

FINAL REPORT

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STUDY ON EFFICIENCY OF DAIRY INDUSTRIES IN NEPAL



Submitted to:

National Dairy Development Board (NDDDB)

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ABBREVIATIONS

BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
CBR	Cost Benefit Ratio
COB	Clot on Boiling
CoC	Code of Conduct
CoP	Code of Practice
GDP	Gross Domestic Product
DANIDA	Danish International Development Agency
DLS	Department of Livestock Services
DLSO	District Livestock Service Office
DDC	Dairy Development Corporation
DoC	Department of Cooperative
DIA	Dairy Industry Association
DMPCU	District Milk Producers Cooperative Union
DFTQC	Department of Food Technology and Quality Control
FGD	Focus Group Discussion
FAO	Food and Agriculture Organization
GMP	Good Manufacturing Practice
GHP	Good Husbandry Practice
HACCP	Hazard Analysis and Critical Control Point
IRR	Internal Rate of Return
KII	Key Informants Interview
MPC	Milk Producers Cooperative
MBRT	Methylene Blue Reduction Test
MCC	Milk Chilling Center
NBSM	Nepal Bureau of Standards and Metrology
NDDB	National Dairy Development Board
NDA	Nepal Dairy Association
NEPC	Nepal Environment Protection Center
NCS	National Council for Standards
OIE	World organization for animal health
PDP	Personal Development Plan
SAARC	South Asian association for regional cooperation
SMP	Skim Milk Powder
SNF	Solid Not Fat
TPC	Total Plate Count
UN	United Nations
UHT	Ultra High Temperature
WHO	World Health Organization
WTO	World Trade Organization

Table of contents

Contents	Page
ABBREVIATIONS	ii
Table of contents	iii
List of Tables	vi
List of Charts and Figures	vii
Executive Summary.....	ix
CHAPTER-I	1
Introduction	1
1.1 Background.....	1
1.2. Objectives	2
1.3 Scope of Work	2
CHAPTER-II.....	3
Methodology.....	3
2. Methodology.....	3
2.1 Review of literatures	3
2.2 Consultative meeting with the concern officials in NDDB	3
2.3 Survey tools design	3
2.4 Collection of the tool kits to check nutrient and bacterial quality.....	4
2.5 Coverage of the study	4
2.6 Collection of list of Dairies in the survey districts	4
2.7 Sampling	4
2.8 Field survey	5
2.9 Quality Assurance of the data collection.....	7
2.10 Progress update	8
2.11 Data Management and analysis.....	8
2.12 Report preparation.....	8
CHAPTER-III.....	9
The Dairy Industries in Nepal	9
3. The dairy industries and efficiency	9
3.1 Overall situation.....	9
3.2 Good Manufacturing Practice in Dairy Industries.....	10
CHAPTER-IV	12
The Operational Status of Installed Dairy Industries in Nepal.....	12
4.1 Number of dairies surveyed.....	12

4.2 Current capacity of utilization of the milk processing plant.....	12
4.3 Installed capacity and shares of different category industries	12
4.4 Seasonal operation of factory against the installed capacity	13
4.5 Installed processing capacity and the actual operation of the dairy industries	15
4.6 Raw materials flow locations of the dairy industries.....	15
4.7 Milk Product Production by type of industries and season.....	17
4.8 Milk Product Sales by type of industries and season.....	18
4.10 Dairy products production and distribution channel and ultimate markets	20
4.11 Milk Products Marketing outlets of the Industries	24
CHAPTER-V	25
The Technical Efficiency of Dairy Industries in Nepal	25
5.1 Hazard management practice	25
5.2 Operation of Good Manufacturing Practice (GMP).....	26
5.3 Compositional quality of milk and milk products	27
<i>Chart:6 Fat and SNF of processed milk by dairies type (Percent)</i>	<i>28</i>
5.4 Bacterial quality of processed milk and dairy products	28
5.5 Bacterial quality of Raw milk	30
<i>Chart:7 Bacterial quality of raw milk (Percent).....</i>	<i>30</i>
CHAPTER-VI.....	31
Financial Efficiency of Dairy Industries.....	31
6. The financial efficiency of the industries.....	31
6.1 Fixed Cost of dairy Industries	31
6.2 Variable Cost of dairy Industries	32
6.3 Average investment cost of dairy Industries	33
6.4 Profit of the dairy Industries	35
6.5 Contribution of dairy industries in economic development.....	35
CHAPTER-VII	37
Management Efficiency of Dairy Industries.....	37
7. Management efficiency of the dairy industries.....	37
7.1 Human resource management.....	37
7.2 Personal management practice in the dairy industries	38
7.3 Financial management practice in the dairy industries	40
7.4 Marketing management practice in the dairy industries	41
7.5 Time of reaching milk in the market	42

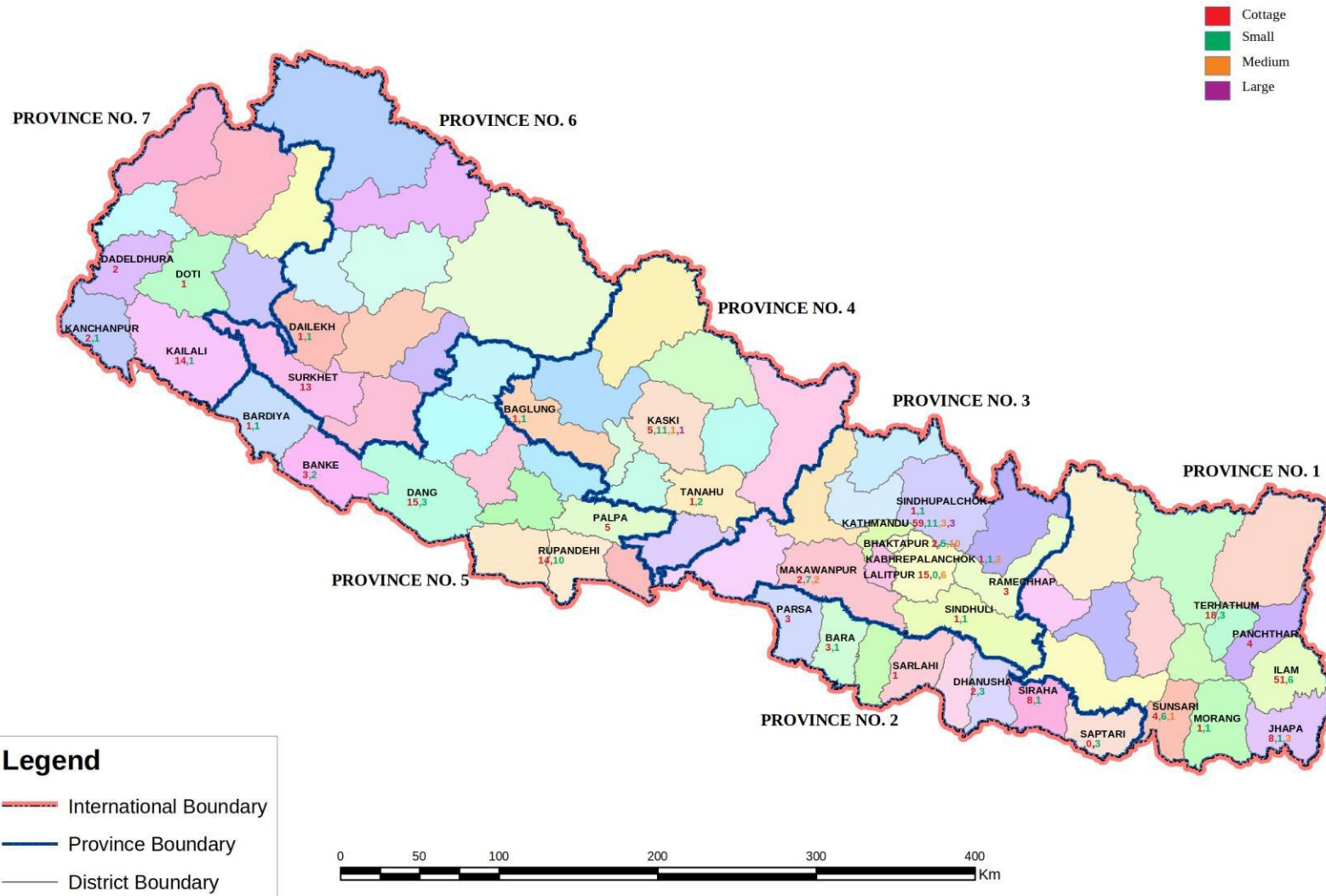
7.6 Availability of Milk and dairy products in the market.....	43
7.7 Problems faced by the dairy industries for better efficiency.....	44
7.8 Solutions measures as perceived by dairy industries to solve the problems	44
CHAPTER-VIII.....	46
Conclusion and Recommendations	46
4.1 Conclusion	46
4.2 Recommendation.....	47
Annex: 1 Inventory of Dairy Processing Industries	48
Annex: 2 DDC Chilling Centers.....	65
Annex: 3 Survey tools	69
Tool 1: Key Informant’s Interview	69
Tool: 2 Focus Group Discussion (FGD) Guideline	70
Tool: 3 Inventory of the dairy processing industries.....	72
Tool: 4 Details of the Dairy Processing Industries.....	73

