenses also fluctuated trend. Table 8 shown clearly that collection expenses cover the greatest part of variable cost structure of DDC.

#### 44.4.3 Function Wise Analysis

##### .4.3.a. Production Cost Structure

**Table 9**  
**Production Cost Structure of DDC**

Cost FY	2058/59	%	2059/60	%	2060/61	%	2061/62	%	2062/63	%
Collection	1181408	84.99	1142154	80.68	1198482	81.54	1127653	82.82	1132318	76.57
Processing	208686	15.01	273413	19.32	271313	1845	233845	17.18	346325	23.43
Total	1390094	100	1415567	1469795	1361498	100	1478643	100	1478943	100

*Source: Appendix No. IV.*



The production cost structure of DDC is show in Table No. 9. The total amounts and percentages for five years of production cost which include collection expenditure and processing expenditure. It shows that the total amount of production is increase trend except in FY 2061/62.

It can be clearly seen from the Table No. 9 that collection expenses are fluctuated trend and processing expenses are also fluctuated trend. Table No. 9 shows that the collection expense has the highest percentage in the production cost structure.

#### 4.5 Cost Trend of DDC

##### 4.5.1 Element Wise Cost Trend

**Table 10**  
**Element Wise Cost, Its Index and APDC of DDC**

*Amount of Rs.'000'*

Year	Material			Labour			Overhead		
	Cost	Index	ARPC	Cost	Index	ARPC	Cost	Index	ARPC
2058/59	1179757	100	-	76320	100		241476	100	-
2059/60	1190264	101.71	1.71	68885	90.25	(9.75)	278058	115.35	15.35
2060/61	1242399	105.98	4.27	67632	88.62	(1.63)	280666	116.18	0.83
2061/62	1154726	98.3	(7.68)	65006	85.18	(3.44)	242198	100.04	(16.14)
2062/63	1210435	103.41	5.11	73737	96.62	11.44	315257	130.71	30.71

*Source: Appendix No. II.*

Above Table No. 10 shows the element wise cost for five years. Index of each cost for each year has been calculated assuming 2058/59 as base years. Similarly APRC, which is annual rate of percentage change, for each cost for five years has been shown in the table.

It can be seen in the table that the material cost of DDC was in increasing trend except 2061/62 ARPC shows that it has decrease by 7.68%. Index shows that the cost of material in FY 2060/61 is highest, as it has increase by 5.98% from the year 2058/59. Annual rate of percentage change (ARPC) is highest in FY 2061/62. In fiscal year 2061/62 has the lowest % of ARPC.

Labor cost of DDC is in decreasing trend. It has decreased by 14.82% in the last four years. The annual rate of percentage change in FY 2061/62 is the highest. The table indicates the fluctuating trend of overhead cost of DDC. The cost has increase in FY 2058/59 - 2060/61 but decrease in FY 2061/62 again increase in FY 2062/63 has been increase by nearly 31% from FY 2058/59. The annual rate of percentage change is highest in FY 2062/63 and lowest or negative in FY 2061/62. I.e. 16.14%.

#### 4.5.2 Variable Wise Cost Trend

**Table 11**  
**Variable Wise Cost, its index and ARPC of DDC**

*Amount in Rs. '000'*

Year	Fixed			Variable		
	Cost	Index	ARPC	Cost	Index	ARPC
2058/59	200052	100	-	1341309	100	-
2059/60	220012	110	10	1358832	101.3	1.3
2060/61	217.79	1.08	2	1414632	105.46	4.16
2061/62	166168	83	(25)	1330057	99.16	(6.3)
2062/63	200556	100.25	17.25	1429801	106.59	7.43

*Source: Appendix No. III.*

Above Table No. 11 represents the variable wise costs of DDC, its index assuming FY 2058/59 as base year and its ARPC for five year.

Fixed cost is in fluctuated trend and highest cost is incurred in FY 2059/60, which has increased by 10%. In comparison to FY 2059/60 annual rate of percentage change is highest in FY 2062/63 in which the fixed cost increase by 17.25 from previous year. FY 2061/62 has the lowest percentage of ARPC.

Variable cost is increasing trend except 2061/62. The highest variable cost is 2062/63 which has increased by 6.59% in comparison to the cost of FY 2058/59. Annual rate of percentage change is highest in 2062/63 since the total cost has been increased by 6.59%. ARPC is lowest in FY 2061/62 since the cost has been decrease by 6.3%.

### 4.5.3 Function Wise Cost Trend

**Table 12**

**Function Wise Cost, ITS Index and ARPC of DDC**

Year	Production			Administration and other			Selling and distribution		
	Cost	Index	ARPC	Cost	Index	ARPC	Cost	Index	ARPC
2058/59	1390095	100	-	112895	100	-	38370	100	-
2059/60	1415568	101.83	1.83	124643	110	10	38633	100.68	0.68
2060/61	1469795	105.73	3.9	121011	107.18	2.82	40905	106.6	5.92
2061/62	1361498	97.94	(7.79)	95444	84.54	(22.64)	39305	102.44	4.16
2062/63	1478643	106.36	8.42	110621	97.98	13.44	41093	107.09	4.65

*Source: Appendix No. IV.*

The function wise cost i.e. production cost, administration cost and selling and distribution cost of DDC for the five years has been presented in Table No. 12. The table also shows the index and annual rate of percentage change of each cost for five years. Index is calculated assuming the FY 2058/59 as base year.

