INDICATIONS AND PROPULSIONS OF LABOR PRODUCTIVITY

(WITH REFERENCE TO DAIRY DEVELOPMENT CORPORATION)

By

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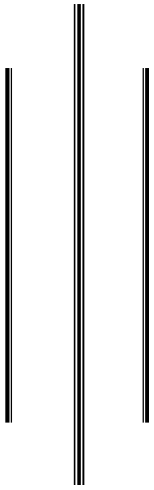

In partial fulfillment of the requirement for the Degree of Master of Business Studies (M.B.S.)

Kathmandu, Nepal

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RECOMMENDATION

This is to certify that the Thesis

Submitted by:

Man Bahadur Bam

Entitled:

Indications and Propulsions of Labor Productivity
(With Reference to Dairy Development Corporation)

has been prepared as approved by this department in the prescribed format of the faculty of Management. This thesis is forwarded for examination.

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VIVA-VOCE SHEET

We have conducted the viva- voce examination of the thesis presented

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And found the thesis to be original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirement for the

Master Degree of Business Studies (M.B.S.)

Viva-Voce Committee

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Member (Thesis Supervisor)	…….....……..
Member (Thesis Supervisor)	…….....……..
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DECLARATION

I hereby declare that the work reported in this thesis entitled **"Indications and Propulsions of Labor Productivity (With Reference to Dairy Development Corporation)"** submitted to Office of the Dean, Faculty of Management, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirement for the Master Degree of Business Studies (M.B.S.) under the supervision of Mr. K.D. Manandhar (Associate Professor) and Mr. Ghanendra Fago (Lecturer) of Shanker Dev Campus.

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Man Bahadur Bam

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5th June, 2009

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ABBREVIATIONS

APO	Asian Productivity Organization
BMSS	Biratnagar Milk Supply Scheme
CBS	Central Bureau of Statistics
DDC	Dairy Development Corporation
EU	European Union
FNCCI	Federation of Nepalese Chamber of Commerce and Industry
GDP	Gross Domestic Production
GON	Government of Nepal
HACCP	Hazard Analysis and Critical Control Point
HDI	Human Development of Index
HMSS	Hetauda Milk Supply Scheme
ILO	International Labor Organization
ISO	International Organization for Standardization
KMSS	Kathmandu Milk Supply Scheme
LDCs	Least Developed Countries
LMSS	Lumbini Milk Supply Scheme
MOF	Ministry of Finance
MPC	Milk Producers' Co-operatives
MPPSS	Milk Products Production and Sales Scheme
MSS	Milk Supply Scheme

MWMSS	Mid Western Milk Supply Scheme
NARC	Nepal Agriculture Research Council
NEFAS	Nepal Foundation for Advanced Studies
NPC	National Productivity Council
NPEDC	National Productivity and Economic Development Centre
TRIPs	Trade Related with Intellectual Property Rights
WTO	World Trade Organization

Chapter- I

INTRODUCTION

1.1 Background of the Study

Nepal is a multi cast, multi ethnicity and multi religious country which is situated in the lap of Himalayan in between the latitude of 26°22" to 30°27" north and longitude 80°4" to 88°12" east and elevation ranges from 60 to 8848 meter. The average length being 885 km east to west and average breadth is about 193 km north to south with a total area of 147181 square kilometer, which is 0.03% of the world's area and 0.3% of Asia. According to the Population Census 2001, Nepal's population is about 231,52,453. The country is bordering between the two most populated countries of the world i.e. China and India where India lies in the east, west and south and China is in the north. "Nepal, the steepest country in the world, descends from the height of Everest to the tiger prowling jungle below. Rich in the more than 2500 years of culture where Hinduism and Buddhism have met and created undreamed of glories of spiritualism through stone, brick and metal for eye to behold and for the soul to experience. The most Himalayan countries discover the world of mountains, rivers, jungle and culture in the world of Nepal." (Visit Nepal Year; 1998:1)

In the agro based country Nepal, a majority of her people still relies on agriculture which has remained the chief mode of employment income source. Agriculture contributes the largest share in GDP. In the light of this fact, agriculture prospective plan has been executive aimed at reducing poverty, raising agro-products and fostering employment opportunities. According to the National Account of Statistics prepared by the Central Bureau of Statistics on the basis of six to nine months' data of FY2007/08, the economic growth is estimated to have

been expanded by 5.56 percent at the basic price and by 4.7 percent at the producer's price. The upside estimate mainly comes from the substantial increase of 16.8 percent in the paddy production following the favorable weather condition and the expansion in the production of vegetables and fruits. Manufacturing industries GDP is to rise only by 0.18 percent in the fiscal year 2006/07 with a rise in major food stuffs, beverages, tobacco products and minerals products other than metals. A price in aggregate industrial production index by 606 percent in FY2006/07 but in the FY2007/08 has a witnessed increased to 139.16 from the last years' 130.04.

Regarding the share components of the major sectors in the GDP at current prices in FY 2007/08, the agriculture occupied 32.1 percent followed by wholesale and retail trade at 13.6 percent, real estate, renting and business services at 9.3 percent, transport, storage, and communication at 9.3 percent, manufacturing at 7.1 percent, construction at 6.4 percent, education at 6.0 percent, financial intermediation at 4.8 percent, electricity, gas and water at 2.0 percent, public administration and defense at 1.9 percent and hotels and restaurants as well as the health and social work at 1.4 percent each.(Economic Survey; 2008:xiv)

As per the census of 2001, out of the total population, the economically active population in the labor market was estimated at 10,482,000. At the time of formulation of the Tenth Plan it was estimated that on additional 10,53,000 jobs would be created during the Plan period (FY2006/07) and economically active population at the end of the year (2006/07) would be 11,58,000.

According to Statistical Year Book of Nepal published by CBS, till May, 2008 there are 369 dairy industries in Nepal. Number of persons engaged in these industries is 1978 and the number of employ employees is 1735. Wages and salary paid to these persons is Rs.102833 which gives the census input Rs.1882946 and

output Rs.2235009 respectively which added the census value Rs.352063. Indirect taxes paid by these industries is Rs.16.42 million comprised of excise duty, import and export and other indirect taxes.

Nepalese business community has got the worldwide market opportunities and very easy access and free flow of goods and services among the regional and global communities. It is expected that such type opportunities give the way of enhancing the production and productivity of Nepalese business. Increased production and export will support to raise income. Global and regional alliances help in transfer of foreign capital, technology and human resources. In this context, global and regional alliances present tremendous opportunities in the Nepalese business. However, lots of threats also occur in Nepalese business environment because of liberal and global economic movement. Global opportunities with large size and scale of activities have now been growing. These opportunities look at the whole world as one market. In this regard, Nepalese business is under attack from foreign competitors. There are many disadvantages like inequitable distribution of benefits, increased competition of domestic firms, threat to social and culture values, environmental degradation and exchange rate uncertainties.

After entering into the arena of WTO, Nepal will have to find out the major competitive areas and make the strategy to cope with the challenges posed by global business environment. Positive and negative impacts should be analyzed accordingly to gain the international reputation. Positive impacts for the LDCs, like Nepal would be expansion of trade, trade diversification, getting the transit rights, increased in bargaining power the special arrangement made by the WTO for the LDCs, easy access to international market. Likewise, negative impacts may be loss of domestic markets, limited and low quality goods due to lack of entrepreneurial, managerial, technical and marketing skills, the possibility of price

hike because of implication of trade related on Intellectual Property Rights (TRIPs) and controversy between the theory and practices such as the car sales dispute between USA and Japan, unwillingness of EU to reduce subsidies on agriculture products etc.

Being landlocked country, Nepal mostly relies on India and China for her international business. Due to this reality bite, Nepal's economic condition has been fallen far behind in comparison to other developing as well as developed countries. The main reason behind this situation can be attributed for her political instability and the lack of due commitment from so-called leaders from time to time. After the establishment of democracy in 2007 B.S. Nepal first time experimented with the rule of democracy. Unfortunately, by the passing of time, the neck of democracy was broken by King Mahendra which continued for 30 years as a single ruling party system in the country. Due to the hard effort made from the revolutionary parties' unification periphery, the movement of restoration of democracy succeed in 2047 B.S. Peoples had expected so much from the political parties for their good fortune which was not supported by the ruling parties activities and it gave the frustrations to the general peoples. Taking some basis from the misleading action done by political parties while they were in government, King Gyanendra took over the constitutional sovereignty on his hand and miss attempted the government for more than four years. Due to this unconstitutional step and illegal action, the government of king Gyandendra was abolished for ever hitting the stick on his fortune of monarchy and resulted as a general citizen in Jestha 15, 2065 by the declaration of restorated parliament. As consequences, the election of Constitutional Assembly has been held and result came to the ahead of Nepalese people. As a result, peace has been restorated and hoping that its prevalence forever. Chanting the slogan of New Nepal, every citizen of Nepal began to make the picture of New Nepal in ones mind as they perceived. That being so, positive signs and indications in the economic

environment has been started. Under these circumstances, we can only hope that our political leaders will rise to the occasion and put aside partisan and personal interest and agree on a list of priority projects and programs, which would be undertaken irrespective of which political parties form the government.

1.1.1 A History of Productivity Drive in Nepal

Productivity is not a new word for a developing country like Nepal. In the context of Nepal, productivity has occasionally drawn attention of development pundits of Nepal. Most development plans, the first one was launched in 1956 have some how incorporated a productivity theme as part of national development objectives. Then after, Nepal joined the Asian Productivity Organization (APO) in 1961 as one of its eight founding members. A substantial number of people from both the public and private organizations in Nepal have participated in APO programs. Some agencies like Industrial Service Centre and other training and research institutes, including private enterprises, have undertaken various activities related to productivity improvement. However, the productivity campaign along with the institutional development process has gained momentum only in the recent years.

As a result of establishment of the National Productivity Council in 1993 by Nepal Government under the chairmanship of the Minister for Industry with representatives from relevant major line ministries and professional organization, the then existing Economic Service Center which was bifurcated as a public consulting company in 1988 from the Industrial Service Center was renamed as the National Productivity and Economic Development Center (NPEDC) and designated as the secretariat of the council. NPEDC today is expected to perform major functions such as:

a. productivity promotion as the secretariat of NPC
b. consulting services as a public company

Considering these functions, NPEDC has been undertaken the various productivity related activities and it also has been involved in a productivity awareness campaign with a target group approach for last few years. But in recent years, it has been considered as a financial burden of Nepal government due to its slow operation of activities in the field of productivity improvement programs.

1.1.2 Scenario of National and Sectoral Level Productivity

Due to the globalization of world's economy, most of the nations are necessarily agree to enhance their competitive position by making themselves more proactive to the changing business environment. After entering into the World Trade Organization in 2004, Nepal can not stay away from the global economy. Changes and occurrences happened in one country's economy the effects can be seen in another country's economy. Therefore the main duty of our nation is to tap the opportunities of world's economic environment and to react rightly for the threats. To do these actions in a scientific manner, we have to identify our competitive position. In this regard we can develop our national gifts basically the potentiality of hydropower and tourism industry. Therefore it seems to be essential to have huge investment in these two economic sectors. For this we have to train and develop our labor force to cope with the current situation of the national economy. "In order to overcome the deficiencies related to invasion transitional, have non competitive domestic industries and low technology, Nepal must engage in strong productivity drives to generate advantages and ameliorate weaknesses. Restructuring of industrial enterprises may be necessary to make hitherto non-competitive industries efficient by pursuing the path of productivity improvement. New enterprises should also give attention to sustaining higher productivity in order to create and sustain a niche in the global market."(Bajracharya; 1998:23)

National and sectoral level productivity statistics are targeted for planners and policy makers. These statistics are necessary to evaluate performance of various economic sectors so as to assess needs, adopt strategies and set priorities in line with the countries development policies. Productivity statistics can also be used for inter-country comparison to formulate various opportunities investment and economic policies. The importatance of national and sectoral level productivity and its importance to country's socio-economic growth and development can be summarized under here: (NPEDC, 1996)

- serve as nations economic indicators
- provide comparative efficiency data of different countries
- help in measuring efficiency
- keep in evaluating economic performance and in formulating social and economic policies
- identify factors affecting income and income distribution in different sectors
- help in determine priority in decision making
- help authorities to identify problem areas
- evaluate impact of national development programs
- help in allocating scarce resources
- assist in forecasting national income and output

Labor productivity at national level is noticed to rise in most of the years during FY 1984/85 to 2003/04. According to the study done by Devendra Pradhan and Mahesh Gongal average annual growth rate of the productivity at national level is observed to decrease gradually during the observed period at an interval of six years indicating deteriorating performances. Productivity level growth rate of almost all the sectors shows decreasing trend except that of agriculture, fishery and forestry, though the productivity level of the sector is the lowest among the nine-sectors. The trend of labor productivity level at industry group level indicates

the average annual growth rate of 9.5 percent during the 1984/85 to 2003/04 which is contradictory to the findings of the labor productivity level at sectoral level of the manufacturing sectors due to difference in nature of data resulted from the differences in sources of data.

1.2 Introduction to Dairy Development Corporation

Dairy Development Corporation – a fully state owned corporation was established under the Corporation Act, 2021 B.S. in Shrawan 1, 2026. Dairy Development Board had established the dairy collection centres in rural areas mainly in Tushal of Kavrepalanchowk, Kharipati of Bhaktapur and Lamtang of Rasuwa. In 29 Falgun, 2013 B.S. Central Dairy was established with an installation of milk processing machine capacity of 500 litres per hour in Lainchaur of Kathmandu (Nowhere, Central Office of DDC). DDC has been initiated for the economic advance of the poor farming communities. It has been a nationwide movement with an annual collection over 60 million liters of milk from more than 75 thousand with producers. It has 888 milk co-operative spreads out in 33 districts.