List of Tables	Page
Table: 2.1 Sample of the dairy Industries.....	04
Table: 3.1 Inventory of Dairy Processing Industries.....	11
Table: 4.1 Number of dairies surveyed.....	12
Table: 4.2 Current milk processing against the installed capacity.....	12
Table 4.3: Installed capacity and shares of different category industries.....	13
Table: 4.4 Seasonal operation of factory against the installed capacity.....	13
Table: 4.5 Daily Milk Collection/Processing against Installed Capacity.....	15
Table: 4.6 DDC Milk Collection MPCs and Chilling Centers.....	16
Table: 4.7 Milk Product Production by type of industries and season.....	17
Table: 4.8 Milk Product Sales by type of industries and season.....	18
Table: 4.9 DDC Product Production and Sales by Fiscal Year.....	19
Table: 4.10 Dairy products, market and marketing channel of dairy industries.....	20
Table: 4.11 Milk marketing outlets by industries type.....	24
Table 5.1 Compositional quality of processed standard milk.....	27
Table: 5.2 Quality of milk for MBRT.....	28
Table: 5.3 Bacterial quality of processed standard milk.....	29
Table 5.4 Compositional and bacterial quality of dairy few products.....	29
Table: 5.5 Bacterial quality of Raw milk.....	30
Table: 6.1 Average annual fixed cost of the dairy industries ('000).....	31
Table: 6.2 Variable cost of the milk processing plant.....	32
Table: 6.3 Investment cost of the milk processing plant.....	33
Table: 6.4 Profit of the dairy industries.....	35
Table: 7.1 Human resource management of the dairy processing industries.....	37
Table: 7.2 Personal management in the dairy processing industries.....	39
Table: 7.3 Financial management in the dairy processing industries.....	40
Table: 7.4 Marketing management of the dairy processing industries.....	41
Table: 7.5 Time of reaching milk in the market.....	43
Table: 7.6 Availability of Milk and dairy products in the market.....	43
Tables: 7.7 Problems faced by the dairy industries.....	44
Tables: 7.8 Solution measures undertaken by the dairy industries to solve the problems.....	45

List of Charts and Figures

Charts	Page
Chart: 1 Installed capacity and share of different category dairy industries (percent).....	13
Chart: 2 Seasonal Operation of industry/factory against installed capacity (Percent).....	14
Chart:3 Milk collection by month and type of dairy industries.....	14
Chart: 4 Milk processing against processing capacity (Percent).....	15
Chart:5 Major milk and products produced by type of dairy industries and season (Percent).....	18
Chart:6 Fat and SNF of processed milk by dairies type (Percent).....	28
Chart:7 Bacterial quality of raw milk (Percent).....	30
Figures	
Fig: 1 Dairy Products Distribution Channel of DDC.....	22
Fig: 2 Dairy Products Distribution Channel of Private Dairies.....	23

Map Showing by number and type of Dairy Industries of Sample Districts under Study on Efficiency of Dairy Industries in Nepal



Executive Summary

Dairy sector has been an instrument in providing dairy products to the urban consumers and pull the urban capital to rural areas. Dairy industries have been working to bridge dairy farmers and the consumers and urban and rural trade. It is said that; dairy sector contributes nearly two-third of the livestock and around 9 percent in the total GDP and regarded as the most important livestock subsector in Nepal. There are nearly 1658 Milk Producers Cooperatives (MPCs) having 12853 executive members and 105,893 share members. There are 1653 staff members in those MPCs, with NRs. 330,980,000.00 total share capital NRs. 850,669,000 total deposited capital, NRs. 812,097,000 loan distribution and NRs. 9,953,000 reserves funds. Major market of these MPCs are the dairy industries. Thus, dairy sub-sector in Nepal has strong and established value chain linkage from production to the consumption level.

This sector has its importance in reducing poverty through creating employment and income generating opportunities that is ensured through regular cash flow from urban to the rural areas. Formal sector contributes less than 20% of the total annual milk produced in the country. Under the assumption of constant population growth at 1.4 percent per annum, Nepal should have at least 9% annual growth rate of milk production to meet the WHO recommended minimum of 250 ml per day per-capita milk consumption by the year 2020. In contrast current milk production growth stands only at 3.4 percent per annum.

In this scenario, NDDDB decided to undertake a study on efficiency of the dairy industries with the objectives: to update inventory of medium and large dairy industries in Nepal, to evaluate operational status of installed industries and to assess technical and financial efficiency of dairy industries.

Methodology used for the study was collection of both primary and secondary data, using review of literatures, consultative meeting with concern authorities, tools development and get approval from NDDDB, and structured questionnaire/checklist for individual industry assessment. Altogether 35 districts were surveyed namely Ilam, Panther, Terhathum, Jhapa, Morang, Sunsari, Saptari, Siraha, Dhanusha, Sarlahi, Bara, Parsa, Kathmandu, Lalitpur, Bhaktapur, Kavre, Chitwan, Makwanpur, Ramechhap, Sindhuli, Kaski, Baglung, Palpa, Syanja, Tanahu, Dang, Banke, Bardiya, Rupandehi, Surkhet, Dailekh, Kailali, Kanchanpur, Dadeldhura and Doti. It was planned to survey 57 dairy industries including 3 large, 5 medium, 7 small, 40 cottage dairy industries and 2 SMP plants. In contrast, 58 including 3 large, 6 medium, 9 small, 38 cottage dairy industries and 2 SMP plants were surveyed.

For the financial analysis investment cost, fixed and variable cost, income/ revenue was calculated. Similarly, sample of milk produced by the sampled dairy industries was collected and tested for fat, SNF, TPC and coliforms, wherever possible. Clot on Boiling (COB) test, Methylene blue reduction test (MBRT), Total plate count (TPC) and total coliforms test was also done for bacterial quality assessment. Quality of other dairy products viz: Dahi, Paneer, Ice-cream, Chhurpi and Cheese was also assessed.

Efficiency of the dairy industries was measured by different folds comprising of management, technical, financial, marketing and consumer care. Adoption of codex principles and guidelines focusing on preventive measures to produce safe milk and milk products has not yet been practiced by majority of the industries. Two different acts, namely, Food Act 1966 and Animal Health and Livestock Services Act 1998 have been endorsed and the respective regulations within these acts are essentially

high. **Animal health and livestock services act 1998 and regulations 1999**, in principle, have been enforced for healthy production, sale and distribution of animal and their products. The act also ensures the regulation of import and export of livestock, their products and livestock production material. However, the implementation of these acts and regulations have been weak and yet to be translated into actions.