The above table shows that the production cost is increasing trend except FY 2061/62. In FY 2062/63 the cost has been increased by 6.36%, which is the highest production cost. Annual rate of percentage change is also highest i.e. 8.42%. The lowest ARPC is FY 2061/62 i.e. 7.79%.

The administration cost of DDC is fluctuated trend. The administration cost is highest in FY 2059/60. In index also fluctuated trend? The highest ARPC in FY 2062/63 and lowest ARPC is (22.64) in FY 2061/62.

It can be seen in the table that the selling and distribution cost of DDC is in fluctuated trend. The index shows that the selling and distribution cost of FY 2059/60 are the lowest cost. The ARPC is highest in FY 2060/61 and lowest in FY 2059/60.

## **4.6 Interrelationship of Cost, Volume and Profit**

Cost Volume and profit analysis involves a series of analytical techniques used to determine and evaluate the effects on profits of changes in sales volume: (i.e., units sold), sales prices, fixed costs, and variable costs. It focuses on contribution margin, which is sales revenue minus total variable costs.

Companies that separately identify and measure the fixed and variable components of cost often use a contribution margin approach on their periodic income statement prepared for internal management uses. These income statements provide financial data that are uniquely useful for management planning purposes because of the emphasis on fixed and variable costs, most of the management decision that relate to operations (either directly or indirectly) are based in some way on knowledge of the fixed and variable components of cost.

Break-even analysis is a logical extension of marginal costing. There may be change in the level of production due to many reasons such as competition introduction of new product, trade depression or Boom, increased demand for the products, etc. In such cases management must study the effect on profit on account of the changing levels of production. A number of techniques can be used as an aid to management in this respect. One such technique is the break-even analysis.

The term 'breakeven analysis' is interpreted in the narrower as well as broad sense. Used in its narrower sense, it is concerned with finding out the break-even point, i.e. level of activity where the total cost equals total selling price. Used in broader sense, it means that system of analysis, which determines the probable profit at any level of production. The break-even analysis establishes the relationship of costs, volume and profits' so this analysis is also known as 'cost volume profit analyses. The study of Break-even analysis can be made by (i) mathematical relationship between cost volume profit and (ii) by preparing break-even charts.

DDC has not adopted the systematic costing system and classification of cost. Hence it is tricky to exercise the BEP analysis. For the convenience of the study, following factors have been assumed:

- An attempt has been made to segregate the cost of DDC as fixed and variable cost in appendix II
- Gratuity of profit and loss account has been ignored since it is considered as a provision, which is not a cost.
- Only the amount of FY 2058/59 to 2062/63 has been taken.
- Opening and closing stock are not changed.
- Selling price, fixed cost, variable cost are assumed to be remain constant.
- Activity base is selected in terms of sales revenues.

#### **4.7 Cost Volume Profit of FY 2058/59 to 062/63 Analysis of DDC.**

**Table No. 4**

**Income statement for the year 2057/058 to 2061/062**

(Amount in Rs. '000000')

Years particulars	2058/059	2059/060	2060/061	2061/062	2062/063
Sales revenue	1485	1548	1596	1536	1590
Less-variable cost					
Collection exp	1148	1105	1166	1100	1097
Processing	158	217	210	192	298
Variable Manufacturing Cost	1306	1322	1376	1292	1395
Add-beginning inv.	95	101	39	65	45
Cost of goods available for sales	1401	1423	1415	1357	1440
Less: Ending Inventory	101	39	65	45	41
Variable cost of goods sold	1300	1384	1350	1312	1399
Variable selling expenses	21	22	23	23	20
Variable administration expenses	15	15	16	15	14
Total variable cost	1336	1421	1389	1350	1433

Contribution margin	149	127	207	186	157
Less: Fixed cost					
collection exp	34	37	33	28	35
Processing exp	51	56	61	42	49
selling expenses	17	17	18	16	21
Administration expenses	54	68	64	46	62
Depreciation	32	30	29	30	29
Interest on Loan	12	12	12	4	5
Total fixed cost	200	220	217	166	201
Less: Other income	18	11	14	12	13
Adjusted fixed cost	182	209	203	154	188
Net income	(33)	(82)	4	32	(31)
P/V Ratio	0.1003	0.082	0.1297	0.1211	0.0980
BEP in Rs.	1815	2549	1565	1272	1918
Margin of safety	(331)	(1001.5)	31	264	(329)
% of BEP	122	165	98	83	121
% of MOS	(23)	(66)	2	17	(22)

The relationship between cost, volume and profit is known as cost volume profit analysis. Now a days, cost-volume profit analysis has become a powerful instrument in management decision making, especially cost control and profit planning. CVP analysis helps to determine the minimum sales volume to avoid losses and levels volume at which the goal of the company will be achieved.