DDC has been supported by the World Food Program since fiscal year 2030/31. Similarly, Netherlands Government, New Zealand Government, Danish Government, US Government and World Bank are also providing the financial support to DDC. Now, DDC has six milk supply schemes after the privatization of Pokhara Milk Supply Scheme. They are: Kathmandu Milk Supply Scheme (KMSS), Biratnagar Milk Supply Scheme(BMSS), Hetauda Milk Supply Scheme(HMSS), Lumbini Mlk Supply Scheme(LMSS), Mid-Western Milk Supply Scheme(MWMSS) and Milk Products Production and Sales Scheme(MPPSS). Kathmandu Milk Supply Scheme has been received the ISO

9001:2000 certificate and Hazard Analysis and Critical Control point (HACCP) in fiscal year 2062/63.

1.3 Focus of the Study

Focus of the study mainly concerned with the assessing the current status of labor productivity for the four milk supply schemes of DDC. The production and productivity growth pattern has been also matters for this study. Besides this, research work has also tried to compare the labor productivity between four milk supply schemes of DDC and has identified the areas to be addressed for enhancing labor productivity of respective milk supply scheme of DDC. Few research works are done on the issue of labor productivity in the manufacturing sector and this research work related to labor productivity. So the research work on the labor productivity could be an importance step to the productivity assessment area of Nepalese economy. Indeed, it is very difficult to find out the possible relation between labor productivity and other variables remain in the organization. However, researcher here tries to find out the outcome of labor productivity whether it is beneficial to stakeholders or not. Definitely, labor productivity of four milk supply schemes of DDC give the some propulsions to the concerned parties for the betterment of these milk supply schemes.

1.4 Statement of The Problem

The main problem of today's manufacturing companies is giving more emphasis on the greater production without considering the real demand of the customers. They failed to predict the situation that has to be settled. In many cases, management team wants to maximize the profits by moral or immoral business activities. In such cases, labors who assumed as real assets of the company suffered from the exploitation from the business owner. One reason for this may

be in which country where labors are illiterate and easily available, many types of laws and regulations are enacted but not effective and no proper mechanism for the settlement of disputes related to labor management relation, all of these factors are responsible for that.

This study has been limited due to the time and financial constraints, however, been focused on the implication and indication of labor productivity of the milk supply schemes of DDC. The term productivity basically related with the labor and capital productivity which are visible and straight forwarded. For this study researcher has selected the labor productivity for the four milk supply schemes of the DDC. DDC carries the unique identity being public company.

The optimum utilization of the resources, raw materials, tools etc is the way to increase labor productivity. In Nepalese industrial sector, the main problem affecting caused by excessive exchange of labor is increase in the cost of production and various costs involved in continuous hiring and firing of work force. Another side effect of such action hampers the smooth operation of business. Thus, in their work efficiency lead to the vulnerable condition. Therefore, the exchange of labor force causes a tremendous drain and a strain on the industry resulted to the low productivity.

Dairy Development policy has been formulated by GON with a view to increase the production and productivity of dairy products, making the dairy industries to the exportable condition by meeting internal demand of dairy products in a minimum price. This policy has set up the institutional arrangement to meet the objectives of this policy. This policy also mentioned that the activities done by the dairy industries shall be monitored and evaluated from the National Dairy Development Board supporting from the various line agencies such as Ministry of Agriculture and Co-operatives, Nepal Agriculture Research Council

(NARC), Dairy Development Corporation, Ministry of Industry, Commerce and Supply etc. (Dairy Development Policy; 2064: 1)

The legislation regarding the minimum wages for industrial workers states that male and female workers shall be paid equal wages for equal works. The interim constitution of Nepal guaranteed the equal opportunities of employment for male and female irrespecting their caste, ethnicity, religion and backgrounds. Now-a-days literate women are also involved in labor market. They will definitely result to the higher productivity. Due to the exploitation of labor force, lack of proper industrial environment and desired level of industrial development has not taken place in full swing. This research work entirely connected with the following research questions and these research questions are expected to fulfill the main objective of the research work:

- Is there any relationship between productivity, profitability and productivity?
- What type of relation is required for the long run survival of the DDC?
- Can organization see its bright future by investing on the part of labor?
- What type of productivity improvement techniques are used in the DDC?
- Is labor always productive? Or is it indispensable factor of the DDC?

1.5 Objectives of the Study

The general objective of this study is to indicate and propulsion ate the labor productivity in the four milk supply schemes of DDC. And it is expected that this general objective can be achieved by fulfilling the following specific objectives:

- To analyze the condition of labor productivity of four milk supply schemes of DDC,

- To find out the causes and hindrance of labor productivity,

- To suggest and recommend the management on the basis of research findings for their overall betterment of the DDC.

1.6 Significance of the Study

This study work primarily based on the micro-level of national economy. Therefore, it can't represent the indication and propulsion of macro level. But in industry level, undoubtedly in production sectors, this study will help to rethink on their efforts basically related with the concern of labor, to enhance the organizational competitiveness. Moreover, it can be set up for the support of strategic improvement efforts. Before starting a productivity improvement program within a company, this study is useful to have an indication of the current performance level and understanding of the problem facing by the enterprises.

Productivity and performance measures enable the individual enterprises to establish whether they are to set goals as to where they want to be and to monitor progress towards those goals. This study helps to realize the current status of DDC in terms of four milk supply schemes. However, this study will be pioneering efforts toward the undertaking of labor productivity measurement of this company.

The importance of labor productivity measurement lies at the macro and micro level of national economy and has been widely accepting by the industries, firms, companies and different types of organizations whether thy are capital intensive and labor intensive. Therefore, the productivity measurement for the macro level can be basis for strategy to alleviate the national poverty. Having a nature of micro level, this study serve as a basis of benchmarking for the DDC

thereby helps to identify the leading and lagging milk supply schemes and can rectify the area of problems as they are facing.

The importance of this study may lies at finding the productivity promotion activities done by the four milk supply schemes of DDC. Whether DDC has been set up these activities or not, is another concern of this study work. Such promotion activities may include the seminars, training, essay competition, demonstration-cum-training programs, talk program on the theme of productivity etc. on the basis of the organization's financial position an needs, these type of productivity promotion activities can be utilize and this study hope it will be guideline for the future productivity promotion programs adopted by the DDC.

1.7 Limitation of the Study

Limitations of this study are:

- This study is a micro level study of DDC. It may not be applicable for other similar companies.
- It covered the analysis of 5 years data ranging from FY 2059/60 to FY 2063/64.
- The data of this study taken from the secondary sources where the accuracy depends on the intensions of management teams.
- This study emphasized only the labor productivity and it may not be whole implications of productivity of DDC.
- Inflation effects over the labor wages, salaries, did not considered at the time of study. Therefore the true picture of labor productivity may vary.
- Value added approach used in this study covered the analysis of six milk supply schemes of DDC which may not coherence with the findings of selected milk supply schemes.

1.8 Organization of the Study

This study consists five chapters in total.

The first chapter deals with the introduction of the study and it consists the background, focus of the study, statement of the problem, introduction of the study area, objectives, significance, limitations and organization of the study.

Second chapter starts with the review of literature. In this chapter three main functions of the study are included. First, conceptual review has been laid down on the labor productivity. Second, review of related literature of labor productivity deals with the similar studies that has been studied by the scholars. Last, research gap reveals the importance of this research work and found the needed study area.

Third chapter mainly deals with the research methodology where research design, population and sample, sources of data, data collection techniques and data analysis tools has been included.

The fourth chapter has been considered as a heart of the study. It deals with the presentation and analysis of data thereby major findings of the research work to achieve the stated objectives.

And the last *fifth chapter* which deals with the summary and conclusions of the research work On the basis of the summary and conclusions an attempt has been made for recommendation to the management of DDC.

Chapter- II

REVIEW OF LITERATURE

2.1 Introduction

Review of literature is one of the important parts of planning of entire research work and deals with the findings of past research works under the study area so as to take further action to find the remaining facts and figures. “Review of literature is an essential part of all studies. It is way to discover what other research in the area of our problem has undiscovered. It is also a way to avoid investing problems that have already been definitely answered.” (Woolf & Pant; 2003:34)

Thus, review of literature is an important element of the thesis writing. So, it is necessary to review important books, articles and works conducted by different researchers, institutions and scholars. Review of literature gives us clear directions for the relevancy of research in order to get genuine findings.

Very few research works has been conducted in the area of labor productivity at micro level. So, it is very difficult to find out genuine research work that has been done in the area of labor productivity related to DDC. However, some of the major findings have been derived by studying and searching the national level labor productivity. Hence, an attempt has been made to reconcile and rejoined the labor productivity implications at the root level when and wherever necessary.

2.2 Conceptual Review

2.2.1 Labor

The term labor we generally understand that work which is especially related with physical work or task that has to be done. In addition to this, labor mean workers who work with their hands. But in economics, labor refers various types of work not only manual work but also mental work or service. Therefore, the term labor today became a multi dimensional and multi faceted word and it implies the physical or non physical work or services. For example, physical work consist the work of collies, porters, painters, factory workers, housewives etc and non physical work reflects the work of doctors, engineers, writers, lawyers, policeman, government officials etc.

According to Prof. Marshall, “By labor is meant the economic work of men, whether with hand or the head.” It stresses three important points. First, labor includes physical work. Second, it includes mental work or non physical service. Third, only economic work can be called labor. Explaining the meaning of labor Jevons makes the point clear by emphasizing that ‘purpose should be other than pleasure derived directly from the work’. (Shrestha; 2056)

Labor is an indispensable factor of production. A business firm employs workers to do the several types of works. Some do the manual works where use of machine use not possible or it is uneconomical. Apart from the workers, the firm may employs the persons to manage its offices, to guard its properties and several other such works. Thus, the use of labor will be quite prevalent in its business operations whether it is productions of goods or services or any other thing. Without labor we may not be able to do the business and run the industries at all.

2.2.2 Productivity

Productivity for a general definition is the relationship between the output generated by a production or service system and input provided to create this output. In other words, productivity can be defined as efficient use of resources such as capital, labor, land, materials etc to produce qualitative goods and services. Regardless of economic and political system or geographical region the definition of productivity is the same which is:

$$\text{Productivity} = \frac{\text{Output}}{\text{Input}}$$

"The term productivity often confused with the term 'production'. Many people think that the greater production the greater the productivity. But this is not true, because production is concerned with the activity of producing goods and services, while productivity is concerned with the efficient and effective utilization of resources (inputs) in producing goods and services (output). Sometime productivity viewed as a more intensive use of resources as a labor and machines which should reliably indicate performance or efficiency if measured accurately. However, it is important to separate productivity from intensity of labor because while labor productivity reflects the beneficial results of labor, its intensity means excess effort and is no more than work "speed-up". The essence of productivity improvement is working more intelligently, not harder. Real productivity improvement is not achieved by working harder: this result in very limited increase in productivity due to man's physical limitations."(Prokopenko;1993:3-4)

Productivity means efficient use of input resources to obtain maximum output. It also means improving quality of that output. In fact, productivity and quality are two sides of a coin.

The term productivity to reflect consciously the ratio between input and output was first used in 1776 when Adam Smith clarified that production depends on number of its productive laborers or the productivity powers of those laborers employed. It has been regular use after 1870's when it became part of in economic literature. Prof. Ichiro Nakayama clarified in 1963 that " it is an application of the economic principle of realizing maximum effect with minimum cost and the other maximum effect. Viewed in this way, a certain relationship of efficiency emerging from input and output should form the core concept of productivity. Adam Smith and Frederick Taylor focused on the division of labor, identifying and standardizing the best of doing work as means to improve productivity.

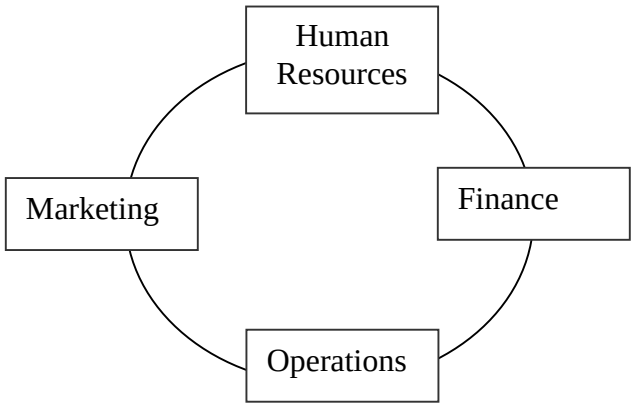
Productivity is above all, a state of mind it is an attitude that seeks the continuous improvement of what exists. It is a conviction that one can do better today than yesterday, and that tomorrow will be better than today. Furthermore, it requires constant efforts to adapt economic activities to ever-changing conditions and the application of new theories and methods. It is firm belief in the progress of humanity.