It is the responsibility of Department of Food Technology and Quality Control (DFTQC) to regulate dairy products in the market and ready to eat food. Department of Livestock Service (DLS) has primary role for production and some processing activities (DLS is promoting some of them).

Dairy Development Corporation (DDC) have been applying Good Manufacturing Practices (GMP) while most of the private dairies are not following the same. The DFTQC has started implementing good manufacturing practice (GMP) as a pilot project in six dairies in the Kathmandu Valley. On the other hand, many cottage dairy industries are operating locally and they are not following the GMP procedure, Code of Conduct (CoC) and Code of Practice (CoP). Unfair competition has been observed among the dairy industries to pool the available scarce milk from other, that makes the farmers not compel to produce quality milk and execute GHP and GMP.

There was a total of 380 dairy industries listed in survey districts during the field survey out of them 66.84 percent were cottage, 23.42 percent small, 8.42 percent medium and nearly 1 percent large dairy industries. Out of 58 dairies assessed, large, medium, small, cottage and SMP plant were 5.17, 10.34, 15.52, 65.52 and 3.45 percent respectively. Government owned DDC has total handling capacity at 37000-liter milk per hour, or 220,000 liters including 40,000 liters for SMP per day when the factory operated in 6 shifts. The installed capacity of the other dairy industries varies from 100 liters to 120000 liters/day.

Currently the dairy industries are found to be operating at 67.84 percent of its installed capacity. Out of them utilized capacity of the large, medium, small, cottage and SMP plant was 67.14 percent, 60.79 percent, 62.01 percent and 83.37 percent respectively. By season, capacity of utilization was 59.93 percent in lean and 75.76 percent in flush season. Out of total processing capacity, 50.93 percent was contributed by the large industries while 27.79 percent by medium, 13.1 percent by SMP plant, 4.63 percent by small and 3.54 percent by cottage dairy industries. Out of total collection, 41.78 percent was in lean and 58.22 percent was in flush season. Since there is less collection and high demand of dairy products in lean season, dairies used to produce required quantity of milk by toning butter oil and skim milk powder.

DDC is the largest dairy industry and have been collecting milk from 40 milk potential districts in Nepal. It has been collecting milk from different 785 MPCs established 84 chilling centers and collecting 144915-liter milk daily. Sita Ram Gokul Milks is collecting milk from Chitwan, Nawalparasi, Rupandehi and Nuwakot districts and has 11 Milk Chilling Centers (MCC) and 7 road milk tankers. Hilmaya Dairy Pvt. Ltd collects milk mainly from Chitwan, Nawalparasi, Kapilbastu and Kabre districts with eight **milk collecting**/chilling centers. **Nepal Dairy** Pvt. Ltd. collects milk from different districts namely Kabre, Lalitpur, Chitwan, Nawalparasi, and Tanahun. Sujal Dairy collects milk from Kaski, Syanja, Baglung, Chitwan and Tanahu districts. Other small and micro dairies are collecting milk from their local places, where they have established their tiny processing/ collection center.

Most of the dairy industries are producing fluid milk, dahi, paneer and ghee. The small, medium and large dairies are also producing ice-cream, cheese (hard and mozzarella), churpi, butter, sweets and confectionaries.

There are two milk powder plants operating one under DDC and other under Sujal dairy. Total fluid milk produced by the dairy industries in flush season was 369395 liters and lean season was 297690 per day. Out of total milk collected, 79.24% is being used for making processed fluid milk. Total of 95.97 percent processed milk in flush and 99.8 percent in lean season was sold. Unsold milk was lost.

Dairy products production of the DDC has been in declining order. For each product produced, there has been decreasing by 20-50 percent annually. While on the other hand there is tremendous opportunity to produce SMP, dairy whitener, butter oil, butter, cheese, confectionaries, chocolates, condensed milk, to make the profitable business there is no way to escape by the dairy industries and have to diversify the potential dairy products establishing their own milk production pockets. It requires policy safeguard in financing (e.g. easy access and availability of finance) for increased milk production and milk marketing (e.g. buy back guarantee) including export and import (e.g. low export and high import tariff) of dairy products.

In case of DDC, distributors supply dairy products to whole seller and whole seller to retailers and then to the consumers. While consumers can get the DDC products directly from sales counter, franchised outlets, marts or the super markets. On the other hand, private dairies have own sales counter, contact to super market and marts. Average whole seller/ distributors of the large, medium, small, cottage dairy industries and SMP plants were 6, 10, 5, 0 and 4 respectively. Average number of retail shop of the large dairies, medium dairies, small dairies were 316, 178 and 11 respectively, whereas no retailers was found in case of cottage dairies and SMP plants.

GMP is not following particularly by the cottage and small industries. The dairies were operating in very congested place, lack of water supply, frequent fluctuation of power supply, poor road (dusty), scratched wall and roof, soiled milk container, poorly established laboratory facility and easy access to all people was rampant.

Hundred percent large, medium and small dairies meet the minimum 3 percent of fat and 8 percent SNF. Milk produced by 22.22 percent small dairies had less than 3 percent fat and 11.11 percent had more than 8 percent SNF. Milk produced by 50 percent cottage dairies' had more than 3 percent fat and 21.05 percent had more than 8% SNF. Similarly, milk produced by 21.05 percent cottage dairies had less than 8 percent SNF.

COB was negative to entire samples of processed milk except milk produced by 18.42 percent cottage dairy industries. Hundred percent milk samples tested had MBRT time more than 5 hours, 100 percent of the milk produced by large dairies had no colony (TPC) while 75 percent each from small and cottage industries had less than 50,000. Other milk products viz: dahi, paneer, ice-cream, cheese and churpi are moving to meet the codex standard.

While considering raw milk quality, more than 60 percent of the raw milk collected by the dairy industries were found good quality raw milk collected as the MBRT time was more than 5 hours in 66.67 percent large, 60 percent medium, 42.86 percent small and 84.21 percent cottage industries.

100 percent large industries, 33.33 percent medium industries, 33.33 percent small industries, 23.68 percent cottage industries and 100 percent SMP plants manage the staff training. Out of total dairy industries who said they conduct training, 100 percent large and SMP plants offered skill training. Processing training was offered by 66.67 percent large and 100 percent SMP plants while marketing training was offered by 50 percent medium and 33.33 percent large dairy industries.

Staff upgrading practice was in place in 100 percent large and SMP plants while 66.67 percent medium, 33.33 percent small and 15.79 percent cottage dairy industries were also practicing it.

Personal Development Plan (PDP) was practiced by 100 percent large and SMP plants where as this practice was using by 50 percent medium, 22.22 percent small and 15.79 percent cottage industries.

Open competition practice was used by 33.33 percent large dairy industries, 100 percent SMP plants, 16.67 percent medium, 11.11 percent small and only 2.63 percent cottage dairy industries. Personal contact was the major staff recruitment process which was practiced by 92.11 percent cottage, 83.33 percent medium, 77.78 percent small and 66.67 percent large dairy industries.

For staff recruitment, open competition practice was used by 33.33 percent large dairy industries 100 percent SMP plants, 16.67 percent medium, 11.11 percent small and only 2.63 percent cottage dairy industries. Personal contact was the major staff recruitment process practiced by 92.11 percent cottage, 83.33 percent medium, 77.78 percent small and 66.67 percent large dairy industries.

75.73 percent large dairies, 35.58 percent small dairies, 36.84 percent medium dairies and 18.12 percent cottage industries had permanent staffs. Practice of issuing appointment letter was found in 100 percent large and SMP industries while it was practiced by 83.33 percent medium dairies, 44.44 percent small and 15.79 percent cottage industries.

Hundred percent in medium dairies, 66.67 percent large dairies and 50 percent SMP plants staffs worked for eight hours in a day. While on the other hand staffs from 71.05 cottage dairy industries works for more than 8 hours which was found in 50 percent SMP plants and 55.56 percent small dairy industries.

Hundred percent staffs from large, medium and SMP plants have staff salary of 15000 or more per month, less than 15000 monthly salary was found in 21.05 percent cottage and 11.11 percent small dairy industries. One-month annual leave was provisioned by 66.67 percent large and medium, 50 percent SMP plant.