Profit planning can be done only when the management has information about the cost of products both fixed and variable cost and selling price of the product. Cost-volume profit analysis is especially applied as the profit planning and control. We can analysis cost-volume- profit relationship by contribution margin and Break even point.

Contribution margin analysis- Contribution margin is the sales revenue minus variable costs. There fore, contribution margin reflects the revenue remaining after covering all variable costs. This contributes to cover the fixed expenses and then toward profit. Contribution margin can be expressed by

Contribution margin = sales volume- variable cost

Above table No 4.4 shows that calculation of contribution margin of DDC for the five fiscal years 2058/059 to 2062/063. Contribution margin for five years shows that is fluctuated trend. Contribution margin for five fiscal years are Rs.149, Rs. 127, Rs207 Rs.186 and Rs. 157 respectively. High contribution margin is the signal of high profit. Above table clearly shows that fiscal year 2060/061 represents the high contribution margin and fiscal year 2059/060 represents the low contribution margin.

**4.4.1 Contribution margin ratio:** Contribution margin ratio is equal to contribution margin divided by revenue. Contribution margin ratio established a relationship between the contribution and the sales volume. Percentage contribution margin to total sales is reflected to as the contribution margin ratio. Which is also knows as profit volume ratio or, P/V ratio or C/M ratio. Contribution margin ratio can be expressed by

Contribution margin ratio (C/M ratio) = 
$$\frac{\text{Contribution Margin}}{\text{Sales}}$$

From the above table No 4.4 shows the C/M ratio of DDC for the five fiscal years 2058/059 to 2062/063 the above table clearly shows that P/V ratio is fluctuate trends for the last five fiscal years. The table clearly shows that P/V ratio in high in the year 2059/060 and low in the fiscal year 2059/060. Any increase in contribution margin would

mean increase in profit only because fixed costs are assumed to be constant at all level of production. This ratio would remain constant at different level of production since variable costs as a proportion to sales remain constant at various levels. Management tries to increase the value of the ratio by reducing the variable cost or by increasing the selling price.

**4.4.2 Profit volume ratio:** Profit volume ratio established a relationship between the contribution and the sales volume. The two factors profit and volume are interconnected and dependent each other. Profit depends upon sales; selling price to a great extent will depend up on the volume of production

$$\text{Profit volume ratio} = \frac{\text{Contribution Margin}}{\text{Sales}}$$

$$\begin{aligned} \text{P/V ratio for the base year 2062/063} &= \frac{157}{1590} \\ &= 0.09804 \end{aligned}$$

From the above calculation shows that profit volume ratio of DDC for the base year 2062/063 is 0.09804 (that is 9.84%) similarly above tabling no shows those P/V ratios for five fiscal years 2058/059 to 2061/062. The P/V ratio is fluctuated trend for the last five fiscal years. The above table clearly shows that P/V ratio is high in the year 2061/062 and P/V ratio is low in the year the 2059/060. Any increase in contribution margin would means in increase in profit only because fixed cost is assumed to be constant at all level of production. This ratio would remain constant at different level of production since variable costs as a proportion to sales remain constant at various levels. Management tries to increase the value of the ratio by reducing the variable cost or by increasing the selling price.

**4.4.3 Break Even Point:** The point which breaks the total cost and the selling price evenly to show the level of output or sales at which there



shall be neither profit nor loss, is regarded as break-even point. Through contribution margin approach, break even point can be expressed by:

$$\text{Break-Even Point in Amount} = \frac{\text{Net Fixed cost}}{\text{P/V ratio}}$$

$$\begin{aligned} \text{BEP for the fiscal year 2062/063} &= \frac{188}{0.09804} \\ &= \text{Rs.1918} \end{aligned}$$

From above calculation shows that break-even point of DDC for the base year 2062/063 is Rs1918. Similarly, above table no 4 shows that break even point for five fiscal year 2058/059 to 2062/063. The break-even points are Rs1815, Rs.2549, Rs.1565, Rs.1272, and Rs1918 for the years 2058/059, 2059/060, 2060/061, 2061/062 and 2062/063 respectively. Break-even point amount for the five years show that is fluctuating trend, Break-even point or the year fiscal year 2061/062 is low but break-even point amount for fiscal year 2060/061 is high comparatively with in five years break-even point amount. Actual sales is higher that BEP sales in fiscal year 2060/061 and 2061/062 but in fiscal year 2058/059, 2059/0560 and 2062/063 actual sales is less than BEP sales.