2.2.3 Scope of Productivity Management

The scope of productivity management can, however, depends on the attitude f peoples towards it. Today, in this global economy era, who can survive is able to be productive. And this matter definitely acts in a national economy of a country as well. Scope of productivity management lies at four pillars of any organization:

Figure: 2.1

Four Pillars of Productivity Management



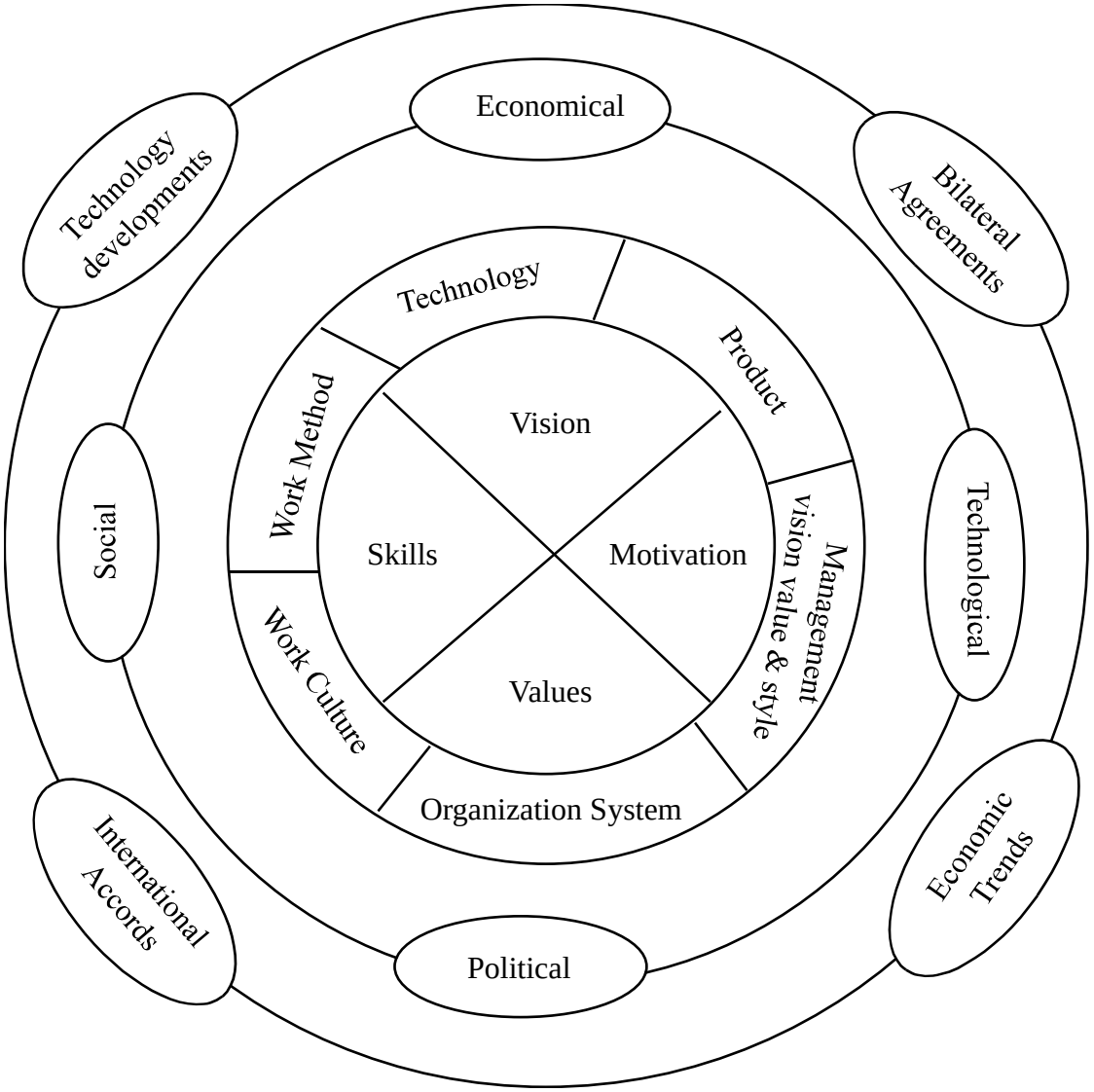
2.2.4 Factors Affecting Productivity

Two factors which are most critical for productivity drive in an organization. The first is manpower and leadership of the organization which plays the drivers role in achieving the higher performance. Employers are motivated when they feel a part of an organization, which contribute to the societal goals and objectives. The role of employees at all levels is equally vital to improve productivity. Employees are the fountainhead of productivity as it is the only resource which poses the creative abilities and has got feelings that can retard or produce resistance to the implementation of changes required for improvement.(Monga; 1999:6)

Factors affecting productivity at different levels can be presented in the following figure:

Figure: 2.2

Factors Affecting Productivity



2.2.5 Productivity Measurement

Productivity measurement can be applied both at micro and macro level. For the macro level, productivity can be measured at three different levels such as national economic level, economic sectoral level and industry group level. But for micro level, productivity can be measured at two levels which are as follows:

i. Industry Level
ii. Company Level/Firm Level

I. Industry Level

If the input and output data of industry groups are available, productivity measurement at industry level can be computed on the basis of basic principles of productivity measurement as follows:(NPEDC; 1996)

$$\text{Total Productivity (TP)} = \frac{\text{Total Output}}{\text{Total Input}}$$

$$\text{Total Factor Productivity (TFP)} = \frac{\text{Total Output}}{\text{Input (L + C)}}$$

$$\text{Partial Productivity} = \frac{\text{Output}}{\text{Partial Input}}$$

The partial input may be capital, labor, machines, fuel etc. if the partial input is labor,

Then,

$$\text{Labour Productivity} = \frac{\text{Output}}{\text{Labour Input}}$$

Similarly, if the partial input is taken as capital,

$$\text{Caputal Productivity} = \frac{\text{Output}}{\text{Caputal Input}}$$

II. Firm / Company Level

For managers, investors, workers and stakeholders, who are trying to improve productivity of an undertaking, productivity at firm level is more important than national or sectoral level. There are many approaches to productivity measurement in a firm or company level, depending upon the firm, but most commonly used are: (NPEDC; 1996)

$$\text{Labor Productivity} = \frac{\text{Value Added}}{\text{No. of Employees}}$$

$$\text{Capital Productivity} = \frac{\text{Value Added}}{\text{Tangible Assets}}$$

$$\text{Total Productivity} = \frac{\text{Value Added}}{\text{Input (L + C)}}$$

If the produced goods are of different kinds, it is better to express the output in value added form. Value added can be calculated as mentioned below:

Value Added Approach

Value added approach can be defined as that value which can be obtained by subtracting input from output. i.e. total sales (S) minus external expenses (X). External expenses may include raw material consumed (Rm), bought out items (B), work services (W) and depreciation (D).

So,

Value added = Sales- (Rm-B-W-D)

In this study, external expenses include the opening stock, collection expenses, sales expenses, administration expenses and depreciation.

Value Added = Output – Input

Value Added = Total Sales – External Expenses

While measuring productivity, input is basic term which is most important. In the organization, labor is the major input used in the production. It can be measured in three ways:

I. In terms of number of employees
II. Personal Expenses
III. Total Man Hour

In the case of measuring the labor productivity, working time is a major basis for this. The quantity of output produced per unit of working time is an indicator of labor productivity. For this study, different units of working time have been used depending upon the concrete nature of tasks, hours, day, month and years. Therefore, the indicator of labor productivity is expected in the form of quantity of output which turned out on an average per man-hour, day, month and year. In this study, labor productivity is generally obtained by dividing the total output produced during the fiscal year by the average number of listed workers in the different milk supply schemes. However, in the analysis of current and annual, it is necessary to make additional calculation of productivity per man- hour man-day.

The indicators of labor productivity in physical term per unit of working time are the most easily and simply way to the calculation. The indicators such as metric tones of milk collection, milk production per man hour, man day, man

month and man year. However, for this study work, the cases for calculation of labor productivity with the help of indicators in physical terms are very limited.

$$\text{Rate of Productivity of Labor} = \frac{\text{Average output per man hour in reporting year}}{\text{Average output per man-hour in base year}} \times 100$$

The indication of labor on physical terms for the growth rate of labor productivity may not be real signal in the organization. The ratio of the absolute term of labor productivity during given period and labor productivity during the base period is called the index of labor productivity. For the constructing of physical index of labor productivity, all the various products in physical terms are expressed in terms of a single measure. This measure might be either the expenditure of current labor for the production of the output or the value of the output produced, or any other common measure. The index of labor productivity is calculated in this case by using following formula. (Ezhov; 1960)

$$PILP = \frac{\Sigma_1 (q_1/T_1 \div q_0/T_0) \times T_1}{\Sigma T_1}$$

Where,

q_1 = Quantity of a particular output produced during the reporting period

q_0 = Corresponding quantity for the same output produced during the base period

T_1 = Expenditure of labor for the total output of the given product in the reporting period

T_0 = Corresponding expenditure of labor in the base period

PILP = Physical index of labor productivity

Value index of labor productivity is constructed on the basis of the gross output. If the data on gross output in terms of wholesale prices of the

enterprises(or in general, in comparable prices) are used, the index of labor productivity taken the following expressions:

$$\text{VILP} = \frac{\Sigma q_1 p}{\Sigma T_1} \div \frac{\Sigma q_0 p}{\Sigma T_0}$$

Where,

q_0 = Physical output in base period

q_1 = Physical output in reporting period

P = Money value per unit of output in comparable prices

$q_1 p$ = Gross output in constant price in the reporting period

$q_o p$ = Gross output in constant price in the base period

T_1 = Average number of listed workers in the reporting period

T_0 = Average number of listed workers in the base period

$\frac{\sum q_o p}{\sum T_o}$ = Average gross output i.e. output per worker in base period

$\frac{\sum q_1 p}{\sum T_1}$ = Average gross output i.e. output per worker in reporting period

Therefore, value index of labor productivity based on gross output in comparable prices can be expressed as;

Labor Productivity Index = $\frac{\text{Labor productivity in current year} \times 100\%}{\text{Labor productivity in base year}}$

Capacity Utilization Rate

Capacity utilization rate can be described as the ratio between the actual capacity and actual output of a firm under the different fiscal year. Mathematically, it has been described as:

Capacity Utilization Rate = $\frac{\text{Actual Output} \times 100\%}{\text{Full Capacity}}$

2.2.6 Techniques of Improving Productivity

There are various tools and techniques that have been developed and practiced successfully in an organization for productivity improvement. Productivity tools and techniques (PI tools and Techniques) may be structured into three major categories in line with the three important factors for productivity improvement- Humanware, Software and Hardware. This structural classification depends on which factor and on which facet the particular tools or technique is targeted for efficiency and productivity improvement. The PI tools and techniques are categorized as follows: (Chapagain, 1999: 85)

Humanware Oriented PI Tools and Techniques

- Economic incentive system
- Non financial motivational technique
- Small group activities
- Management by committees
- Employees participation
- Training for employees

Software Oriented PI Tools and Techniques

- Profitability analysis
- Work measurement
- Methods study
- Operations research
- Specialized production system

Hardware Oriented PI Tools and Techniques

- Value analysis
- Ergonomic analysis
- Technically advanced machine

- Autonomous maintenance
- Improved material handling equipment

2.2.7 Relation between Profitability and Productivity

The relation between profitability and productivity can be summarized in following table and this table also gives the way to the organization what they must to do 'if and then' condition:

Table: 2.1

Relation between Profitability and Productivity

Case	IF	IF	THEN	THEN
	Profitability	Productivity	What will happen	What should be done
1	HIGH	HIGH	Financial condition will be sound and stable	Maintain or increase productivity further
2	HIGH	LOW	High profitability may not be sustained on a long term basis. In the long run low productivity will eat up profits.	Improve productivity
3	LOW	HIGH	The company may soon be operating at a loss and may be on the brink of a shut-down.	Improve profitability, strength market strategy, market research, market promotion/advertising and pricing policies
4	LOW	LOW	Shut-down / Bankruptcy	Improve productivity and strengthen market.

2.3 Review of Related Literature

Theses on labor productivity are not found in central library as requires in numbers and suitability. Therefore an attempt has been to review the some studies at macro and micro level, articles and research paper presented by different scholars.

Dahal et al. (1999) has published a comprehensive study under the topic of **"Productivity, Wages, Employment and Labor Market Situation in Nepal"** These writers has presented the true picture of ongoing practices in productivity, wages and employment in different industry located at Biratnagar, Jhapa, Kathmandu, Hetauda and Pokhara. Some of the important glimpses of this study have been presented here:

According to this report, more than 92 percent of the employment labor force is in rural areas and 81 percent in agriculture. Only 19 percent of rural workers and 21 percent of all workers work as wage laborers. A majority of wage laborers moreover are in employed in the organized sector of the economy.Besides the level of education of the workforce is low with high geographical mobility and very low returns to labor. Although wage differential between male and female participation in the workforce is low and they are confined to less productive.

The report further shows that the existing wage rate structure including the social security system is poor that workers have to struggle for survival.The unofficial rate of interest in unorganized sector in rural areas and urban areas is as high as 60 percent and 30 percent respectively. Those have aggravated the extent of rural indebtedness in Nepal. Although, recently, the tripartite meeting was held in November 30, 2008 between FNCCI, Trade Unions and government which would be effective from September 17, 2008 wage rate structure for different types of workers as follows:

Table: 2.2

Wage Rate Structure

S.N.	Types of Workers	Basic Salary (Rs)	Dearest Allowance (Rs)	Maximum Remuneration(Rs)
1.	Unskilled	3050	1550	4600
2.	Semi-skilled	3100	1550	4650
3.	Skilled	3200	1550	4750
4.	Highly Skilled	3400	1550	4950

(Source: Kantipur National Daily, 3 December 2008)

The report further shows that the social cultural status of workers is male dominated. Composition of labor force is overwhelming male dominated (76 percent). However, the regional distribution does not support the result of national average. In Jhapa, female workers share in total labor force participation is higher (76.7 percent) than the share of their males 33.3 percent) counterparts. In Biratnagar and Hetauda, the participation of male workers is high (above 95 percent). But in the case of Kathmandu, the composition of labor force according to sex, to some extent, fair (57 percent) male and 43 percent female.

In the case of bonded labor report reveals that the absence of effective government intervention, it is likely to persist in future. Although child labor is legally prohibited, it still exists in factories, mines, construction, transportation, agriculture, plantation, hotels, restaurant, tea shops and home service.

The report also mentioned that the Nepal lacks even basic data and information that are necessarily for monitoring employment and labor market developments. The government should seek the co-operation of donor communities in conducting labor force survey in appropriate interval in the country.

Economic Survey (2007/08) of Ministry of Finance has showed the fact of Nepal Human Development Index (HDI) is at the lower ebb as mentioned in the Human Development Report 2007. Of the 177 countries included in the report, Nepal is at 142nd position which is the lowest position among the SAARC countries. This reflects that Nepal is trailing behind not just from the low economic growth but also from the dimensions of overall human development.

On the issue of salary and wages, Economic Survey further shows the fact that the year-on-year national salary and wage index increased by 9 percent in Mid-March 2008 compared to the rise of 10 percent a year ago. Separating both index, salary index increased by 8.4 percent which was increased by 6.2 percent in previous year while the wage index had increased by 11.4 percent. The increase in the salary index reflected mainly the salary increment of government officials in mid- July 2007. The increase in the wage index was on account of the wage increment in the industrial and construction sector. Wage index of industrial laborers for the period of 2007/08 11.6 percent while it was 13.3 percent in 2006/07. For the year of 2004/05, 2005/06 it was 10.5 and 5.1 percent respectively.