Accounting software was used by 100 percent large dairy industries and SMP plants while it was practiced by 66.67 percent each medium and small dairy industries and 13.16 percent cottage industries. Double entry system for account keeping was practiced by 100 percent large, medium and SMP plants while single entry was practiced by 76.32 percent cottage and 57.17 percent small dairy industries. Internal audit was practiced by 100 percent large, medium, small and SMP plants while it was practiced only by 21.05 percent cottage dairy industries. External audit was practiced by 100 percent large, medium and SMP plants while it was practiced only by 44.44 percent small and 10.53 percent cottage dairy industries.

Marketing strategy was in hand with 66.67 percent large dairy industries, 50 percent SMP plant and medium dairies, 55.56 percent small and 52.63 percent cottage dairy industries. Strategies followed were: advertisement, discount, product diversification, commission offering, quality improvement etc. Bearing social responsibility was practiced by 85.71 percent medium, 66.67 percent large, 55.56 percent small and 42.12 percent cottage industries.

Extension services was offered by 66.67 percent each large and medium, 50 percent SMP plants, 66.67 percent medium and 11.11 small dairy industries. Normally, the dairy industries distribute the milk to milk booth before 6 AM. It was revealed that 78.38 percent cottage dairy industries', 66.67 percent each large and medium dairy make available the processed milk before 6 AM to the retail booths. All the time availability of milk was provisioned by 84.21 percent cottage dairy industries, 66.67 percent each large and medium dairy industries and 55.56 percent small dairy industries whereas 33.33 percent each large and medium, 44.44 percent small and 15.79 percent cottage dairy industries could only make available in morning.

The distributors do not have enough cold rooms and the dealers, retailers are relying on small freeze, which is bit difficult to maintain the cold chain. Thus, consumers are compelled to purchase fluid milk of their daily need in the morning and keep in their own freeze at home.

Profit of the dairy industries was calculated assessing the fixed and variable costs and the revenue generated out of sale of the dairy products. Net annual profit of the large dairy industries was NRs. 179,139.28 thousand, medium dairy industries had NRs. 61,462.34 thousand, small dairy industries had NRs. 10,559.31 thousand, cottage industries had NRs. 1,989.85 thousand and SMP plant had NRs. 88,125.36 thousand. The IRR was 16.3% , 25.06%, 25.66%, 25.59% and 24.44% respectively in large, medium, small, cottage and SMP plants.

In an average, large dairies have been providing employment for nearly 150 people, medium dairies providing employment to 44, small providing to 10 and cottage dairy industries providing employment to 4 people.

When asked what the problems are faced by the dairy industries, 100 percent large dairies and SMP plant said lack of quality raw milk, poor transportation network was said by 66.67 percent large and 50 percent medium dairies, 100 percent SMP plant, 55.26 percent cottage, 50 percent medium and 33.33 percent each large and small-scale dairy reported unpredictable electricity as problem

Policy change in increase investment in milk production, import substitution and export promotion (low tariff in export and high in import etc), Increase access i.e. all-weather roads, **Uninterrupted electricity supply**, increase milk production, administration of training market management, provision of generator, need of grant and easy access to loan were the solution measures suggested.

Recommendation

1. There is huge gap between the installed capacity and the current utilization, this situation need to be resolved and the processing industries should at least have operated to 80-90 percent. In these regards, the dairy industries should develop their own milk production area with supply of inputs and services to the dairy farmers in respective pocket area establishing Code of Conduct (CoC) between the dairy industries that one dairy industry cannot go to other's pocket area. (Is this not cartelling, should we promote this sort of things, how this will help fare market and competition?)
2. It has been found poor cold chain status from milk production site to the consumer's kitchen. There should be uninterrupted supply of electricity across the road corridor of milk pocket areas, collection and chilling center, road transport, dairy processing industries up to the consumers' kitchen. Where not possible solar system could be the alternative option to

maintain it. Road milk tankers with insulation facility should be managed by all dairy industries to assure cold chain.

3. There should be all weather road networks across the milk pocket areas and the milk transportation route.
4. Access and availability of loan to the dairy farmers and dairy processing industries could be instrumental to increase the milk production and processing. This loan facility need to be tied with the dairy farmers, dairy processing industries and the financial institution. Mechanism of repayment shall be made proportionately deducting in the payment of the products produced by the respective party.
5. Policy change in increase investment in milk production, processing, import substitution and export promotion (low tariff in export and high in import etc) could be credential for the improvement in the current situation.
6. The dairy industries are not trying only to meet the market need of fluid milk due to unavailability of raw milk and are not exploring their eyes on the value-added products. There is tremendous opportunity to minimize the trade gap by producing SMP, dairy whiteners, chocolates, confectionaries, butter, butter oil, cheese and many other dairy products. The dairy industries should start to prepare these products with high priority.

1.1 Background

Contributing nearly two-third of the livestock and around 9 percent in the total GDP dairying is the most important livestock subsector in Nepal. This sector has its importance in reducing poverty through creating employment and income generating opportunities that ensures regular cash flow from urban to the rural areas. It is presumed that more than half million households in the country are one way or other actively participating in production and marketing of milk. Milk market in formal sector contributes more than 20% of the total annual milk produced in the country. On the other hand, milk processing industries are emerging due to rapid urbanization and increase in the demand for processed milk and milk products. It has been said that there is a gross deficit of milk in respect to the installed capacity of these processing industries and to fulfill the demand they are reconstituting the milk using imported SMPs and butter.

Rapid urbanization followed by increased income of the people and increased knowledge on importance of milk in daily diet, demand for milk and milk products has been increased. Under the assumption of constant population growth at 1.4 percent per annum, Nepal should have at least 9% annual growth rate of milk production to meet the WHO recommended minimum of 250 ml per day per capita milk consumption by the year 2020. In contrast current milk production growth is only 3.4 percent per annum.

The assessment report of Agricultural Development Strategy (ADS) has revealed that dairying is one of the most potential and promising sub-sector within agriculture sector which has grown rapidly as an industry. Further, the same report also revealed that the sub-sector is of high priority area for economic transformation of Nepalese economy having the potential of increasing the productivity of animal from the present level of nearly 900 liters to 3000 liters per year.

Dairy sub-sector in Nepal has strong and established value chain linkage from production to the consumption level. Milk produced at farmers level are collected at groups or cooperatives level where milk is chilled and transferred to the processing industries for processing, products diversification and marketing. Out of the total, Government owned Dairy Development Corporation (DDC) has processing capacity 225000 liter per day.

Furthermore, the private dairies are operating with following daily capacities which clearly shows that there is predominance of small to medium scale industries.

- 50000 or more processing - 4
- 10000 to 50000-liter processing -10
- 1000 to 10000 liters processing -30
- Less than 1000 liters processing -400
- 6 to 10 tons Skimmed Milk Powder Plant -3

Efficient operation of dairy industries from technical and financial perspective could only be able to provide quality milk and milk products in reasonable price to the consumers for maximum satisfaction and offer comparative but maximum price to the producing farmers

with good profit margin to the industries. Currently none of the actors in dairy value chain are satisfied and trying to find out the way for maximizing benefits to entire actors in the value chain. Being a policy making apex government body in dairy sector, National Dairy Development Board (NDDDB) has listen the dissatisfaction and assign NEPC to undertake study on the current efficiency of existing large and medium dairy industries including government owned DDC in order to keep the dairy sector vibrant in the country.