**4.4.4 Margin of Safety:** Margin of safety is the difference between the budgeted or actual sales revenue and break even sales revenue (that is a position above the break-even point). Margin of safety can be expressed

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

$$\begin{aligned} \text{MOS for fiscal year 2062/063} &= \text{Rs} (1590-1918) \\ &= \text{Rs} (328) \end{aligned}$$

The larger margin of safety indicates the better profitability of the company. From the above calculation shows that margin of safety of

DDC for the year 2058/059 to 2062/063 is Rs (330), Rs (1001), Rs 31, Rs 264, Rs (328) respectively.

#### **4.5 Change Effects and Relationship of CVP Analysis Factor**

Profit is dependent variables so it is affected by other several factors. In other word profit is the function of a variety of factors. It is affected by change in volume, cost, prices, advertising, and other factors. But degree of affecting those factors to profit may be different. Profit may be affected by the change in price, volume, variable cost, fixed cost and combination of factors, which shows proportionate relationship, positive relationship, inverse relationship and no relationship.

The calculation of Break-even analysis disclosed that DDC, at the present cost structure is operating below the break-even point, sales revenue of DDC is below the break-even point. Sales revenue has not covered

The variable cost. It is obvious from the analysis that no matter how much milk has been produced, the management of DDC has been unable to set the break-even point. Since DDC is operating under full capacity it is very difficult to increase production and sales to meet the break-even point without increasing fixed costs.

DDC has neither set the break-even point nor accept the break-even analysis, an easy mechanical substitutes for the complex art of managing enterprises. The analysis reveals that either DDC is operating in high cost or the prices are kept low while the high cost or low prices ultimately leads to high break-even point.

There is no clear records and cost classification system. TOP managers who are in decision making level seem to pay no need to cost control and modern method of costing system. Cost classification is nonexistent, which makes cost control impossible leading the company to suffer from loss and low profit. Excessive collection and administration costs plus the low price of

products has been the key factors for the high BE point. Hence DDC should not purchase the milk at high rate and sell at low price.

#### 4.7 Arithmetic Mean, Stand. Deviation and Coefficient of Variation

The arithmetic mean, standard deviation and coefficient of variations of different costs for the five years from 2058/59 to 2062/63 have been calculated and shown in appendix VI which has been summarized in the following table:

**Table 13**  
**Arithmetic Mean, Standard Deviation and Coefficient of Variation**

Element Wise	Mean	Standard Deviation	Coefficient of Variance
Material	1195516	29530	2.47
Labor	70316	4127	5.86
Overhead	271531	27574	10.15

Variable Wise	Mean	Standard Deviation	Coefficient of Variance
Fixed	200777	19145	9.53%
Variable	1374926	39975	2.91

Function Wise	Mean	Standard Deviation	Coefficient of Variance
Production	1423119	45180	3.2
Administration	112922	10135	9%
Selling and Distrib.	39861	1422	3.6%

In element wise cost, material cost has highest mean and highest standard deviation. Its coefficient of variance is lowest indicating more consistency. In variable wise cost variable cost has higher mean and standard deviation than fixed cost and its coefficient of variance is lower, indicating more consistency than fixed cost. In function wise cost production cost has highest

mean and standard deviation. Its coefficient of variance is lowest indicating more consistency.

## 4.8 Correlation and Regression

### 4.8. a. Correlation of Element Wise Cost Structure

Appendix VIII shows the calculation of coefficient of simple correlation (zero order correlation coefficient) and linear multiple correlations of material, labour and overhead cost; which have been summarized below:

**Table 14**

**Coefficient of simple correlation of material, labor and overhead costs**

Zero order correlation Coefficient	Labor cost	Overhead cost
Material cost	$r_{12} = 0.09$	$r_{13} = 0.67$
Labor cost		$r_{23} = 0.16$

*Source: Appendix VII.*

The significant of 'r' can be tested with the help of probable errors 'PE' Detailed calculations are shown in appendix VIII.

Between	Zero order correlation (r)	Probable Errors (PE)	6×PE
Material and labor cost	$r_{12} = 0.09$	0.299	1.79
Labor and	$r_{23} = 0.16$	0.293	1.76
Material	$r_{13} = 0.67$	0.166	0.99

*Source: Appendix VIII.*

Since zero order correlation coefficients (simple coefficients) are less than six times the probable errors ( $r < 6PE$ ), they are all not significant.

**Table 15**

**Coefficient of Linear Multiple Correlations of Material, Labor and overhead costs**

Linear Multiple Correlation of	Coefficient of linear multiple correlation

Material cost on labor & O.H. cost	$R_{1,23} = 0.67$
Labor cost on mat. & OH. Cost	$R_{2,13} = 0.16$
Over head cost on mat. & OH. cost	$R_{3,12} = 0.67$

Source: Appendix VIII.