Adhikari (2003) on his dissertations on '**Labor Demand Situation and Labor Productivity in Furniture and Textile Industries of Patan Industrial Estate'** has presented the following conclusions:

-Information on productivity is crucial for supporting development efforts in Nepal. The furniture industry labor productivity has demonstrated a upward trend followed by a downward trend in successive fiscal years.

- Industrialization and urbanization play a significant role in labor market. Patan Industrial Estate is located within the city area but the workers come

to work from outside city area. Majority of migrant laborers come from the hill area in research of job.

- As productivity statistics are immensely important for designing policy responses to productivity enhancement, the researcher has recognized its role in it and made an effort to create a sound and reliable data base development in such an important field.

- Average annual growth rate of labor force in furniture industry was 1.3 whereas it was -5.1 in the textile industry. This fact shows that gloomy situation in the labor market. The annual growth of labor productivity level in the furniture industry was 5.0 whereas it was -5.3 in the textile industry.

A report of ILO(2008) on the **'Child Laborers in Nepal'** reveals that the number of domestic child labor are 62000 under fourteen year and in total Nepal has 1.66 million child labors between the age of 5 to 14 thereby its 6th position in South Asia. Children working in hazardous industries such as construction, transportation, production etc are in huge numbers. Under the age of 16, 12000 girls have been trafficking every year from Nepal to foreign countries especially in India. The prevalence of child bonded labor in agriculture and certain parts of the industrial and informal sectors made the developments efforts of Nepal on this case ineffective and unbalanced.

Dahal (1999) has studied on **'Productivity, Wages, Employment and Labor Market Situation in Nepal, The Role of Trade Unions'**. The study reveals that that factors affecting productivity are whole gamut of incentives facilitated to workers. These include wages, perks and other benefits and facilities. Highly skilled workers are paid 1.2 times of higher than the unskilled workers.

The variation in the wages of different levels of employees has been skewed and intra-industry variation in market wages seems to be more acute.

This study presents the some clue to get higher productivity in a company:

- Motivation and involvement of employees is the key to higher productivity. (Linkage performance with reward could provide a thrust to the process of involvement.)

- Information sharing, open sharing and participatory style of management can play a vital role in tapping the potential of employees.

- Good labor-management relation and climate of trust between the management and unions will provide an environment essential for the successful implementation of such a strategy.

- It is fact that more than 75 percent of disputes in industrial organization can be attributed to wages. The vicious circle of wages and prices chasing one another, creating a wage –price spiral needs to be broken. The wage structure has become dysfunctional and distorted as a result of ad-hoc wage increase.

A study of **Productivity Measurement and Labor Productivity at National, Sectoral and Industry Group Level(2005)** edited by Mahesh Gongal and Devendra Pradhan at the National Productivity and Economic Development Center has nicely presented the macro level study of labor productivity for the period of FY 1984/85 to FY 2003/04. The objective of this study was to measure the labor productivity base on the approaches that were most commonly used in members' countries of Asian Productivity Organization. Sectoral level productivity of agriculture and non-agriculture sectors had been computed with a view to assessing the contribution of agricultural and non-agricultural sectors in

the national productivity level. Total value added had been taken as a measure of output and the total economic active population as a measure of labor input to calculate the productivity at national level. For the purpose of analysis and comparison , value added at current pieces has deflated by implicit value added deflators taken from national accounts statistics. The value added figures in constant prices for those years were taken with 1994/95 as a base year. These value added at constant prices then divided by the economically active population in the respective year. For the industry group level Census Value Added of each industry group was considered as output and members of persons employed in those sectors were taken as input. Census output was defined as a sum of total value of shipments(including own consumption), total receipt from industrial and other services, total cost of work done in own account and change in the value of stocks of finished goods. Semi-finished goods and goods sold in the same condition as purchased. Based on the available classification of manufacturing establishments, eighteen major manufacturing industry groups were identified and their productivity levels are estimated by their respective census value addition and number of employees.

Major findings of this study are:

- National labor productivity consistently increased over the years except in FY 2001/02 and FY 2002/03. There was a drop in productivity level from Rs.29036 in FY 2000/01 to Rs.28128 in FY 2001/02 and again to Rs.28021 in FY 2002/03. Annual productivity level in average went up by 4.4 percent in between FY 1984/85 to FY 1990/91. But the growth rate was only 2.1 percent in between FY 1990/91 to 1996/97, which further dropped to 0.7 percent in the recent six years period between FY 1997/98 to FY 2003/04.

- Labor productivity of agricultural sector rose slowly in all years observed except in FY 1992/93. Annual average productivity level increased for agriculture sector was 4.4 percent during FY 1984/85 to FY 1990/91. But this growth rate went down to 2.73 percent in between FY 1990/91 to FY 1996/97 and rose again to 2.9 percent during the period of FY 1997/98 to FY 2003/04. Labor productivity of non-agriculture sector is declining every year. Labor productivity levels of non-agriculture sector declined by 3.48 percent between six years interval both in FY 1984/85 to FY 1990/91 and FY 1990/91 to FY 1996/97. It declined by 5.2 percent in 1997/98 to FY 2003/04.

- Productivity level of manufacturing industry groups as a whole also depicts the increasing trend. Annual average growth rate of 9.5 percent during the observed period. The growth rate of employees from the manufacturing census data shows negative growth rate for different years whereas economically active population figures have positive growth rate when derived from the population census 2001/02.

A paper presented by Dr. Sunity Shrestha on her topic '**Agricultural Productivity in Nepal** (1999) tried to measure the production, productivity level and productivity index of agriculture sectors of Nepal. The objective of paper was to:

- Asses the current situation of agricultural productivity in Nepal and other APO members countries
- Analyze the land and labor productivity in agriculture sector of Nepal using different approaches of measurement of productivity such as productivity ratio approach, index approach to productivity, Cobb- Douglas production function approach to productivity.

- Make conclusion based on findings of all approaches to measurement of productivity.

On going through the study, Dr. Shrestha had offered the following major conclusion in her presentation paper:

- The data in labor involved in food crops and cash crops was not maintained separately.
- The national level productivity shows an average annual growth rate of 3.32 percent.
- The land productivity of cash crops is relatively higher than that of food crops.
- The labor productivity of food crops is relatively higher than that of cash crops.
- The index approach reveals that the land productivity of food crops has fluctuating trend and throughout the years under study it has increasing 12 percent only.
- The index approach shows that the land productivity of cash crops is increasing gradually considering 1985 as base year and from 1985 it has increased by 76 percent.
- The result from the Cobb-Douglas production function approach depicts that there is an increasing return to scale in agriculture sectors in Nepal.

A report of ILO (2001) on **'Competitiveness, Productivity and Job Quality in South Asian Garment Industry'** shows that the strategy of improving productivity can be present through a combination of various measures:

a. Investments in new technology and equipment up gradation of skills among the workers.

b. Improvement in production, up gradation and processes.
c. Improvement in job quality.

This report shows that investment in new technology and up gradation of skills could certainly contribute to improvement in productivity and competitiveness, as proven in the cases of Bangladesh and Sri-Lanka. However, improvement in working environment, workers' concerns, benefit and incentives, safety and security and other working conditions would provide motivation for the workers to utilize such skills and technology for enhancement in productivity.

ILO also mentioned the following aspects on Industrial Labor Standards:

i. Discrimination should not be done on the basis of sex, religion, race color or origin.
ii. Prohibition on child and forced labor in the organized industry.
iii. Healthy and safety requirements for the workers.
iv. Minimum wages and benefits should be applicable to all workers.
v. Regulation of the number of working hours of the employees.
vi. Sexual harassment and abuse subjected to the employees.
vii. Registration of the employees in terms of providing appointment letter to employer.
viii. Freedom of association in terms of forming free labor unions.
ix. Ensure that the working environment in the industry is conducive to the overall welfare of the employees.

Bhattarai (1998) in her dissertation on **'Labor Market Situations and Trade Union Movement in Nepal'** has tried to fulfill the gap of knowledge about labor market situation and brief knowledge about the wage and trade unions. The level of productivity of Nepali workers was found to be very low due to the lack of

adequate education, skills and training facilities. Nepalese labor market and employment conditions show that there is a high incidence of poverty, inequality and joblessness. The majority of women workers have not participated in trade unions activities. In a sample more than three fourth factories were set with trade unions. So, they frequently visit and report to the trade unions about their work related problems.

2.4 Research Gap

Research gap denotes the gaping between the past findings and the ongoing research work. This research work being a micro level study, previous research work on the labor productivity at the macro level which was carried out by the institutions (both public and private such as NPEDC, NEFAS). There can hardly found the research work done in the particular industry. In the Dairy sectors of the economy, no research work has been done yet from the level of individuals and organizations. Therefore, research gap aims to show the prevailing situation of labor productivity in the state-owned industry which in the long run remains the liability of government. This research will try to measure the importance of labor productivity which has unseen by intentionally or unintentionally and can be a basis for organizational effectiveness.

Chapter- III

RESEARCH METHODOLOGY

Introduction

Research methodology deals with the road map of the study. It is the way to solve the problems systematically by dealing with the collected data, analyzed these data and figured out the necessary conclusions and recommendations. It is the bridge, which links the research from where s/he is to and where s/he wants to be. The basic objective of the study is to visualize the current position of labor productivity and its implications to the stakeholders of DDC in terms of four milk supply schemes. To find the true picture of labor productivity in related milk supply schemes, the researcher has been used the sources of data, statistical and financial tools used for the analysis of data.

3.1 Research Design

The term research design is employed in the sense of overall framework or plan for the collection and analysis of data. It has been served as a framework for the study. In this study, analytical as well as descriptive research design has been adopted to clarify the situation of labor productivity through the presentation and analysis of various data.

3.2 Population and Sample Size

In this research work, all the milk supply schemes of DDC represent as population of the research. In numbers, there are six milk supply schemes of DDC operating currently. As far as the concerned for this study, four milk supply

schemes has been taken due to the similarities of production and the availability of data and information, furthermore financial constraints as well. These milk supply schemes are Kathmandu Milk Supply Scheme (KMSS), Biratnagar Milk Supply Scheme(BMSS), Hetauda Milk Supply Scheme(HMSS) and Lumbini Milk Supply Scheme(LMSS).

3.3 Sources of Data

This study has been mostly based on secondary sources of data. Primary data has also been collected by questionnaire and field survey. Secondary data has been compiled through different books, annual reports, journals, magazine, and articles. During the period of research work, different libraries of different campuses has also been consulted.

3.4 Data Collection Procedure

Primary data were collected through questionnaire and field survey. All the gathered information and data has been used and analyzed according to the need and requirement of this study. And, secondary data were directly obtained from official records and research had to visit to the companies frequently to the central office of DDC.

3.5 Data Processing Procedure

At first, financial statements i.e. profit and loss account, balance sheet, annual reports and other related data were collected from available sources. All the information was grouped at one place and analyzed these thoroughly.

For the judgment of these information & data, economic survey, auditor general report, and informal discussions as well as interviews were made. Then collected data were organized, classified, rearranged, summarized and presented in the suitable table and graphs to make the analysis easy and clear.

3.6 Data Analysis Tools

To satisfy the research questions and objectives, analysis has been done qualitatively and quantitatively. The quantitative data were collected from the field survey, questionnaire, books, and journals and these has been categorized, tabulated and analyzed by using simple statistical tools such as percentage, ratio and average wherever necessary.

3.7 Tools for Analysis

Tools for analysis for this study mentioned here:

I. $\text{Labor Productivity} = \dfrac{\text{Gross Output}}{\text{Number of Employees}}$

II. Physical Index of Labor Productivity (PILP) is given by:

$$\text{PILP} = \frac{\Sigma(q_1/T_1 \div q_0/T_0) \times T_1.}{\Sigma T_1}$$

Where,

q_1 = Quantity of a particular output produced during the reporting period

q_0 = Corresponding quantity for the same output produced during the base period

T_1 = Expenditure of labor for the total output of the given product in the reporting period

T_0 = Corresponding expenditure of labor in the base period

PILP = Physical index of labor productivity

III. Value Index of Labor Productivity(VILP) is given by:

$$VILP = \frac{\Sigma q_1 p}{\Sigma T_1} \div \frac{\Sigma q_0 p}{\Sigma T_0}$$

Where,

q_0 = Physical output in base period

q_1 = Physical output in reporting period

p = Money value per unit of output in comparable prices

q_1p = Gross output in constant price in the reporting period

q_0p = Gross output in constant price in the base period

T_1 = Average number of listed workers in the reporting period

T_0 = Average number of listed workers in the base period

$\frac{\Sigma q_0 p}{\Sigma T_0}$ = Average gross output i.e. output per worker in base period

$\frac{\Sigma q_1 p}{\Sigma T_1}$ = Average gross output i.e. output per worker in reporting period

IV. Labor Productivity Index = $\frac{\text{Labor productivity in current year}}{\text{Labor productivity in base year}} \times 100\%$

V. Capacity Utilization Rate = $\frac{\text{Actual Output}}{\text{Full Capacity}} \times 100\%$

VI. Value Added Labor productivity = $\frac{\text{Value Added}}{\text{No. of Employees}}$

Chapter- IV

DATA PRESENTATION AND FINDINGS

This chapter consists of fully analytical topics which are devoted to analyze the different subjects mentioned in the objectives of the study. This chapter has been assumed as most important and vital because it is as like processing unit of a system. Based on this, all interpretations, recommendations and suggestions are made.

Collected data and information are presented in a well manner in required form and format. They, then, are analyzed using proper statistical tools.

4.1 Analysis of Labor Productivity of Kathmandu Milk Supply Scheme

Kathmandu Milk Supply Scheme was established in 2037 B.S. It produces the milk and milk products such as pasteurized milk butter, ghee, flavored milk to its valued customers. Total investment of this milk supply scheme is Rs.151.5 million. It covered the area of land is 29.2 ropani and its monthly consumption of water and electricity is 70475000 kilolitre and 741 kilowatt respectively.