1.2. Objectives

National Dairy Development Board (NDDDB) is the apex level policy making body formed by the government of Nepal in 1992 for holistic dairy sector development of the country. Functions and duties of NDDDB includes formulation and recommendations on policies on import and export of goods necessary for production and promotion of milk and milk products, acceleration of the implementation of approved policies; formulation and recommendation on pricing policy of milk to Government of Nepal; encouragement to development of dairies through the medium of cooperatives; monitoring, evaluation and review of dairy development and registration of dairy industries. As policy inputs, NDDDB has been engaged in carrying out studies on various aspects of dairy development in Nepal. Accordingly, NDDDB wants to carry out a study on efficiency of dairy industries in Nepal with the following objectives:

- To update inventory of medium and large dairy industries in Nepal
- To evaluate operational status of installed industries
- To assess technical and financial efficiency of dairy industries.

1.3 Scope of Work

The study covered the following areas of dairy sector in Nepal

1. Updating countrywide inventory of medium and large-scale dairy (as per definition of NDDDB) with their processing capacity
2. Evaluate seasonal operation of factory against the installed capacity
3. Mapping the raw materials flow locations
4. Mapping dairy products production and distribution channel and ultimate markets
5. Evaluate technical efficiency of the industry
6. Assess quality issues (Nutrient and microbial) of the dairy products from the industries
7. Evaluate financial efficiency of the industry (CB Ratio, IRR and Annual Turnover)
8. Map human resources and evaluate labor use efficiency in the industries
9. Evaluate management aspect of dairy industries

2. Methodology

Both primary and secondary data was collected to address the objectives mentioned above. Information from dairy co-operatives, milk processing plants, government agencies and other stakeholder's organizations was collected through Focus Group Discussion (FGD), corner meeting and key informant's interview.

2.1 Review of literatures

The literatures / published and un published reports/ documents related to efficiency of dairy industries in Nepal and across the globe was collected and reviewed. Similarly, relevant websites were also visited to gather the information related to milk processing, products diversification, cost incurred and cost minimizing and profit maximizing strategies undertaken by the dairy industries.

2.2 Consultative meeting with the concern officials in NDDB

The study team visited and met the concern officials in the NDDB and discussed on various aspects of the dairy processing, processing cost variables and incomes against different dairy products produced..

2.3 Survey tools design

Based on the literature review and consultative meeting with the concern authorities in NDDB, conceptualized the survey tools. The tools were prepared in close consultation with technical sub-committee of NDDB assigned for ToR preparation and get approval from NDDB. Computer application was prepared to transfer the final tools requiring quantitative information and made ready for electronic data collection. The survey tools are presented in annex: 3

a) Check-list for measuring efficiency of dairy industries:

A check-list was prepared to collect the information on the capital investment, operating cost (fixed and variable costs), human resource cost, product produced (quantity and type) and their unit cost.

b) Focus Group Discussion (FGD)

A check-list was prepared to collect information on the efficiency of dairy industries. Especially the micro- small dairies operating at different market centers were the participants of the FGD.

c) Key Informant's Interview

Key Informant's interview checklist was prepared to assess the opinion of the key informants on the efficiency and profitability of the dairy industries. The key informants were among others, the NDA/ DIA members at the center and district level, DLSO, DMPCU and MPC's chair persons who are processing the milk and diversify the products.

2.4 Collection of the tool kits to check nutrient and bacterial quality

Tool kit to measure fat, SNF and TPC was purchased from the market and standardized in close consultation and coordination with NDDB.

d) Recruitment and training to the enumerators

From the enumerators list of NEPC, 12 enumerators were selected administering interview. They were local to the district. Two days training was provided to them on data collection procedure, milk and milk products' nutrient contents and bacterial quality testing. Functional training on the use of tool kit and recording of the result of quality test.

2.5 Coverage of the study

The study covered the following districts of the seven provinces:

Province 1: Illam, Panther, Terhathum, Jhapa, Morang and Sunsari

Province 2: Saptari, Siraha, Dhanusha, Sarlahi, Bara, Parsa

Province 3: Kathmandu, Lalitpur, Bhaktapur, Kavre, Chitwan, Makwanpur, Ramechhap, Sindhuli

Province 4: Kaski, Baglung, Palpa, Syanja, Tanahu

Province 5: Dang, Banke, Bardiya, Rupandehi

Province 6: Surkhet and Dailekh

Province 7: Kailali, Kanchanpur, Dadeldhura, Doti

2.6 Collection of list of Dairies in the survey districts

List of dairies was collected from NDA, DIA and concern DLSOs

2.7 Sampling

As mentioned in the proposal, sample size for primary data collection was depended on total universe by categories of dairies. All categories namely large, medium, small, micro and SMP plants were sampled. Due attention was paid to cover entire districts fall under coverage of the study. As mentioned in the proposal a total of 55 dairies out of which 3 large, 5 medium, 7 small, 40 small and 2 SMP plants were taken as sample for study purpose.

Table: 2.1 Sample of the dairy Industries

SN	Districts	Processing capacity					Total
		50000 or more lits/ day (N=4)	10000-50000 lits/day (N=10)	1000-10000 lits/day (N=30)	< 1000 lits/day (N= 400)	6 to 10 tons Skimmed Milk Powder Plant (N=3)	
1	Ilam	0	0	1	1	0	2
2	Panchthar	0	0	0	1	0	1
3	Jhapa	0	0	1	2	0	3
4	Morang	0	0	0	1	1	2
5	Sunsari	0	1	0	1	0	2
6	Terhathum	0	0	0	1	0	1
7	Dhanusha	0	0	0	1	0	1

SN	Districts	Processing capacity					Total
		50000 or more lits/ day (N=4)	10000-50000 lits/day (N=10)	1000-10000 lits/day (N=30)	< 1000 lits/day (N= 400)	6 to 10 tons Skimmed Milk Powder Plant (N=3)	
8	Saptari	0	0	0	1	0	1
9	Siraha	0	0	0	1	0	1
10	Sarlai	0	0	0	1	0	1
11	Bara	0	0	0	1	0	1
12	Parsa	0	0	0	1	0	1
13	Kavre	0	0	1	1	0	2
14	Ramechhap	0	0	0	1	0	1
15	Sindhuli	0	0	0	1	0	1
16	Chitwan	0	0	1	1	0	2
17	Kathmandu	2	1	0	2	0	5
18	Bhaktapur	0	1	0	2	0	3
19	Lalitpur	0	0	0	2	0	3
20	Makwanpur	0	1	0	0	0	1
21	Syanja	0	0	0	1	0	1
22	Tanahu	0	0	1	0	0	1
23	Kaski	1	1	0	1	1	3
24	Palpa	0	0	0	1	0	1
25	Rupandehi	0	0	1	1	0	2
26	Baglung	0	0	0	1	0	1
27	Banke	0	0	0	2	0	2
28	Dang	0	0	0	1	0	1
29	Bardiya	0	0	0	1	0	1
30	Surkhet	0	0	1	1	0	2
31	Dailekh	0	0	0	1	0	1
32	Kailali	0	0	0	2	0	2
33	Dadeldhura	0	0	0	1	0	1
34	Doti	0	0	0	1	0	1
35	Kanchanpur	0	0	0	2	0	2
	Total	3	5	7	40	2	57

2.8 Field survey

The survey team reached to the sampled districts and contacted dairy stakeholders viz DLSO, DMPCU, DIA, NDA, dairy industries/entrepreneurs and get the list of dairy processing industries. After having the final list, dairy to be visited, sampled industries were identified. Following information was collected from the dairy industries.

a) Dairy Industries and cooperatives who processed milk

Using the semi structured check list (checklist a) data was collected from the dairy industries on following financial data but not limited to:

Total capital investment

- I. Land & Land Development.
- II. Building, Civil Works and Others (Factory building, Raw and finished material godown, Office building, toilet, electrification, boring, contingency etc)
- III. Plant, Equipment & Machinery (including crates and trays) - 1. 1. Raw Milk Reception Section, Refrigeration / Chilling section, Processing Section, rage and packaging section, 5. Steam Section, 6. Butter and ghee section, 7. Yoghurt, Ice cream and Paneer Section 8. Electrification, 10. Laboratory equipment, 11. Cold storage room, Crate, Crate Washer, Deep freeze, CIP system complete, CIP system complete, Custom and freight cost, Erection and Commission etc)
IV. Furniture & Fixtures/office equipment, Vehicles (Milk and Milk Product Transport Vehicles, milk tanker)
- IV. VI. Pre-operating Expenses (Feasibility Study, Project design, management, consultation & supervision, Traveling expenses, Postal/communication Expenses, Advertisement & publicity, License & registration, Rentals, Miscellaneous)
- V. Operating costs
 - A. FIXED COST:
 1. Depreciation. (a. Building & Civil Works @, Machinery & Equipment@ , Office Equipment & Furniture@, Vehicles @)
 2. Amortization.
 3. Insurance (a. @. on Fixed Asset Investment)
 4. Vehicle rental (Truck (to carry the insulated tank), Milk distribution
Office Overheads (a. Postage, telephone, fax etc, b. Stationery & printing, c. Audit fee and others, d. Publicity & promotion, e. Traveling Expenses,)
 4. Fixed Electricity Charges (On installed Capacity of 150 KW @ KW)
 5. Indirect Labor (Manager, Officers, Accountant/Storekeeper, Assistants, Assistants, peons, guards, perk i.e. a special advantage or benefit, in addition to the money paid, because of good job (if any)
 - B. VARIABLE COST:
 1. Material Inputs (a. Raw Milk, b. Auxiliary Materials (Sugar, Skimmed Milk Powder, lactic acid, essence, ice-cream flavor etc) @ of raw milk, c. Packaging Material (fluid milk, dahi, paneer, ghee.....), d. Chemicals & Glassware, e. Miscellaneous)
 2. Utilities -Processing Cost (Diesel @ /lit, Lubricants @% of Diesel/ or., Water and Electricity @ /lit etc).
 3. Repair & Maintenance
 - a. Building & Civil Works @, b. Plant & Machinery @, c. Vehicles @, d. Furniture & Fixtures @,
 4. Direct Labor (Production Manager, Foreman, Skilled labor, Semi-skilled labor, Add 10% perks)

Annual Operating Cost (1. Fixed Cost+ 2. Variable Cost)

- Estimated Demand and Supply of Pasteurized Milk
- Details of Sales Revenue (Item-wise product produced and sale- Standard Milk, dahl, paneer.....)
- Term Loan and Interest Payment
- Annual Operational Cost
- Projected Profit and Loss Statement
- Working Capital Requirement
- Income and Expenditure
- Internal Rate of Return

Similarly, sample of milk produced by the sampled dairy industries was collected and tested for fat, SNF and TPC wherever possible.

To analyse the fat, SNF, Gerber kit was used as specified in Milkotronic Operation Manual (2008). The machine was standardized with the equipment of DDC, which was already standardized by them with standard equipment of DFTQC. TPC and MBRT were done according to DDC (2001).

Clot on Boiling (COB) test: Five ml of milk was taken in a test tube and boiled over Bunsen burner/gas stove. Observation was made for presence or absence of clots/precipitate.

Methylene blue reduction test (MBRT): Microbes in milk consume dissolved oxygen present in the milk, resulting in reduction of the methylene blue dye. For this test, methylene blue tablets were dissolved in distilled water to prepare 0.005% solution. One mL of this dye was added to 10 mL of milk sample in a test tube placed in a water bath at 37°C (Vlab 2013). The time taken to disappearance of the colour of the dye in milk was noted. It was not possible to do MBRT test in all sites there was done only in Kathmandu, Bhaktapur, Lalitpur, Kaski, Makwanpur, Rupandehi, Banke and Kailali districts.

2.9 Quality Assurance of the data collection

Training to the supervisors and enumerators was administered on the type of data collected and the type and number of industries to be visited. Supervision and communication between the center and the district teams was assured in order to pick up and respond to any issues that might undermine the quality of data collected. The team leader and experts of the research team visited the field, monitor the data collected by the supervisors and enumerators and facilitate them in data collection process. Monitoring of data collection was carried out by technical team constituted for ToR formulation by the NDDDB as per needed.

The problems faced by the field research team was discussed during the visit of the experts. On the other hand, each field researchers were provided the hotline telephone number in NEPC office in Kathmandu where the field researcher could deliver their problem. The NEPC management shared the problem and forward to the concern experts to solve. Unsolved problems by the study team was further discussed with concern officials of the NDDDB and resolved. .

Quantitative data collected was transferred to the server managed by NEPC by the data collectors and was downloaded and supervise by the IT engineer. The data was further cleaned sitting together with data collectors to ensure that the data analysed was of robust quality.

2.10 Progress update

The progress report of the study was prepared and submitted to the NDDDB regularly during whole study period. The status of the activities, problems and solution measures undertaken was shared with NDDDB to get work completion in time.

2.11 Data Management and analysis

Quantitative data — All completed forms were stored separately in a confidential place at NEPC office. Questions with open-ended responses were coded manually. Ten per cent of each day's entered data was checked by the data manager to control for errors. Data was checked for out-of-range values and inconsistencies between variables. The data was then transferred to appropriate software IBM and finally to Excel, and data analysis and tabulation was carried out.

Qualitative data — Qualitative data was collected through FGD and key informant interviews with respondents at each level was organised by key issues and themes and the answers to questions within the themes were grouped and summarized in data analysis frameworks. Verbatim quotes that illustrated the views of the majority of participants or contradicted the majority view was extracted from the interviews and several of which were included in this report. These issues were then summarized by district and type of farm, consumer type and was included within the relevant sections.

2.12 Report preparation

Draft report was prepared based on the valid information collected from the primary and secondary sources. The data collected from different methods and tools was triangulated for its validity before analysis. Besides analyzed tables include pictures, graphs, diagrams, narrative analysis, and other inferential statements that sufficiently extrapolate the prevailing market system. The report was submitted to NDDDB for its comments and suggestions. The report has been prepared on following area:

- Updating countrywide inventory medium and large-scale dairy (as per definition of NDDDB) with their processing capacity
- Seasonal operation of factory against the installed capacity
- Mapping the raw materials flow locations
- Mapping dairy products production and distribution channel and ultimate markets
- Technical efficiency of the industry
- Quality issues (Nutrient and microbial) of the milk and few dairy products from the industries
- The financial efficiency of the industry (CB Ratio, IRR and Annual Turnover)

Draft report was presented to the stakeholders in stakeholder workshop to collect the feedback, comments and suggestions. After incorporating the relevant comments, suggestion and feedback from NDDDB and other stakeholders' final report was prepared and submitted.

3. The dairy industries and efficiency

Efficiency of the dairy industries have been measured by different folds comprising of management, technical, financial, marketing and consumer care. Management is the art and the skill that could able to bring any organization technically sound, financially strong, well network marketing channel and customer satisfaction. Customer satisfaction may not be territorial specific rather it is globally accepted. Quality is the customer need and they are the ultimate users of the products produced by dairy industries.

3.1 Overall situation

Being a member of World Trade Organization (WTO, 2004), the government of Nepal should have priority to address the policy and programme level of food safety related issues. It has been an urgency for the government and dairy industries to bring about improvement in the quality and hygiene of the milk produced in Nepal in order to serve the local consumers as well as to streamline the surplus, if any, for export meeting the international standards. However, implementation of the policies, programmes and governance has not been well addressed as anticipated. Regulation of the raw milk standards and safety is enforced through Nepal food Act of 1966, but the Act does not cover the quality of raw milk from the farm upto the chilling centres. There has been a general thinking among the concerned authorities that food safety related rules and regulations are mainly for inspection and analysis of the end products only.

Adoption of codex principles and guidelines focusing on preventive measures to produce safe milk and milk products has not yet been practiced by majority of the industries in Nepal. Two different acts, namely, Food Act 1966 and Animal Health and Livestock Services Act 1998 have been endorsed and the respective regulations within these acts are essentially high. **Animal health and livestock services act 1998 and regulations 1999**, in principle, have been enforced for healthy production, sale and distribution of animal and their products. The act also ensures the regulation of import and export of livestock, their products and livestock production material. However, the implementation of these acts and regulations have been weak and yet to be translated into actions.