Coefficient of Multiple determinations:

$$R_1^2_{23} = 0.449$$

All the above three coefficient of linear multiple correlation lie between 0 and 1,  $R_{1,23} \geq r_{12}$  and  $R_{1,23} \geq r_{13}$ ; which are the requisites of multiple correlation coefficients. The coefficient of multiple determinations is 0.449. The value of correlation indicates that there is positive relationship between the costs and any change in one of the cost will make a change in other costs in the same direction.

#### 4.8. b . Correlation of Function wise cost structure

The following tables show the summarized form of coefficient of simple and linear multiple correlations of production, administration & selling and distribution costs; which have been calculated in detail in Appendix VIII.

**Table 16**  
**Coefficient of Simple Correlation of Production, Administration and Selling and Distribution Costs**

Zero-order coefficient	Administration cost	Selling distribution cost
Production cost	$r_{12} = 0.54$	$r_{13} = -0.018$
Administration cost		$r_{23} = -0.826$

Source: Appendix VIII.

The significant of 'r' can be tested with the help of probable errors 'PE'.

Between	Zero order correlation coefficient	Probable Errors	6×PE
Production and adm.	$r_{12} = 0.54$	0.214	1.28
Admin. and selling D. cost	$r_{23} = -0.826$	0.3	1.81
Production and S & D. cost	$r_{13} = -0.018$	0.0958	0.57

Source: Appendix VIII.

Since zero order correlation coefficients (simple coefficient) are less than six times of the probable errors  $r < 6PE$  they are all not significant.

**Table 17**  
**Coefficient of Linear Multiple Correlations of Production, Administration and Selling and Distribution Costs**

Linear of Multiple correlation of	Coefficient of Linear multiple cost
Production cost on Adm. and selling.	$R_{1,23} = 0.97$
Administration cost on prod. and selling	$R_{2,13} = 0.93$
Selling and distri. On prod. And adm. cost.	$R_{3,12} = 0.96$

Source: Appendix VIII.

Coefficient of multiple determinations

$$R_{1^2_{23}} = 0.9409$$

All the above three coefficient of linear multiple correlations lie between 0 and 1,  $R_{1,23} \geq r_{12}$  and  $R_{1,23} \geq r_{13}$ ; which are the requisites of multiple correlation coefficients. The coefficient of multiple determinations is 0.9409. The value of correlations indicates that there is a highly positive relationship between the costs and any change in one of the cost will make a change in other costs in the same direction.

#### 4.8. c. Correlation of Variable Wise cost Structure

Correlation between the fixed and variable cost of DDC by taking deviation from actual mean. To find out the correlation between fixed cost and variable cost of DDC, Karl Pearson's coefficient of correlation is employed.

We have,

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}}$$

$$= \frac{1901937913}{\sqrt{1832713816}\sqrt{7990178747}}$$

$$= 0.497$$

The degree of relationship between fixed and variable cost is 0.497, which tells that there is a positive correlation between fixed cost and variable cost. Their direction of movement is same or in other words the fixed cost will change in the same direction of the change in variable cost. The significance of r can be tested by the help of probable error or 'r'.

Probable errors.

$$PE = 0.6745 \frac{1-r^2}{\sqrt{n}} = 0.6745 \times \frac{1-0.497^2}{\sqrt{5}}$$

$$= 0.2271$$

$$6PE = 6 \times 0.2271 = 1.36$$

Since  $r < 6PE$ , the value of r is not significant.

#### **4.8. d. Regression Equation of Sales on Variable Cost and Fixed Cost**

Multiple regression equation using deviation from the mean of sales, variable cost and fixed cost.

In order to simplify the computation

$$\text{Sales} = X_1$$

$$\text{Variable cost} = X_2$$

$$\text{Fixed cost} = X_3$$

$$x_1 = X_1 - \bar{X}_1$$

$$x_2 = X_2 - \bar{X}_2$$

$$x_3 = X_3 - \bar{X}_3$$

**The multiple regression equation of  $X_1$  on  $X_2$  and  $X_3$  is.**

$$\hat{x}_1 = 0.93x_2 - 0.284x_3 \quad (\text{Appendix ix})$$

Now,

$$\hat{X}_1 = \bar{X}_1 = 0.93(X_2 - \bar{X}_2) - 0.28(X_3 - \bar{X}_3)$$

$$\text{or, } \hat{X}_1 - 1550878 = 0.93(X_2 - 1374926) - 0.28(X_3 - 200777)$$

$$\text{or, } \hat{X}_1 - 1550878 = 0.93X_2 - 1278681 - 0.28X_3 + 56218$$

$$\text{or, } \hat{X}_1 = 328415 + 0.93X_2 - 0.28X_3$$

The best fitting regression line of  $X_1$  (sales) on  $X_2$  (variable cost) and  $X_3$  (fixed cost) is.

$$\hat{X}_1 = 328415 + 0.93X_2 - 0.28X_3$$

The coefficient of multiple determinations is given by

$$\begin{aligned} R_{1.23} &= \frac{b_1 \sum X_1 X_2 + b_2 \sum X_1 X_3}{\sum X_1^2} \\ &= \frac{0.93 \times 6857085820 + (-0.28) 1243828433}{8135941403} \\ &= 0.74 \end{aligned}$$

This indicates that 74% of the total variation in the dependent variable (sales) due to independent variable (variable cost) and (fixed cost) and rest is due to other factor.