Table: 4.1

Milk Collection & Physical Progress of KMSS In Met tonn

	2059/60	2060/61	2061/62	2062/63	2063/64
Milk Collection	33917	31325	32885	31189	31639
Physical Progress	51310	48863	54150	50430	49495

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

Table: 4.2

Breakdown of Labor Type, Working Days, Working Hours, Man-days & Man-hour

KMSS

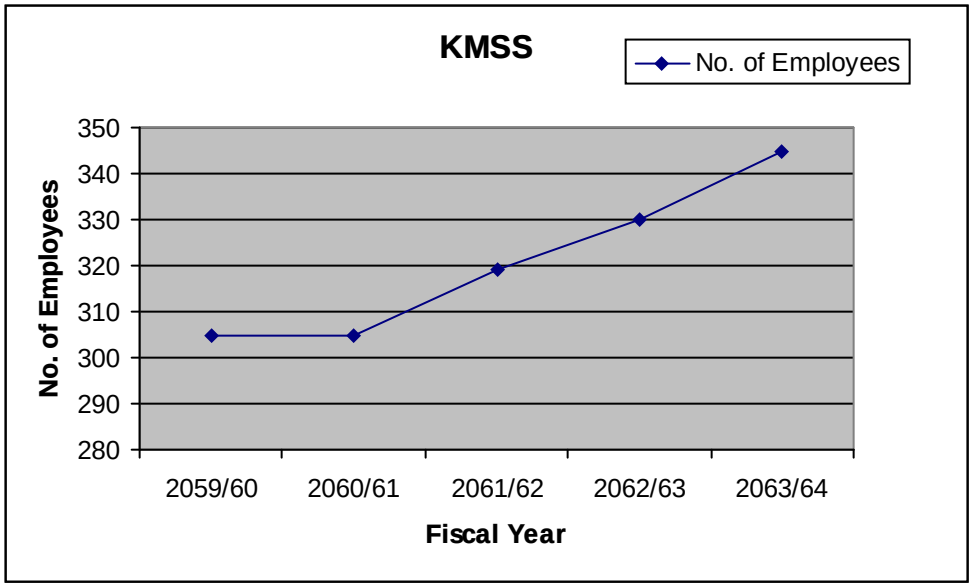
Fiscal Year	Labor Type			Working Days/ Year	Working Hours/ Day	Man Days	Man Hours
	Technical	Administ-rative	Total				
2059/60	195	110	305	365	7	111325	779275
2060/61	190	115	305	365	7	111325	779275
2061/62	200	119	319	365	7	116435	815045
2062/63	203	127	330	365	7	120450	843150
2063/64	199	146	345	365	7	125925	881475

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

Above tables show the details of milk collection and physical progress of the company and the breakdown of working labor type existing in the KMSS, working days in a year, working hours per day man days and man hours. Labor type divided into two parts i.e. technical and administrative. Structure of labor type shows that in FY 2059/60 and 2060/61 it was the same in number although there were some structural changes between in both technical and administrative. But then every fiscal year up to 2063/64 there was increasing trend such as the number of labor in FY 2061/62 was 319 and FY 2062/63 it was 330 in total being increased by 11 laborers. And it was 345 in 2063/64 which is greater than that was in 2062/63. If we see the type basis of labor, there was increasing trend of administrative laborers but in technical laborers side, there was fluctuating nature of arrival and departure pattern. This fact can be shown in the following graph:

Figure: 4.1

Employee Structure of KMSS



Source: Table: 4.2

The working days per year were reported to be 365 days in each fiscal year due to the nature of organization. The working hour per day was reported as 7 hours which is standard working time of governmental services.

The following table presents the labor productivity in terms of output per man year, man month per man day and per man hour. The growth of average output per man year was highest in 2061/62 (Rs.4355366.77) and least in 2063/64 (Rs.3656202.89).It was relatively less in 2060/61 than that was in 2059/60 by amounting Rs.199560.65 resulting the smaller figure of output per man hour from 1687.74 to 16098.63. But in 2061/62 it is very high then after it was in decreasing trend up to 2063/64 being Rs.3906066.67 in 2062/63 and Rs.3656202.89 in 2063/64.

Table: 4.3

Labor Productivity of KMSS

Fiscal Year	Gross Output (Rs.)	No.of Employees	Output per-man year(Rs.)	Output per-man month(Rs.)	Output per-man day (Rs.)	Output per-man hour(Rs.)
2059/60	1315210000	305	4312163.93	359346.99	11814.15	1687.74
2060/61	1254344000	305	4112603.28	342716.94	11267.41	1609.63
2061/62	1389362000	319	4355366.77	362947.23	11932.51	1704.64
2062/63	1289002000	330	3906066.67	325505.55	10701.55	1528.79
2063/64	1261390000	345	3656202.89	304683.57	10016.99	1430.99

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

The following table provides the basic information regarding the utilization of full capacity under the different fiscal years. The capacity utilization rate of KMSS was 97.60 in the fiscal year2061/62 which is the higher than among other fiscal years. It was 92.39 percent in 2059/60, 88.12 percent in 2060/61, 90.55 percent in 2062/63 and 88.61 in 2063/64 which is higher than that of fiscal year 2060/61.The capacity utilization rate of KMSS is 92.39% in FY 2059/60. Then it decreased to 88.12% and it increased and reached to 97.60% in FY 2061/62. It shows the ups and downs in the case of capacity utilization.

Table: 4.4

Capacity Utilization Rate of KMSS

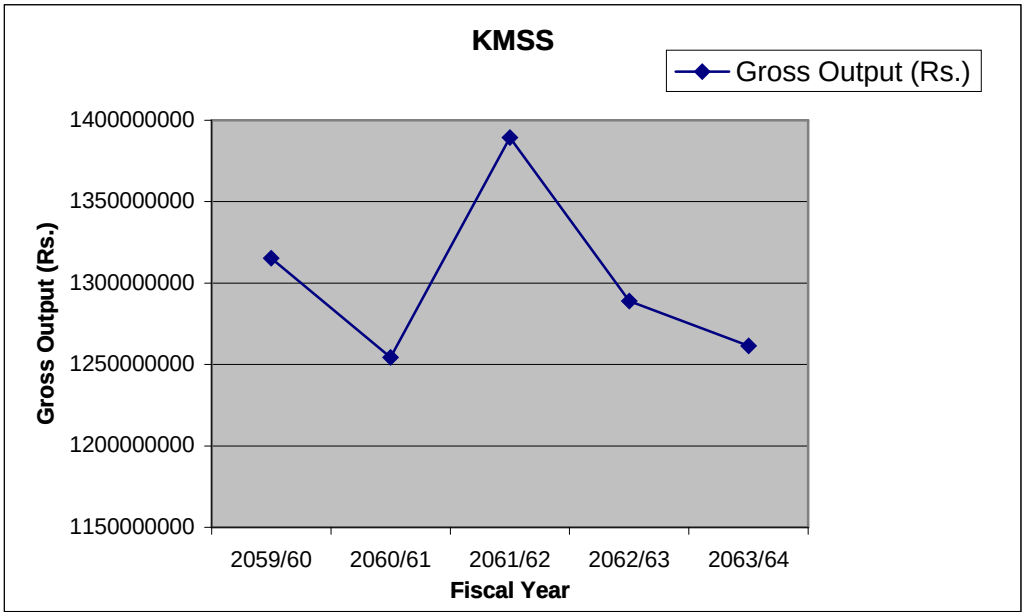
Fiscal Year	Full Capacity	Actual Output	Capacity Utilization Rate (%)
2059/60	1423500000	1315210000	92.39
2060/61	1423500000	1254344000	88.12
2061/62	1423500000	1389362000	97.60
2062/63	1423500000	1289002000	90.55
2063/64	1423500000	1261390000	88.61

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

If we see the production trend of KMSS, it is in ups and down nature. The production value of FY 2060/61 is less than of FY 2059/60, FY 2061/62, FY 2062/63 and FY 2063/64. The highest production figures lies at the FY 2061/62.

Figure No: 4.2

Production trend of KMSS



Source: Table: 4.3

4.2 Analysis of Labor Productivity of Biratnagar Milk Supply Scheme

Biratnagar Milk Supply Scheme was established in 2030 B.S. at Kanchanwari in Biratnagar to provide milk and milk products such as standard and full milk, butter, cream, ghee, skim milk powder(SMP) etc. The market for its products is national and its yearly capacity is Rs.438million. BMSS has been regarded as a major milk supply scheme of DDC

Table: 4.5

Breakdown of Labor Type, Working Days, Working Hours, Man-days & Man-hour

BMSS

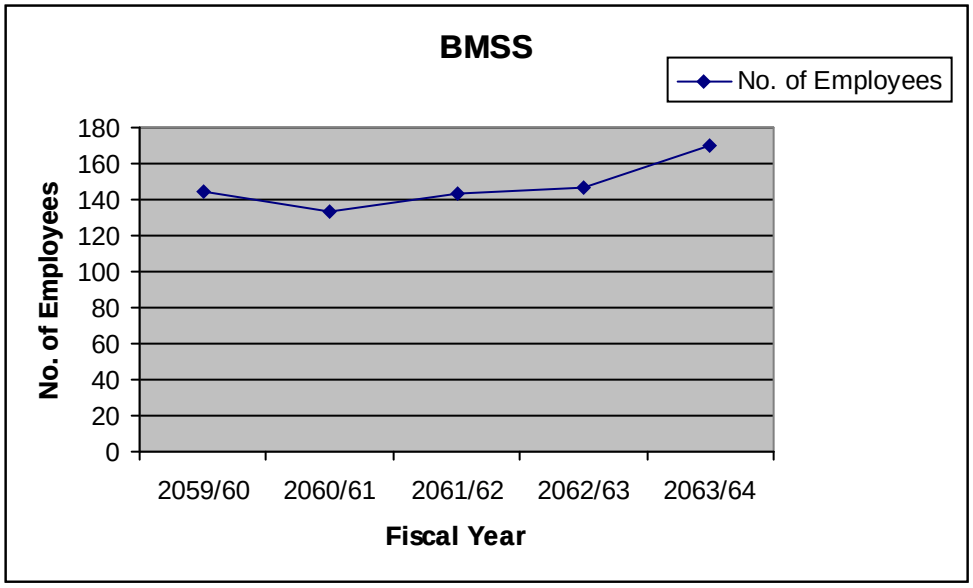
Fiscal Year	Labor Type			Working Days/ Year	Working Hours/ Day	Man Days	Man Hours
	Technical	Administrative	Total				
2059/60	99	45	144	365	7	52560	367920
2060/61	93	40	133	365	7	48545	339815
2061/62	94	49	143	365	7	52195	365365
2062/63	98	49	147	365	7	53655	375585
2063/64	108	62	170	365	7	62050	434350

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

The above table shows the labor type such as technical and administrative employed in different fiscal year. It helps to illustrate the fact that the number of workers in employment (170) was higher in 2063/64 than in other fiscal years. The number of workers remains least (133) in fiscal year 2060/61. But in fiscal year 2059/60, it was 144 workers being smaller than that was (147) in fiscal year 2062/63. This fact can also be present in the following figure:

Figure No: 4.3

Employee Structure of BMSS



Source: Table: 4.5

This table also presents the total working days per year, working hours per day, man days and man hours. The number of working days per year found to be365 days same as in other milk supply schemes. The working hours per day were 7 hours.

The following table provides the more detailed information of output levels showing the exact productivity levels per man year, man month, man days and man hours in different fiscal years. The average output per employee in 2060/61Rs. 2236330.83 was more than that among other fiscal years. It was the least in 2063/64 Rs.1546588.24. Further it shows the increasing trend from fiscal year 2059/60 to 2060/61 but it slightly decreased in fiscal year 2061/62.

Table: 4.6

Labor Productivity of BMSS

Fiscal Year	Gross Output (Rs.)	No.of Employees	Output per-man year(Rs.)	Output per-man month(Rs.)	Output per-man day (Rs.)	Output per-man hour(Rs.)
2059/60	290208000	144	2015333.33	167944.44	5521.46	788.78
2060/61	297743200	133	2236330.83	186360.90	6126.93	875.28
2061/62	258096000	143	1804867.13	150405.59	4944.84	706.41
2062/63	281184000	147	1912816.33	159401.36	5240.59	748.66
2063/64	262920000	170	1546588.24	128882.35	4237.23	605.32

The capacity utilization rate of BMSS reveals the unsatisfactory situation which has been illustrated in *Appendix A (Table 4.3d)*. It was highest (67.91 percent) in fiscal year 2060/61and least (58.93 percent) in fiscal year 2061/62. This table indicates that no one fiscal year has been able to cross the 70 percent in terms of capacity utilization.

Table: 4.7

Capacity Utilization Rate of BMSS

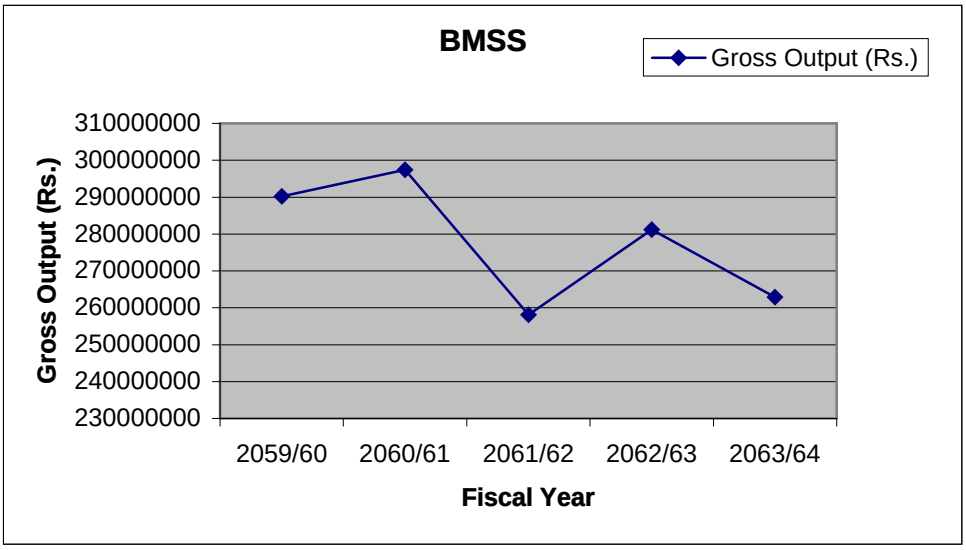
Fiscal Year	Full Capacity	Actual Output	Capacity Utilization Rate (%)
2059/60	438000000	290208000	66.26
2060/61	438000000	297432000	67.91
2061/62	438000000	258096000	58.93
2062/63	438000000	281184000	64.18
2063/64	438000000	262920000	60.03

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

The production trend of BMSS shows that every fiscal year's production is greater than that of previous fiscal year's production. If we look at the production of FY 2060/61 is less than of FY 2059/60. Exception case has been applied in the FY 2061/62 and 2063/64.