NDDDB is the apex government authority to provide policy feedback to the Government of Nepal in dairy sector. It is the responsibility of Department of Food Technology and Quality Control (DFTQC) to regulate dairy products in the market ready to eat food. Department of Livestock Service (DLS) has primary role for production and some processing activities (DLS is promoting some of them). Moreover, there has been a substantial gap and overlaps in the roles and responsibilities of these organizations that made regulation process extremely complicated. It is the mandate of DFTQC to enforce rules and regulations related to food safety and quality management to ensure the availability of safe and quality food in the market. Following mandatory tasks of DFTQC draw attention of dairy stakeholders in terms of application of GMP standards in raw and processed milk and milk products in the country.

- Licensing
- Inspection for compliance
- Standardization and harmonization of foods in alignment with SPS related rules, regulations and standards.
- Certification for export and import.

However, due to different reasons, both promotional and regulatory agencies of the government are not adequately engaged for quality assurance of raw and pasteurized milk in its supply chain. Raw milk in itself is an important food stuff of public health concerns and the most important integral element of inputs necessary to manufacture finished dairy products.

Regulation of animal production is the sole responsibility of Department of Livestock Services. Enforcement of Animal Health and Livestock Services Act 1998, Animal Health and Livestock Services Regulation 1999 is under the jurisdiction of this Department. Animal disease surveillance, regulation of drug and hormone used in dairy animals are some of the areas that requires DLS attention.

The country has to comply with the rules and regulation of the international organization and agreements. Nepal is the member of following international organizations that directly or indirectly demand compliance by GoN on the food safety related policy, rules and regulations.

- Codex Alimentarius commission
- World trade organization (WTO)
- Food and agriculture organization (FAO) of the United Nations (UN)
- South Asian association for regional cooperation (SAARC)
- World organization for animal health (OIE)
- Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)

There appears to be huge gap between our international commitments and the prevailing practice in the real ground.

National Council for Standards (NCS) is the government body responsible in approving and endorsing Nepalese standard. Nepal Bureau of Standards and Metrology (NBSM) acts as the secretariat for the NCS, which prepares the country standards (Nepal standard) of food products and methods of food processing. **There are about 18 milk and milk products listed in the Nepal Standards** related with milk and milk products and its processing, transport and storage (DFTQC 2009), however, raw milk is not part of it.

In 2001, NDDDB and DANIDA conducted a Benchmark Survey of Quality of Milk and Milk Products in Nepal and Dairy Sector Study in Nepal (FAO 2010). The survey has shown that many of the products do not meet the minimum compositional standards laid out by the Food Act and the major issue was in the microbiological quality of the milk.

3.2 Good Manufacturing Practice in Dairy Industries

Dairy Development Corporation (DDC) is the pioneer organization involved in collection, processing and marketing of dairy products in Nepal. It has well established 8 projects in different locations of the country and have been applying Good Manufacturing Practices (GMP). Currently there are many dairy industries privately operated at different nooks and corner of the country and supplying dairy products. However, they either lack the facility or don't follow GMP process.

The Department of Food Technology and Quality Control (DFTQC) has started implementing good manufacturing practice (GMP) as a pilot project at six dairies in the Kathmandu Valley. The move is expected to improve the quality of local dairy products besides making them competitive in the global market.

GMP is one of the components of Hazard Analysis Critical Control Points (HACCP) that ensures risk-free production of perishable food items. It is a preventive food safety risk management system in which every step in the manufacture, storage and distribution of milk and dairy products is analysed for microbiological, physical and chemical hazards.

DFTQC started the pilot project by providing technical support to the six dairy industries and have been providing training and support to improve procedure at the industries. President of Nepal Dairy Udyog Sangh, said they had enforced GMP at Nepal Dairy, Kharipati Dairy, Modern Dairy, Sainju Dairy, Nava Prabhat Dairy and Rajdhani Dairy. “Following the implementation of the system, these dairies have been working to improve the machine layout, quality of raw materials, handling process in the factory and the internal and external working environment.

Previously the dairies used to focus only on pasteurizing milk. They conducted a gap analysis before implementing GMP. “The results are assessed by the DFTQC on a monthly basis, and they upgrade system compliance accordingly.” The Dairy Udyog Sangh has 32 dairies as members. It has planned to enforce GMP at all firms in one and a half years. “In the first phase, they expect to implement GMP at dairies located in metropolitan and sub-metropolitan cities.

According to Nepal Dairy Association (NDA), they had also started implementing GMP among its members. As per the association, it has more than 200 members. Sitaram Gokul Milks in Kirtipur and Jay Shree Krishna Dairy in Panchkhal had been applying GMP in their production process. GMP was suitable for large dairy firms but difficult to implement at the farmers’ production level. “In addition, there is a need for rigorous follow-up in entire value chain to ensure effectiveness of the system.

The DFTQC moved to enforce GMP in the dairy industry following quality issues with support from the Trade and Private Sector Development Programme funded by the European Union. Among the 50 firms against which the department took action in the first four months of this fiscal year, nine were related to dairy production. Coliform bacteria contamination in processed milk and insufficient milk solids-not-fat are among the common problems seen in the industry.

<http://kathmandupost.ekantipur.com/news/2018-01-17/gmp-applied-at-6-dairies-in-ktm-valley.html>

3.3 Number of dairies in the survey districts

There was a total of 380 dairies in the surveyed districts. Out of them, 0.79 percent were Large, 8.42 percent were medium, 23.42 percent were small, 66.84 percent were cottage industries and 0.53 percent were SMP plant. Details of the industries by district is presented in annex: 1

Table: 3.1 Inventory of Dairy Processing Industries

Industry type	Nos	Percent
Large	3	0.79
Medium	32	8.42
Small	89	23.42
Cottage	254	66.84
SMP Plant	2	0.53
Total	380	100.00

Source: Key Informant Survey, 2018

CHAPTER-IV

The Operational Status of Installed Dairy Industries in Nepal

4.1 Number of dairies surveyed

A total of 58 dairies were surveyed, out of them Large, medium, small, cottage and SMP plant were 5.17, 10.34, 15.52, 65.52 and 3.45 percent respectively. It was plan to cover 5.3, 8.8, 12.3, 70.2 and 3.5 percent large, medium, small, cottage and SMP plant respectively.

Table: 4.1 Number of dairies surveyed

Industry type	Nos	Percent
Large	3	5.17
Medium	6	10.34
Small	9	15.52
Cottage	38	65.52
SMP Plant	2	3.45
Total	58	100.00

Source: Field Survey, 2018

4.2 Current capacity of utilization of the milk processing plant

Government owned DDC has capacity of handling 37000-liter milk per hour, when the factory operated 6 shifts, the total processing capacity would be 220,000 liters including 40,000 liter for SMP per day.

The installed capacity of the dairy industries varied from 100 liters to 120000 liters.

Table: 4.2 Current milk processing against the installed capacity (lit/day)

Industry type	Installed capacity	Current operation	Percent
Cottage	24350	20300	83.37
Small	31850	19750	62.01
Medium	191000	116100	60.79
Large	350000	235000	67.14
SMP plant	90000	75000	83.33
Total	687200	466150	67.84

Source: Field Survey, 2018

4.3 Installed capacity and shares of different category industries

Table 4.2 entails about the total milk processing against the installed capacity. It was found that, current capacity of utilization of the dairy industries is 67.84 percent. Out of them utilized capacity of the large, medium, small, cottage and SMP plant were 67.14 percent, 60.79 percent, 62.01 percent and 83.37 percent respectively. Capacity of utilization was more in cottage industries followed by SMP plant, large, small and medium dairy industries.

Out of total processing capacity, 50.93 percent was contributed by the large industries while 27.79 percent by medium, 13.1 percent by SMP plant, 4.63 percent by small and 3.54 percent by cottage

dairy industries. As compare to installed capacity current processing is proportionately match except in medium dairies as installed capacity contribute 27.79 percent and current processing is only 24.91 percent.