#### **4.8.e The regression equation of profit ( $X_1$ ), on $X_2$ (variable cost) and $X_3$ (fixed cost).**

In order to simply the computation.

$$\text{Profit} = X_1$$

$$\text{Variable cost} = X_2$$

$$\text{Fixed cost} = X_3$$

$$x_1 = X_1 - \bar{X}_1$$

$$x_2 = X_2 - \bar{X}_2$$



$$x_3 = X_3 - \bar{X}_3$$

The multiple regression equation of  $X_1$  on  $X_2$  and  $X_3$  is

$$\hat{x} = 0.68x_2 - 3.24x_3 \quad \text{Appendix ix}$$

Now,

$$\hat{X}_1 - \bar{X}_1 = 0.68(X_2 - \bar{X}_2) - 3.24(X_3 - \bar{X}_3)$$

$$\text{Or, } \hat{X}_1 = -(-39710) = 0.68(X_2 - 1374926) - 3.24(X_3 - 200777)$$

$$\text{Or, } \hat{X}_1 + 39710 = 0.68X_2 - 934949 - 3.24X_3 + 650517$$

$$\text{Or, } \hat{X}_1 = -324142 + 0.68X_2 - 3.24X_3$$

The best fitting regression line of  $X_1$  (Profit) on  $X_2$  (variable cost) and  $X_3$  (fixed cost) is:

$$\hat{X}_1 = -324142 + 0.68X_2 - 3.24X_3$$

The coefficient of multiple determination is given by :

$$\begin{aligned} R_{1.23} &= \frac{b_1 \sum X_1 X_2 + b_2 \sum X_1 X_3}{\sum X_1^2} \\ &= \frac{0.68 \times (-672049839) + (-3.24) \times (-3015425050)}{9776922979} \\ &= 0.95 \end{aligned}$$

This indicates that 95% of the total variation in the dependent variable (profit) due to independent variable (variable cost) and fixed cost and rest is due to other factors.

#### 4.9 Hypothesis Testing (Student's t-test)

**Profit and Costs:** To know the relationship between profit and costs, following hypothesis has been formulated and tested by applying the student's t-test.

Ho: There is no significant correlation between cost and profit of DDC during the period of study.

H1: There is significant correlation between cost and profit of DDC during the period of study.

The relationship between cost and profit of DDC has been observed even precisely by studying their correlation values which have been presented in Table 18 given below:

**Table 18**  
**Coefficient of Correlation with Their t-value and coefficient of determination cost of DDC**

Company	r	R <sup>2</sup>	t-value	Table value	df	Result
DDC	0.914	0.835	9.61	3.182	3	Significant

*Source: Appendix IX.*

It is apparent from the table 18 that there is significant correlation between cost and profit in DDC during the period of study. Therefore alternative hypothesis (H1) is accepted as the calculated value of t is greater than the tabulated value of students t-test at 5% level of significance ( $t_{0.05,3} = 3.182$ ). To predict the dependent variable (profit), the independent variable (cost) is suitable if it is allowed just 5% margin of errors.

#### **4.10 Finding**

The analysis of the cost structure of DDC using various tools shows that the company in spite of its best effort, it is suffering from loss (accumulated) from the past five years. Although the company has been able to increase its sales except FY 2061/62, its achievement is not encouraging and excess of cost/expenses being the major cause. Cost control is one of the for most consideration that DDC has to take.

Major finding of the research work can be presented as:

- DDC was suffering from loss (accumulated) from last five years.
- The company has been able to increase its sales except in FY 2061/62 it is decrease slightly.

- Total expenses of DDC are in increasing trend except in FY 2059/60 and 2061/62 the company has been able to decrease its total expenses slightly.
- DDC has no pre-estimation of cost and probable cost.
- It has no separate costing departments.
- **When the cost are classified according to elements**
- ❖ Material cost are increasing trend except FY 2061/62 it is decrease slightly, labour cost are decreasing trend except FY 2062/63 it is increase, overhead cost are increasing trend except FY 2061/62 it is decrease slightly.
- ❖ Material cost covers the larger part of total cost of DDC.
- ❖ Out of the two components of material cost i.e. collection cost and processing cost, DDC has been spending large amount in collection expenses, which is 90% in average of total material cost whereas processing expenses covers only 11% in average.
- ❖ Labour cost is decreasing trend except FY 2062/63. This shows the company has been able to reduce labour cost.
- ❖ Processing expenses comprise the most part and the collection expenses comprise the smallest part of the total overhead cost of DDC.
- ❖ Material and overhead cost of DDC are increasing trend except FY 2061/62 it is decrease slightly. Material and overhead cost increase to 3.41% and 30% from 2052/53. Whereas the labor cost of DDC has decreased by 4% in recent years. But considering annual rate of percentage change (ARPC), material cost and overhead cost in FY 2061/62 has decreased from the FY 2060/61.
- ❖ Material cost has highest mean and highest standard deviation. Its coefficient of variance is the lowest.
- ❖ The three coefficient of linear multiple correlation lie between 0 and 1,  $R_{1.23} \geq r_{12}$  and  $R_{1.23} \geq r_{13}$ ; which are the requisites of multiple correlation coefficients. The coefficient of multiple determinations is 0.449.
- **When Cost of DDC are Classified according to variables:**