Figure: 4.4

Production Trend of BMSS



Source: Table: 4.6

4.3 Analysis of Labor Productivity of Hetauda Milk Supply Scheme

Hetauda Milk Supply Scheme was established in Baishakh 12, 2030 in Makawanpur district of Nepal. It meets the demand part of milk and milk products for its valued customers. It produces the various types of milk products like standard and full cream milk, butter, cream, ghee, ice-cream, peda, lalmohan, yoghurt, paneer etc. and it supplies its whole products in both market of Nepal. Its yearly production capacity equivalent to Rs.262800000. Total investment of the HMSS is Rs.35.7 million and it has covered 35.30 ropanies of land. Its monthly consumption of water is 19211768 kilolitres.

The details information relating to labor type, working days in a year, working hours, per man days and per man hours have been presented in the following table. It shows that the increasing number of workers from fiscal year 2059/60 to fiscal year 2063/64 expect being slightly decreased (134) in fiscal year 2062/63. The highest figure of worker (164) in fiscal year 2063/64 followed by fiscal year 2061/62 remaining at 135.

Table: 4.8

Breakdown of Labor Type, Working Days, Working Hours, Man-days & Man-hour

HMSS

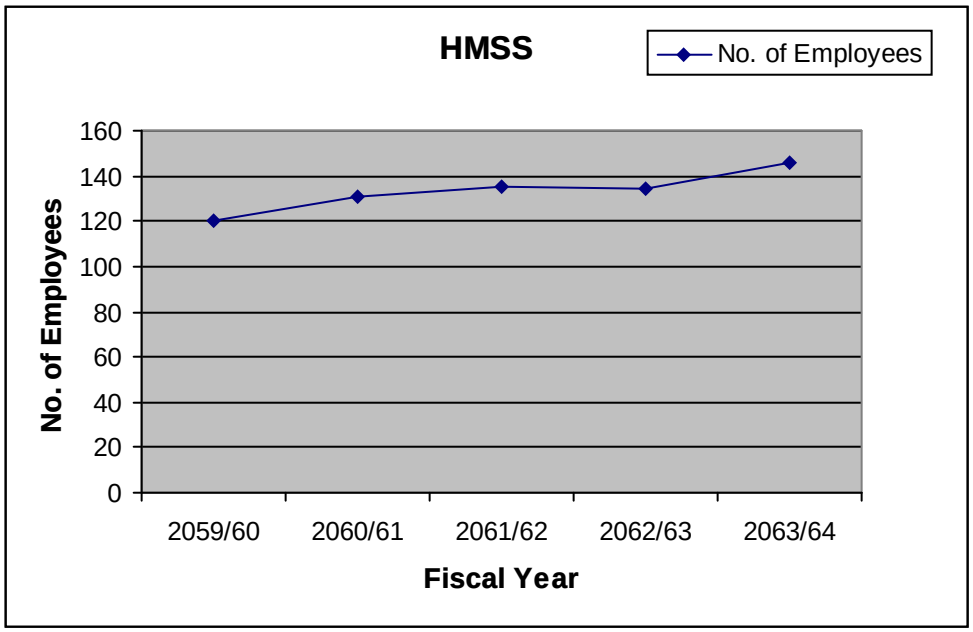
Fiscal Year	Labor Type			Working Days/ Year	Working Hours/ Day	Man Days	Man Hours
	Technical	Administrative	Total				
2059/60	80	40	120	365	7	43800	306600
2060/61	85	46	131	365	7	47815	334705
2061/62	90	45	135	365	7	49275	344925
2062/63	80	54	134	365	7	48910	342370
2063/64	89	57	146	365	7	53290	373030

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

The following figure also depicts the employee structure of this milk supply scheme during the different fiscal years.

Figure: 4.5

Employee Structure of HMSS



Source: Table: 4.8

Gross output of labor and labor productivity has been presented in the following table and figure also. Labor productivity in terms of output per man year, man month, man days and man hours has been superlatively shown in this table. Output per man year was highest (154600) in fiscal year 2059/60 and least (484438.35) in fiscal year 2063/64. Similarly, it was Rs.1270534.45, Rs.552711.11 and Rs.1091283.58 in fiscal year 2060/61, 2061/62 and 2062/63 respectively

Table: 4.9

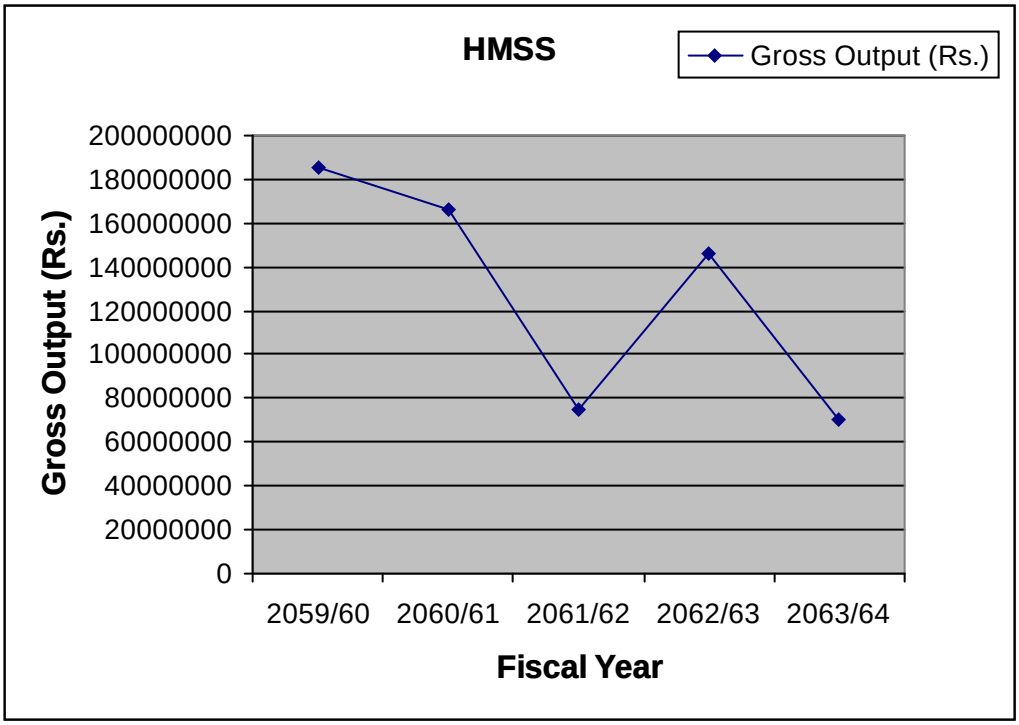
Labor Productivity of HMSS

Fiscal Year	Gross Output (Rs.)	No.of Employees	Output per-man year(Rs.)	Output per-man month(Rs.)	Output per-man day (Rs.)	Output per-man hour(Rs.)
2059/60	185592000	120	1546600	128883.33	4237.26	605.32
2060/61	166440000	131	1270534.35	105877.86	3480.92	497.27
2061/62	74616000	135	552711.11	46059.26	1514.28	216.33
2062/63	146232000	134	1091283.58	90940.29	2989.82	427.12
2063/64	70728000	146	484438.35	40369.86	1327.23	189.60

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

Figure: 4.6

Production Trend of HMSS



Source: Table: 4.9

The capacity utilization rate for this milk supply scheme in different fiscal years has been presented in the following table which reveals the overall condition happened in that fiscal years in the case of capacity utilization. It was found to be very much unsatisfactory position in capacity utilization case. It was highest (70.62) in fiscal year 2059/60 and it was followed by fiscal year 2060/61 being at the rate 63.33 percent. Then after it was decreased and reached to the level of 28.39 percent which is higher than that of (26.91) fiscal year and approximately half (55.64) of fiscal year 2062/63.

Table: 4.10

Capacity Utilization Rate of HMSS

Fiscal Year	Full Capacity	Actual Output	Capacity Utilization Rate (%)
2059/60	262800000	185592000	70.62
2060/61	262800000	166440000	63.33
2061/62	262800000	74616000	28.39
2062/63	262800000	146232000	55.64
2063/64	262800000	70728000	26.91

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

4.4 Analysis of Labor Productivity of Lumbini Milk Supply Scheme

Lumbini Milk Supply Scheme was established in Falgun 16, 2045 B.S. in Butwal. It produces the milk and milk products like standard and full cream milk, ghee, yoghurts, rasbari etc. and market for these products is Nepal and third world countries. The total investment of this project is Rs.3.1million. It has covered the area of land is 14 ropanies.

Table: 4.11

Breakdown of Labor Type, Working Days, Working Hours, Man-days & Man-hour

LMSS

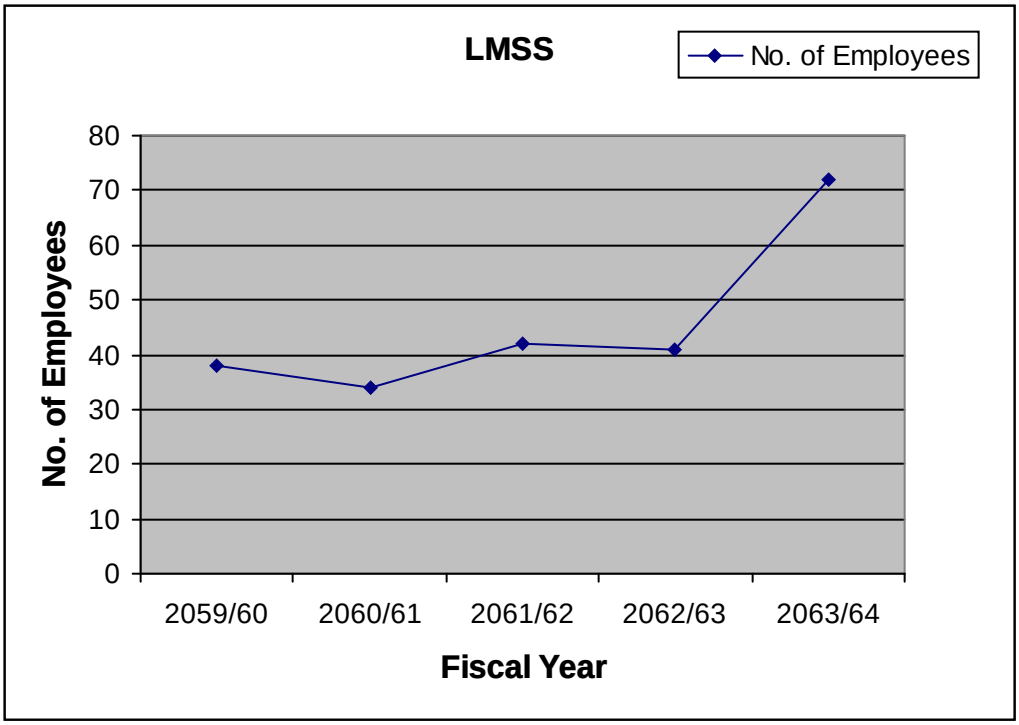
Fiscal Year	Labor Type			Working Days/ Year	Working Hours/ Day	Man Days	Man Hours
	Technical	Administrative	Total				
2059/60	20	18	38	365	7	13870	97090
2060/61	20	14	34	365	7	12410	86870
2061/62	26	16	42	365	7	15330	107310
2062/63	25	16	41	365	7	14965	104755
2063/64	45	27	72	365	7	26280	183960

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

The above table has analyzed the breakdown of labor structure prevailing in the LMSS, their working days in a year, working hours per day, man days and man hours. It was seen that there was 38 numbers of workers in fiscal year 2059/60 but in 2060/61 it is relatively smaller than that and decreased to the number of 34. Then after, it is increased by 8 laborers and reached to the 41 in fiscal year 2061/62. The highest figure recorded (72) in fiscal year 2062/63. This milk supply scheme remained open for 365 days in each fiscal year due to their obligation to meet the demands of customers. Working hours per day were noted to be 7 in each fiscal year under study. The employee structure of LMSS can be shown in the following figure:

Figure: 4.7

Employee Structure of LMSS



Source: Table: 4.11

Gross output in monetary value and breakdown of labor productivity in terms of output per man year, man month, man days and man hours has been

shown in the following table. The lowest figure of output per man year (8200) in fiscal year 2063/64 and the highest figure (228000) in fiscal year 2060/61.Then it was decreasing in respective following year. This fact reveals that the labor productivity in LMSS decreasing year by year after being Rs.228000, Rs.176000 Rs.133463.41 in fiscal year 2060/61, 2061/62, 2062/63 respectively.

Table : 4.12

Labor Productivity of LMSS

Fiscal Year	Gross Output (Rs.)	No.of Employees	Output per-man year(Rs.)	Output per-man month(Rs.)	Output per-man day (Rs.)	Output per-man hour(Rs.)
2059/60	8040000	38	211578.95	17631.58	579.67	82.81
2060/61	7752000	34	228000	19000	624.66	89.24
2061/62	7392000	42	176000	14666.67	482.19	68.88
2062/63	5472000	41	133463.41	11121.95	365.65	52.23
2063/64	5904000	72	82000	6833.33	224.66	32.09

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

Capacity utilization rate of LMSS shows the lowest level of progress and it was decreasing from 18.36 percent in 2059/60, 17.69 in 2062/63 and it was slightly increased and reached up to 13.48 percent in 2063/64. This fact revels that LMSS was not utilizing their resources at full capacity.

Table : 4.13

Capacity Utilization Rate of HMSS

Fiscal Year	Full Capacity	Actual Output	Capacity Utilization Rate (%)
2059/60	262800000	185592000	70.62
2060/61	262800000	166440000	63.33
2061/62	262800000	74616000	28.39
2062/63	262800000	146232000	55.64
2063/64	262800000	70728000	26.91

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

4.5 Productivity Levels and Indices in Milk Supply Scheme

The production level and indices of milk supply schemes has been presented in following table:

Table: 4.14

Productivity Levels and Indices in Milk Supply Schemes

Name of Milk Supply Schemes		2059/60	2060/61	2061/62	2062/63	2063/64
KMSS	LPL(Rs.)	4312163	4112603	4355367	3906067	3656203
	LPI	100	95	101	90	85
BMSS	LPL(Rs.)	2015333	2236331	1804867	1912816	1546588
	LPI	100	111	90	95	77
HMSS	LPL(Rs.)	1546600	1270535	552711	1091284	484438
	LPI	100	82	35	70	31
LMSS	LPL(Rs.)	211579	228000	176000	133463	82000
	LPI	100	107	83	63	39

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

LPL = Labor Productivity Level per Year

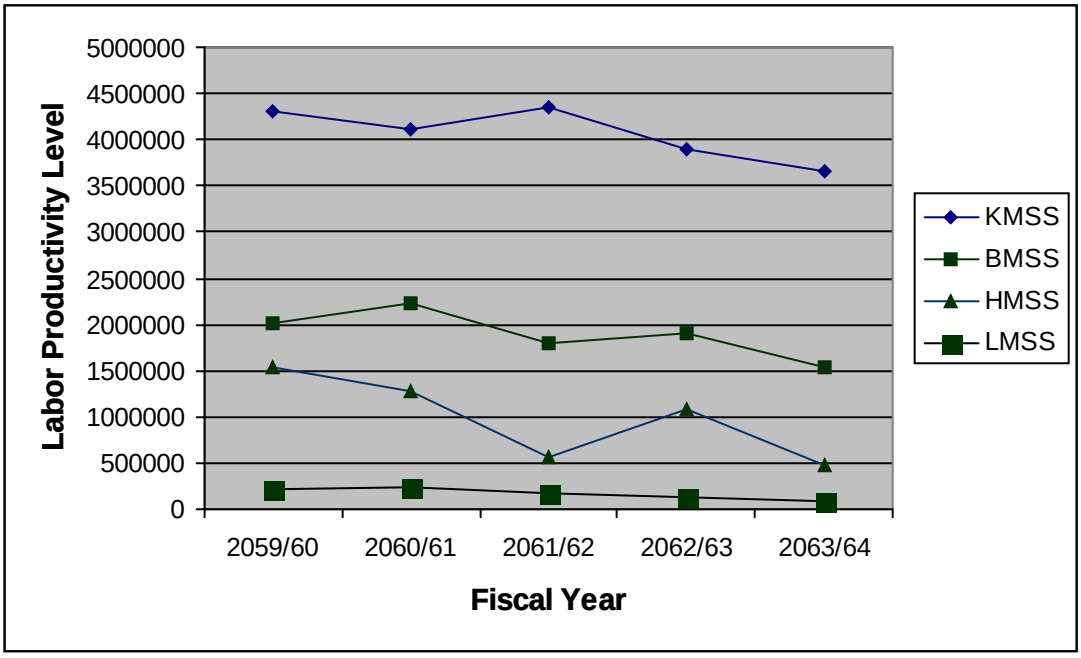
LPI = Labor Productivity Index

The above table gives a more detailed breakdown of productivity of four milk supply schemes of Dairy Development Corporation highlighting their true productivity condition in different fiscal years. It shows that productivity index of KMSS was 95 in 2060/61, 101 in 2060/61, 90 in 2062/63 and 85 in 2063/64(2059/60=100).The productivity index of BMSS increased to 111 in 2060/61 and declined to 90 in 2061/62. But it increased to 95 in 2062/63 and again it decreased to 77 in 2063/64 (2059/60=100). Productivity index of HMSS

decreased from 100 (2059/60=100) to 82 in fiscal year 2060/61. Then it heavily decreased and reached to the level of 35 in fiscal year 2061/62.Then, after it increased and reached up to 70 and again it declined to 31 in 2063/64. LMSS is another unit of DDC and its productivity index shows the continuous declining after fiscal year 2060/61. With 2059/60 as a base year, the productivity index has reached 107 in 2060/61 which is highest figure among the other figure of milk supply schemes. Then it declining year after year being 83 in 2061/62, 63 in 2062/63 and 39 in 2063/64. The above table gives the interested fact that no one milk supply scheme was able to catch up the full productivity drive in their functions. The trend of labor productivity level in different milk supply schemes of DDC has been presented in figure 4.6. Similarly, figure 4.8a presents the labor productivity indices of different milk supply schemes.

Figure: 4.8a

Labor Productivity Level in Milk Supply Schemes of DDC

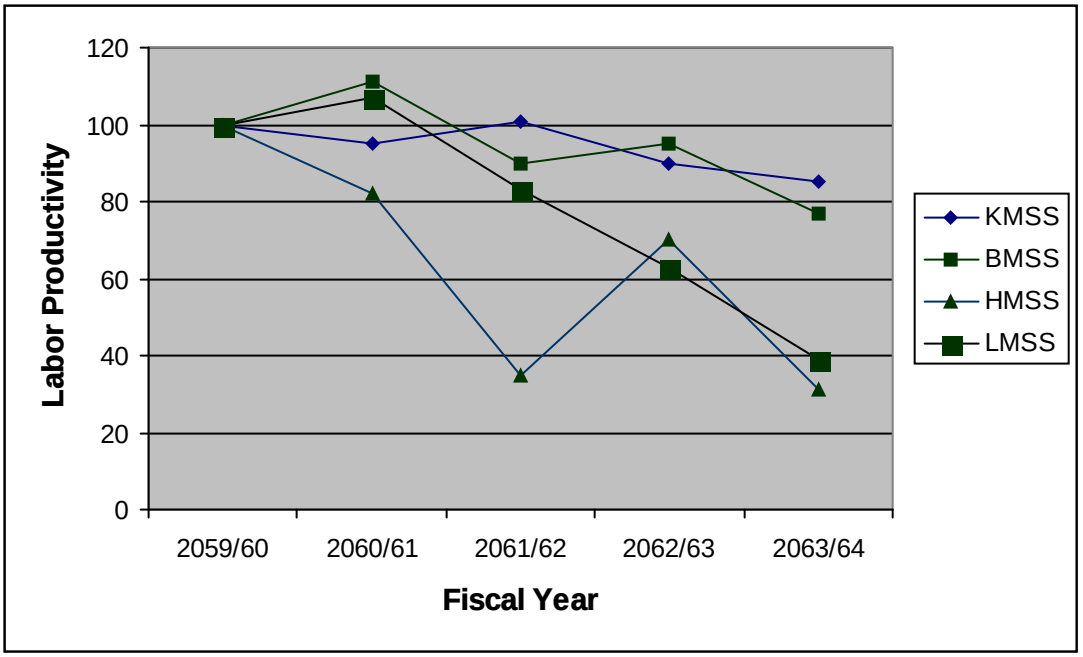


Source: Table 4.14

The labor productivity level for the four milk supply schemes is in decreasing trend. In the case of KMSS, in fiscal year 2060/61with the base year 2059/60, it is slightly decreasing but in fiscal year 2061/62 it is increased and reached the highest level. Similarly in the case of BMSS, it follows the fluctuating trend as happened in the KMSS. But in the case of HMSS it is different due to decreasing up to fiscal year 2061/62 with the base year 2059/60.But in the fiscal year 2062/63 it reached to the highest level among other fiscal years. LMSS being small unit of DDC, it has nearly straight forwarding but in somehow it is decreasing trend except in fiscal year 2061/62 with the base year 2059/60.

Figure: 4.8b

Labor Productivity Indices in Milk Supply Schemes of DDC



Source: Table 4.14

Labor productivity index of different milk supply schemes shows that they are in fluctuating trend. For the KMSS, labor productivity index for the fiscal year 2061/62 being a highest as a base year 2059/60. Then it follows the

decreasing trend. Similarly, labor productivity index for the BMSS, with a base year 2059/60 lowest figure has been seen in fiscal year 2063/64 in contrast, the highest figure lies at the fiscal year 2060/61. Overall labor productivity for the BMSS in follows the trend of KMSS. For the case of HMSS, it shows the high fluctuating trend. With a base year 2059/60 it is decreasing trend up to fiscal year 2061/62 then it increased and again it decreased

Labor index for the LMSS, it decreasing trend almost in straight direction.

4.6 Value Index of Labor Productivity in Four Milk Supply Schemes

The value index of labor productivity for the milk supply schemes of DDC has been presented in the following table:

Table: 4.15

Value Index of Labor Productivity in Four Milk Supply Schemes

Name of Milk	Base Period 2059/60			Reporting period 2063/64			VILP
Supply Schemes	Gross Output (Rs.)	Average No of listed Workers	Output Per Worker (Rs.)	Gross Output (Rs.)	Average No of listed Workers	Output Per Worker (Rs.)	
Symbols	q_o/p	T_o	q_op/T_o	q_1/p	T_1	$q_1/p/T_1$	85
KMSS	1315210000	305	4312163.93	1261390000	345	3656202.89	77
HMSS	290208000	144	2015333.33	262920000	170	1546588.24	20
HMSS	285592000	120	2379933.33	70728000	146	484438.86	39
LMSS	8040000	38	211578.95	5904000	72	82000	65
Total	1899050000	607	8919009.54	1600942000	733	5769229.99	65

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

The value index of labor productivity in 2063/64 in the milk supply schemes as a whole is 65 (2059/60= 100). It shows declining trend in the level of

productivity. It decreased from 100 in 2059/60 to 85, 77, 20 and 39 in KMSS, BMSS, HMSS and LMSS. The decreasing trend of productivity in these milk supply schemes as a whole due to less contribution of HMSS and LMSS even though they have less number of workers.

4.7 Physical Index of Labor Productivity in Four Milk Supply Schemes

The physical index of labor productivity at the milk supply schemes of DDC has been tabulated as under:

Table: 4.16

Physical Index of Labor Productivity in Four Milk Supply Schemes

Name of MSS	Base Period 2059/60			Current year 2063/64			Individual Indices of Labor Productivity	IviT1	PILP
	Units of Production	Man Hour	Average Output per man hour	Units of Production	Man Hour	Average Output per man hour			
Symbols									
KMSS	51310000	779275	65.84	49495000	881475	56.15	0.8528	751721.9	85
BMSS	13732000	367920	37.32	12999580	434350	29.93	0.8019	348305.3	80
HMSS	8171000	306600	26.65	3631000	373030	9.73	0.3651	136193.3	37
LMSS	380000	97090	3.91	293350	183960	1.59	0.4066	74798.1	41
Total					1872815			1312018.6	70

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

The physical index of labor productivity in milk supply schemes as a whole decreased from 100 in 2059/60 to 70 in 2063/64. it decreased to 85, 80, 37 and 41 in KMSS, BMSS, HMSS and LMSS respectively. If we look at the PILP of KMSS, it is very high among the others due to mainly production efficiency of its labor. The decrease in PILP of HMSS is mainly due to the heavy fall in average number of products as compared to man hour.

4.8 Analysis of Overall Labor Productivity and Indices of Milk Supply Schemes

Labor productivity levels and indices of four milk supply schemes have been tabulated under here:

Table: 4.17

Labor Productivity & Indices of Four Milk Supply Schemes

S. N.	Description	2059/60	2060/61	2061/62	2062/63	2063/64	Growth Rate
1.	Gross Output(Rs)	1799050000	1725968000	1729466000	1721890000	1600942000	-3.36
2.	Employees	607	603	639	652	733	5.0
3.	Labor Productivity level	2963839	2862302	27065100	2640936	2184095	-7.14
4.	Productivity indices	100	97	91	89	74	-7.06

Above table shows that growth rate for the gross output, employees, labor productivity level and productivity indices. Growth rate of employees is positive, rest of all figures are negative.

4.9 Analysis of Labor Productivity through Value Added Approach

Labor productivity from the value added point of view can be regarded as the most important technique of evaluating the productivity whatever the size of the organization. Value added technique is mostly used in the industries due to its reliability of factual findings. Therefore, for the whole milk supply schemes of DDC here have been analyzed through the value added approach:

Table: 4.18

Analysis of Labor Productivity of Whole Milk Supply Schemes of DDC

Fiscal Years	2059/60	2060/61	2061/62	2062/63	2063/64
Sales (Rs.)	1548239961.40	1595906712.29	1535810462.06	1589663476.25	1536340564.43
O/S	-	-	64731817.32	45188469.00	41183989.00
Collection Expenses	1142154397.21	1198481863.86	1127653155.15	1132317996.93	1144708429.24
Sales Expenses	38633228.01	40905163.80	39302977.33	41093440.96	42681441.99
Administrative Expenses	83006726.25	79998862.47	58304547.38	76692653.02	73529349.50
Depreciation	30002415.81	29428738.61	2993611.51	29406299.23	31778505.34
Total External Expenses	1293796767	1348814628	1319986109	1324698858	1333881715
Value Added	254443194	247092084	1319986109	264964618	202458849
No.of Employees	748	857	835	798	977
Labor Productivity	340164.69	288322.15	258472.25	332035.86	207225.02

Source: Dairy Development Corporation (2059-2063), Kathmandu: Annual Reports

Above table shows that the labor productivity in FY 2059/60 is highest figure among the other fiscal years.In FY2059/60, labor productivity is 340164, 288322.15, 258472.28, 332035.86 and 207225.02 in FY 2060/61, 2061/62, 2062/63 and 2063/64 respectively. It seems that from the FY 2060/61, it is in declining trend up to FY 2061/62 and then in FY 2062/63 it slightly increased and reached to the 332035.86 and then decreased in FY 2063/64.