- ❖ Both fixed and variable cost is fluctuated trend.
- ❖ Variable cost of DDC comprises the greater part of the total cost.
- ❖ Fixed cost structure is composed of various expenses, which is quite difficult to interpret; administration cost occupies the largest part of the total fixed cost. In fixed cost structure, interest on loan occupies nearly 4% in average of the total fixed cost. Interest on loan has been decreasing trend. This indicating that the company is able to repair its loan.
- ❖ Variable cost consists of collection expenses, processing expenses selling and distribution expenses & administration expenses and among them collection expenses covers the largest part of the total variable cost.
- ❖ Variable cost has higher mean and standard deviation than fixed cost and its coefficient of variation is lower.
- ❖ The correlation coefficient between fixed and variable cost is 0.497 and the probable errors is 0.2271 and  $6PE = 1.36$ .
- **When Costs of DDC are classified according to function:**
- ❖ Production, Administration and Selling and distribution costs have increasing trend except FY 2061/62 and it seems that the company has no plan to control these costs.
- ❖ Production cost occupies the most part of the total costs of DDC.
- ❖ DDC has no separate production cost department.
- ❖ Recently production and selling cost increased by approximately 6.36% and 7.09% respectively from FY 2058/59. But on the other hand, selling and distribution cost has decreased by nearly 2.02%.
- ❖ Production cost has highest mean, standard deviation and lowest coefficient of variation.
- ❖ The three coefficient of linear multiple correlations lie between 0 and 1,  $R_{1.23} \geq r_{12}$  and  $R_{1.23} \geq r_{13}$ ; which are the requisites of multiple correlation coefficients. The coefficient of multiple determinations is 0.9409. The value of correlation coefficient indicate that there is a highly positive relationship

between the costs and any change in one of the cost will make a change in other costs in the same direction.

- The company has neither analyzed the break-even point properly nor has taken seriously to reduce the BEP volume. BEP in the past five years is always higher. The company has not been able to cross its BEP point, where variable cost ratio is 89.95 and P/V ratio is 10.05%.
- Since the calculated value of 't' (i.e. 9.61) is greater than tabulated value of t for 3 degree of freedom at 95% confidence level (i.e. 3.182), hence the evidence that, there is significant correlation between cost and profit in DDC during the period of study. Therefore alternative hypothesis ( $H_1$ ) is accepted as the calculated value of t is greater than the tabulated value of student's t-test. To predict the dependent variable (profit), the independent variable (cost) is suitable if it is allowed just 5% margin of errors.

## **CHAPTER V**

### **SUMMARY, CONCLUSION AND RECOMMENDATION**

#### **5.1 Summary**

Basically Success of any enterprises depends on the strengths of management along with efficiency in managing the various functional aspects and modeling them to achieve the company's objectives. Though public enterprises are accepted as an effective instrument to speed up the economic growth in the developing countries like in Nepal, in practice, the public enterprises that have been established so far have not been able to contribute in this process. One of the main reasons is that the administrative problem arises both at the conceptual as well as practical level.

The PES poor performance or even negative result may be ascribed to the factors such as system-lacking and inefficiency in management, formal and informal intervention of the influential channels, the prevalence of corruption and abuse of power, vested and self interest of some of the public authorities including PE officials over PE's affairs.

Dairy Development Corporation is government owned public enterprises. To operate business successfully it is important to generate profit. Without the proper management of cost/ expenditure enterprises cannot achieve their goals and objectives. If there is no improvement in the efficiencies of PEs, they cannot exist for a long run because the investment in such enterprise is the financial wastage for the government. Hence the PEs should at least generate reasonable surplus for the existence.

Most of the manufacturing and trading company has ignored the fact that the cost structures of their companies are vital for the successful running of their business. It is necessary to acquire the attention of the management on the subject of cost structure.

The study has tried to examine and analyze the cost structure followed by DDC and provide suggestions to use the scientific techniques for the betterment of the company. Various tools were applied in this study to analyze

the collected data. In order to fulfill the objectives of this study, the cost of DDC from FY 2058/059 - 2062/063 have been classified into element wise, variable wise and function wise and analyzed with the help of various tools. Related literatures have been reviewed with the help of various books, reports, official and government publications, previous research and other sources. The data presentation and analysis consists of both statistical and descriptive analysis.