4.10 Findings of the Study

The major findings of the study Are as follows:

- Physical progress of four milk supply schemes of DDC is not satisfactory. For the KMSS, it reflects that the physical progress is in decreasing stage up to fiscal year 2060/61. Then, it is slowly grew and became the largest figure among the other fiscal years in the 2061/62 then it is slowly decreasing in every year up to 2063/64.The physical progress of BMSS is relatively more satisfactory than other milk supply schemes. Its physical progress is not increasing up to fiscal year 2060/61 but then it went to downward trip and reach 10754000 in 2061/62. Overall, its progress is not fluctuating trend. The physical progress of HMSS and LMSS is not satisfactory. In the case of BMSS, its progress decreased and increased haphazardly every year and in the case of LMSS, its physical progress is in decreasing trend.

- Productivity level and indices of these four milk supply schemes for the year 2060/61 as the base year of 2059/60 Rs.4112603 which is the indices of 95 of KMSS whereas the indices for the BMSS, HMSS and LMSS are 111, 82 and 107 respectively. Similarly, for the year 2061/62 the indices of KMSS, BMSS, HMSS and LMSS are 11, 90, 35 and 83 respectively. It shows the fact that these milk supply schemes are not in constant stage of progressing. Their productivity efforts have been gone in the way of downward.

- The value index of labor productivity of four milk supply schemes in total is 65 for the current year (2063/64) against the 100 in base year (2059/60). The value contribution from these milk supply schemes are 85 of KMSS, 77 of BMSS, 20 of HMSS and 39 of LMSS. The lowest figure of HMSS and then the second lowest figure of LMSS decreased the whole value index of these milk supply schemes.

- The capacity utilization rate of other three milk supply schemes is not satisfactory except the KMSS. There are certain bottlenecks that affect the production activities and thereby the productivity of labor.

- Average annual growth rate of gross output of these milk supply schemes is -3.36. This fact showing the gloomy situation in the production parameter. In contrast, the average annual growth rate of employees in these milk supply schemes is 5. This fact reflects that the increasing number of employees has not been added in the gross output and thereby the less productivity.

- Overall, the employment structure of four milk supply schemes clearly denotes that these milk supply schemes should consider while taking decision on the issue of labor force. Number of employees in these milk supply scheme are 607 in FY 2059/60, 603 in 2060/61, 639 in 2061/62, 652 in 2062/63 and 733 in 2063/64. It sows that it has been increasing except in fiscal year 2060/61. The average annual growth rate of employees is 5.0.

- Milk collection from farmers for the four milk supply schemes seems to be decreased every fiscal year from its previous fiscal year. Although, there has been seen that of fiscal year 2061/62 it is more than that of fiscal year 2060/61. The highest figure lies at the fiscal year 2059/60 became a target point for other fiscal years such as 50825000 in 2060/61, 51332000 in 2061/62, 50436000 in 2062/63 and 49921000 in 2063/64.

- Value added labor productivity of the DDC is not satisfactory because it is gradually declining every fiscal year. In FY 2062/63 there is vast increase in labor productivity but not reach at the level of FY 2059/60. Therefore, we can predict that other milk supply schemes of DDC are also in declining stage.

Chapter- V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

This study is conducted to present the current condition of productivity and support to the management regarding the utilization of labor force in a proper manner in DDC. DDC a fully state owned corporation was established in B.S.2026 under the Corporation Act, 2021. With a state art infrastructure comprising of fully modern dairy plants, eleven cheese manufacturing units, forty- five milk chilling plants and highly qualified dairy specialists. DDC is a precious asset in the economic development of our nation by employing more than 12000 persons directly and indirectly related with dairy collection, co-operative management, dairy transportation and marketing. It ha provided the various opportunities for 100,000 farmers like husbandry and dairy products.

The topic under study has been collected with a view to highlight the importance of labor productivity in DDC. It aims to analyze the present condition of labor productivity to find out the hindrance for the growth of it and to give the right suggestions to the management. Certainly, the entire work consists of analysis, analytical and statistical rather than descriptive.

The study is based on primary and secondary data. For primary data, various types of questionnaire have been distributed to the labors, management and other stakeholders. So the primary data were obtained through field survey. Out of six milk supply schemes, four were chosen to analyze the condition of labor productivity. Data has been presented through tables and graphs. They have

been analyzed using simple statistical tools. The methodological framework of the present study is analytical in nature.

The production structure of four milk supply schemes are Rs.1799030000 in FY 2059/60, Rs.172596800 in FY 2060/61, Rs.1729466000in FY 2061/62, Rs.1721890000 in FY 2062/63 and Rs.1600942000 in FY 2063/64.The gross output in decreasing trend but in fiscal year 2061/62 in compared to the gross output of fiscal year 2060/61 it has been increased by 2.03 percent. The average annual growth rate of output for these milk supply scheme is -3.36.

5.2 Conclusions of Major Findings

The following conclusions and findings have been drawn from the present study:

- DDC is carrying out the task of dairy development in Nepal n wider scale. Its present milk collection network has spread from Panchthar in the East to Surkhet in the West. DDC has employed more than 12000 persons directly and indirectly related with the dairy collection, co-operatives management, dairy transportation and marketing. Therefore, DDC has been playing crucial role in contributing to uplift the economic status of rural farmers. Thus, dairy has been recognized as an effective tool for poverty alleviation.

- Technical laborers have dominated over the administrative laborers. Every fiscal year and in four milk supply schemes has more numbers of technical laborers. Although, there is no wage differential condition between technical and administrative employees. Female participation in the workforce is low and they are confined to less productive. There are majority of wage laborers in technical side. So there must be employment securities as a permanent base for these types of laborers.

- Productivity statistics need to be reliable, meaningful and consistent. At the time of investigation, this type of provision is far behind from the company's activities. Therefore, there is a great need to generate, co-ordinate, harmonize and share the knowledge and experience regarding in this matter. (Field Survey, 2008)

- One of the significant factors affecting productivity is prevalence of inadequate incentives provided by the management to the employees. In the case of DDC, there can be hardly found the satisfied workers from the action of management. Therefore, there should be provision of incentives such as perquisites, good wages and other benefits, which can boost up their efficiency and this may resulted to the motivation towards the attainment of organizational goals. (Field Survey, 2008)

- Various types of trade unions are also found in DDC. The activities of these trade unions has been affected the good working relation between management and workers. (Field Survey, 2008)

- Training facilities for employees are very limited in the DDC. Even though they published in their annual report regarding the training facilities which has given to their employees in every fiscal year. (Field Survey, 2008)

- Management does not have any mechanism regarding the hearing of workers problems and settle their grievances. Therefore, there can be found great dissatisfactions among the employees over the management activities. (Field Survey, 2008)

- Wage laborers have been working in the DDC in huge numbers. They are obliged to work six hours in a day in the company. But, their dissatisfaction always has been a great concern regarding on the issue of using them more

than eight hours in a day. On the other side, they are less paid and they are striving to survive. (Field Survey, 2008)

- Quality Circle is a major tool to improve the productivity in an organization. Since two years ago, Quality Circle had been created in the company. Meeting of Quality Circle usually took one time per month. Therefore, meeting time of circle should be shorter than this. (Field Survey, 2008)

5.3 Recommendations

The following recommendations have been made:

- Productivity in an enterprise is a prime management objective and responsibility to increase productivity and maintain its growth. Therefore, first of all, management should give more emphasis on productivity and it must be specified in a company's policies.

- To gain the benefits from the productivity, result orientation program should be involved and implemented in the DDC. For attaining this strategy, there should be human commitment towards it. Therefore, management can use the two main interrelated and mutually supportive activities; they can be motivational and technical.

- Adequate facilities of training to the workers are to be made. This may help the workers to get opportunity for their future growth and prosperity. In this matter, provision can be made to give pre-service and in-service trainings to the workers to improve their skill and it may give an opportunity for promotion.

- Almost all the milk supply schemes are running below the actual capacity that heightens the cost of production and it resulted to the low level of

marketability of the product. To overcome this problem, DDC can utilize and expand the milk producers' co-operatives (MPCs) to get more and more from the farmers.

- The top management should create a autonomous body to settle the labor related problems in the DDC. Before establishing this type of body, there should be proper channel to listen the hassles and grievances of laborers and consensus should be obtained from the stakeholders.

- Trade unions in any organization are a must. But it's much repulses and activities, now-a-days they became a unknown revolutionary units in the organization. By maintaining good environment in the company, trade union can play a significant a most needed role in the productivity issues staying far from their so- called political and social rights.

- The impact of any input to the production process should be studied time to time. For this, a separate productivity improvement section can be set up and it will be responsible for the productivity issues in the organization.

- System and culture of rewarding the most skilled and trained workers may play a significant role in the periphery of workers to get the productivity drive in this competitive era and thereby all workers improve their efficiency in their work to get proper reward.

- There are various types of productivity improvement techniques which are basically related with the human ware, software and hardware. According to the need and nature of the company, one may choose any of them. As far as concern for the DDC, it may choose and can implement the maximum human ware oriented tools and techniques such as economic incentive system, small group activities, employees participation, training for employees etc.

- The company should follow the process of 5‘S’ to increase the level of productivity. 5‘S’ represents the 5 words beginning with ‘S’ in Japanese language. The first ‘S’ (**Seiri**) means the separation and selection of unnecessary and necessary things in the working place. The second ‘S’ (**Seiton**) means well-arrangement of the necessary things in the working place. The third ‘S’ (**Seiso)** means keeping the working environment neat and clean. The fourth ‘S’ (**Seiketsu)** means to continue the production activities. The fifth ‘S’ **(Shistuke**) means to keep in self-discipline and perform the work. (NPEDC; 1996)

- Management should give proper attention to the laborers. They are less paid and being utilized more than standard time. To solve this issue, DDC should create good relation between management and labor by giving more wages and facilities.

- Quality Circle was found only in KMSS. By using this technique, KMSS utilized its resources in a rational way. So, other milk supply schemes of DDC should follow and adopt this type of productivity improvement strategy to uplift their economic efficiency as well as human efficiency.

Appendix- A

QUESTIONNAIRE

Dear Sir/Madam,

To undersigned enclosed herewith the questionnaire prepaid for the facilitating the research work which to be concluded for the partial fulfillment of the requirement for the MBS degree. You are cordially requested to go through the questionnaire to put your views and handover to the undersigned after duly completed.

The views expressed here will only be used for the purpose of the study and will be kept confidentially and will not be published anywhere. Your valuable co-operation will be mile stone for contributing a lot of for the complete success of the study.

Your co-operation in this matter shall be highly appreciated.

Thank you!

Yours Faithfully

Man Bahadur Bam

Shanker Dev Campus

QUESTIONNAIRE

Note: Please fill any one or more than one boxes for the following questions

1. Have you been received any type of training courses from the company?

   a. Yes ☐ b. No ☐

2. Do you have any grievances relating to your work towards the company management?

   a. Yes ☐ b. No ☐

   If yes, what types of grievance?

   a. Management doesn't want to provide sufficient wage rate.
   b. Nepotism in the case of being permanent in the company.
   c. Management doesn't have any provision to listen the advice from the laborer's side.
   d. All of the above.

3. Does the company have any mechanism to settle your disputes/ grievances?

   a. Yes ☐ b. No ☐

4. Does the company have any mechanism to measure the labor productivity?

   a. Yes ☐ b. No ☐

   If yes, which department carried out?

   a. Production Department
   b. Administration Department
   c. Quality control and Technology Department

5. Do you think that International Labor Standards have been met by the company?

   a. Yes ☐ b. No ☐

6. Have you experienced with the Quality Circle in the company?

   a. Yes ☐ b. No ☐

   If yes, since when?

   a. one year ago b. two and half year ago
   c. three years ago

7. Does the company have any provision regarding the maintenance and repair of equipments?

a. Yes ☐ b. No ☐

If yes, how many times in a day?

a. one time
b. two times
c. three times

Appendix- B

A BRIEF INTRODUCTION TO FOUR MILK SUPPLY SCHEMES OF DDC

KATHMANDU MILK SUPPLY SCHEMES

Project Name:	Kathmandu Milk Supply Scheme
Address:	Balaju Industrial District, Balaju, Kathmandu
Phone No:	01-4.350181, 4350092, 4355024
Fax No:	977-1-4350039
Established Date:	2037 B.S.
Major Production	pasteurized milk, butter, ghee, flavoured milk
Plant Capacity	15000 ltrs per hour(75000 ltrs per shift

BIRATNAGAR MILK SUPPLY SCHEMES

Project Name:	Biratnagar Milk Supply Scheme
Address:	Kanchanwari, Biratnagar
Phone No:	021420263
Fax No:	977-21-420105/420040
Established Date:	2030 B.S.
Major Production	Standard and full cream milk, butter, cream, ghee, SMP(Skim Milk Powder)
Plant Capacity	5000 ltrs per hour

HETAUDA MILK SUPPLY SCHEMES

Project Name:	Hetauda Milk Supply Scheme
Address:	Hetauda Industrial District, Hetauda
Phone No:	057-521094
Fax No:	977-57-521812
Established Date:	2032 B.S.
Major Production	Standard and full cream milk, butter, cream, ghee ice-cream, peda, lalmohan, yoghurt,paneer
Plant Capacity	5000 ltrs per hour(75000 ltrs

LUMBINI MILK SUPPLY SCHEMES

Project Name:	Lumbini Milk Supply Scheme
Address:	Butwal
Phone No:	071-540543
Fax No:	977-71-541543
Established Date:	2046 B.S.
Major Production	Standard and full cream milk milk,ghee, yoghurt, rasbari
Plant Capacity	1000 ltrs per hour

Appendix- C

Milk Collection & Physical Progress of BMSS

In Met ton

Fiscal Year	2059/60	2060/61	2061/62	2062/63	2063/64
Milk Collection	9499	9127	8430	8417	8478
Physical Progress	13732	14048	12248	13483.52	12999.58

Source: Annual Reports of DDC

Milk Collection & Physical Progress of HMSS

In Met ton

	2059/60	2060/61	2061/62	2062/63	2063/64
Milk Collection	7368	7246	6407	6728	5652
Physical Progress	8171	7354	3494	6640	3631

Source: Annual Reports of DDC

Milk Collection & Physical Progress of LMSS

In Mett ton

	2059/60	2060/61	2061/62	2062/63	2063/64
Milk Collection	3690	3127	3617	4102	4098
Physical Progress	380	360.2	360	274.49	293.35

Source: Annual Reports of DDC

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