## 5.2 Conclusion

Following are the conclusion derived from the analysis of the cost structure of DDC.

- In spite of increasing its sales DDC has been not able to reasonable profit from the last five years due to excess of expenses.
- DDC has inadequate cost structure due to lack of skilled planners.
- Expenses planning are not classified in proper manner.
- DDC still follows the traditional method of cost classification.

### When the costs are classified according to variables

- The amount of variable cost has exceeded the fixed cost in the past five years.
- In variable cost structure, collection expenses cover the major part of total variable cost indicating that there is no control over such expenses.
- Variable costs are more consistent than the fixed costs.
- There is positive correlation between fixed cost and variable cost. Their direction of movement is same or in other words, the fixed cost will change in the same direction of the change in variable cost and since  $r < 6PE$ , the value of  $r$  is not significant.

### When the cost are classified according to the elements

- DDC has been spending a large amount in material expenses.
- The company shows no interest in controlling the material cost.
- Lowest coefficient of variance of material cost indicates more consistency than labor and overhead cost.

The value of correlation between Material labours and Overhead indicate that there is positive relationship between the costs and any change in one of the cost will make a change in other costs in the same direction

When the costs are classified according to functions.

- DDC has ignored the separate department of production expenses whereas administration and selling and distribution expenses have been clearly shown in its account.
- Production expenses when classified, contains the largest portion of total cost and the company has been ignored about taking controlling measure in minimizing it.
- In spite of technical development the production expenses are very high.
- Lowest coefficient of variance of production cost indicates the more consistency of the cost than other costs.
- There is highly positive relationship between the production administration and selling and distribution costs and any change in one of the cost will make a change in other costs in the same direction.
- There is no practice of CVP analysis and cost separation is not satisfactory.
- There is no co-ordination between income and expenses.
- BEP is very and the company is unable to obtain such point with represent capacity.
- Due to the negligence of cost reduction plan, DDC is suffering from loss.
- It has no policies and programmes for the research and development of cost control.

### **5.3 Recommendation**

- DDC must have pre-estimation of cost and probable cost. It should follow standard costing tools for pre-estimation.
- DDC still follows the traditional costing system. If divides its costs into collection, processing, selling, administration, gratuity (provision)



depreciation and interest on loan, creating complications to the management to make any plans or cost. Hence the company should try to classify its cost in modern and scientific way. Such as Activity Based Costing should be adopted to classify the cost.

- Material, labor and overhead costs of DDC has fluctuated in the last five years. The company should follow modern tools and techniques at the time of element of cost forecast.
- Proper policy and system of cost recording should be implemented to find out the actual material cost.
- Fixed cost of DDC is comparatively lesser than the variable cost, the company can reduce its fixed cost by controlling processing and administration fixed expenses.
- Total variable cost is too high-89.95% P/V ratio is only 10.05% DDC should try to reduce its total variable cost in order to make profit. Fixed cost is also higher and due to fixed cost the company is not able to meet its BEP. Therefore DDC should try its best to minimize its total variable cost.
- The analysis shows that the production cost is in increasing trend except FY 2061/062. The company tries to reduce its cost by applying cost reduction tools such as value. Analysis, budgetary control, market research use of automatic machine.
- There is no effective inventory policy, so recommended that use the tools effectively for efficient inventory management, raw material handling and controlling system.
- As the number of unskilled worker are found high, the provision of regular, training programme should be made in order to increase the labor proficiency and productivity.
- Concuss of cost and quality should be communicated from top to lower levels. All personnel should be participated on decision making and planning process.
- To achieve the organizational goal and to fulfill the demand of milk there should be greater efforts to increase milk production on the firms

in other words collection of raw milk should be increased removing the hindrance in this regard and creating infrastructure for live-stock farming.

- To reduce collection cost uneconomic collection center, must be closed up and some of the milk collection center should keep only in season when enough milk supply is obtained so that profit becomes attractive.
- DDC must formulate clear-cut attainable objectives its long-term and short term. Then DDC also much develop policies, strategies, programs about profit planning.
- There is high staffing problem on DDC. Unnecessary and more staff should be curtailed.
- Reward and punishment policy should be developing effectively to improve the DDC performance and workers should be motive by the management.
- CVP analysis, financial ratio, cash flow and cost of production must be analyzed while pricing and it should be determined on the basis of production and principles of profit planning.
- A separate costing section should be established in DDC i.e. fixed, variable, controllable, non-controllable etc. which helps effective and dynamic cost control system.
- Current assets should be twice of current liabilities it considered to be satisfactory but the DDC has not sufficient current assets to meet current obligation, therefore it is suggested for the management that they must maintain the proper balance of current assets.
- DDC should develop the systematic performance reports.
- DDC should try to increase collection centers for collection of milk and sales depots for market share to increase sales revenue.
- A fund should be established by DDC to provide the loan to the farmers.
- Monitoring and evaluation should be done regularly inside and outside of the office.