Table 4.3: Installed capacity and shares of different category industries

Industry type	Installed capacity (Lits)	Percent	Current processing (Lits)	Percent
Cottage	24350	3.54	20300	4.35
Small	31850	4.63	19750	4.24
Medium	191000	27.79	116100	24.91
Large	350000	50.93	235000	50.41
SMP plant	90000	13.10	75000	16.09
Total	687200	100.00	466150	100.00

Source: Field Survey, 2018

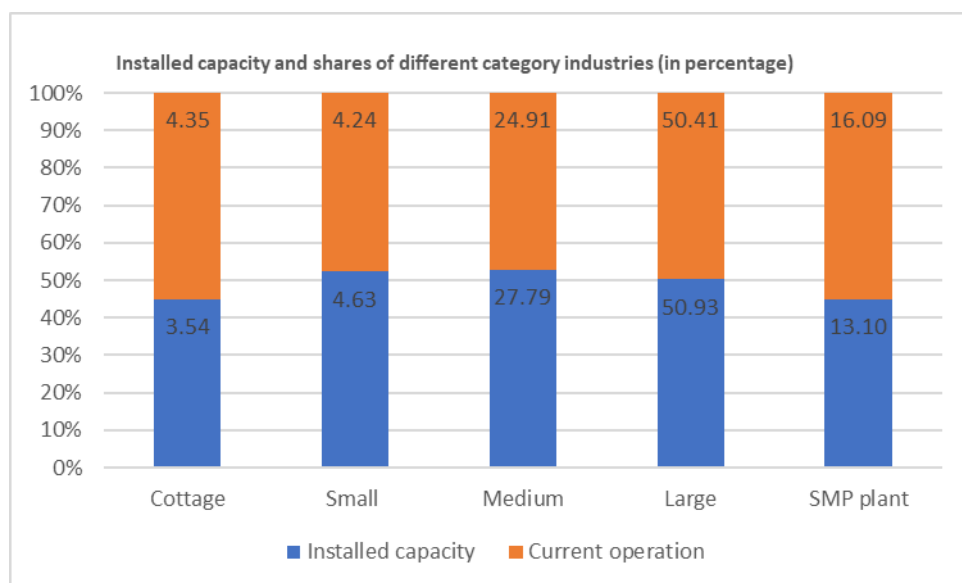


Chart: 1 Installed capacity and share of different category dairy industries (percent)

4.4 Seasonal operation of factory against the installed capacity

Table 4.4 shows that, there are two seasons from the point view of milk production and collection. Flush season starts from Bhadra (August) till Fagun (March) and lean season from Chait (April) to Shrawan (July). In the lean season milk production and collection was found 41.78 percent while it was 58.22% in flush season.

Table: 4.4 Seasonal operation of factory against the installed capacity

Seasons	Milk collection (Lits)	Percent
Lean	64580382	41.78
Flush	89996330	58.22
Total	154576712	100.00

Source: Field Survey 2018

Since there is less collection and high demand of dairy products in lean season, dairies used to produce required quantity of fluid milk by toning butter oil and skim milk powder. Toning mostly done by the Large and medium scale dairies, where as there is less variation in collection in cottage and small industries and they normally do not tone the milk.

Based on the information collected from the Key Informants, seasonal variation in milk collection and processing varied from 15 percent to maximum of 50 percent. In small and micro dairies, there is less variation compared to medium and large dairies. The difference between the seasons in most of micro dairies is 10-20 percent only. So far as the powder plant is concerned, plant in Biratnagar seldom closed.

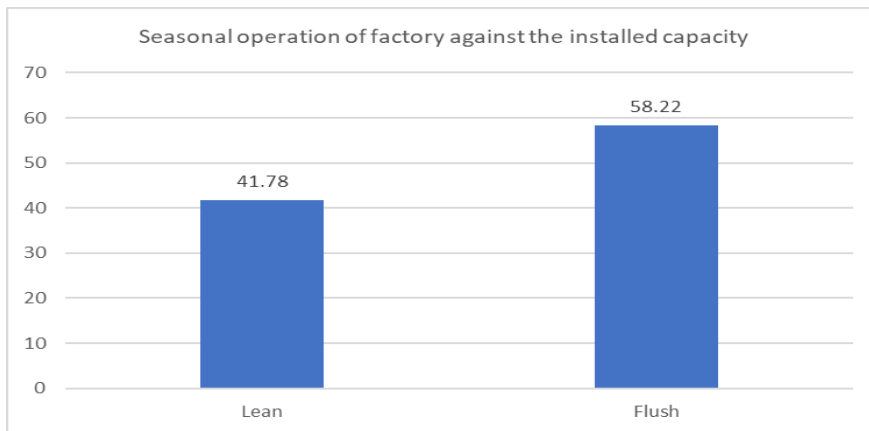


Chart: 2 Seasonal Operation of industry/factory against installed capacity (Percent)

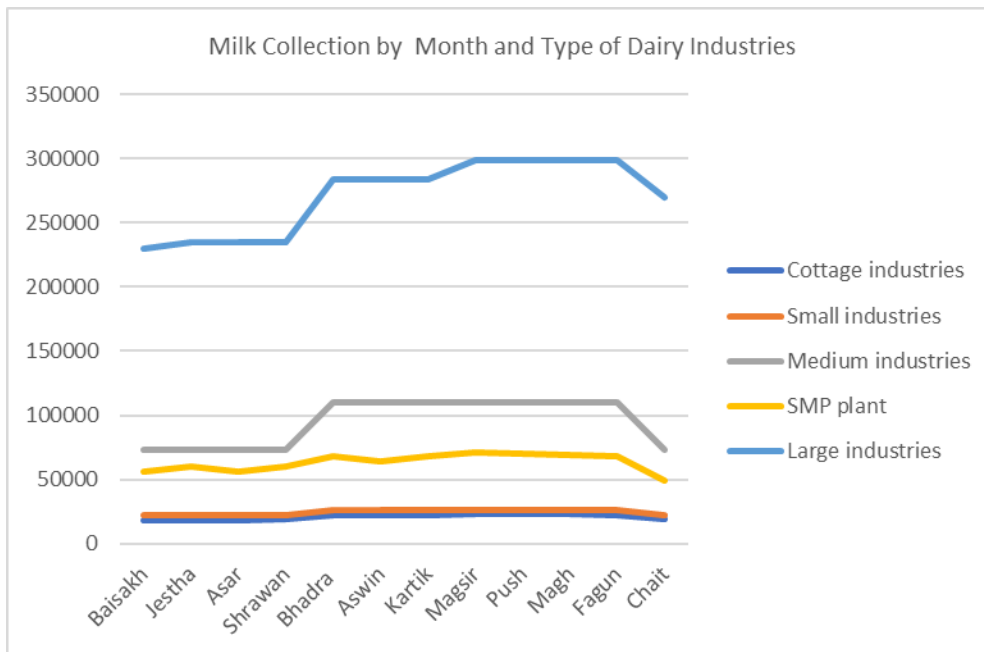


Chart:3 Milk collection by month and type of dairy industries

4.5 Installed processing capacity and the actual operation of the dairy industries

According to Table: 4.5, installed capacity of the dairy industries was to process 6,87,200.00 Liters of milk per day in the country. In contrast to installed capacity the industries were operating by only 67.84 percent of their capacity. By season the industries were utilizing only 59.93 percent in lean and 75.76 percent in flush season of their capacity. Processing was found more compared to collection because, the dairy industries tone the milk to meet the fluid milk demand. Thus, it was confirmed that the processing industries were underutilized.

Table: 4.5 Daily Milk Collection/Processing against Installed Capacity

Seasons	Milk Processing (Lits)	Installed capacity (Lits)	Percent of operation
Lean	411814.46	687200.00	59.93
Flush	520637.89	687200.00	75.76
Total	932452.35	1374400.00	67.84

Source: Field Survey 2018

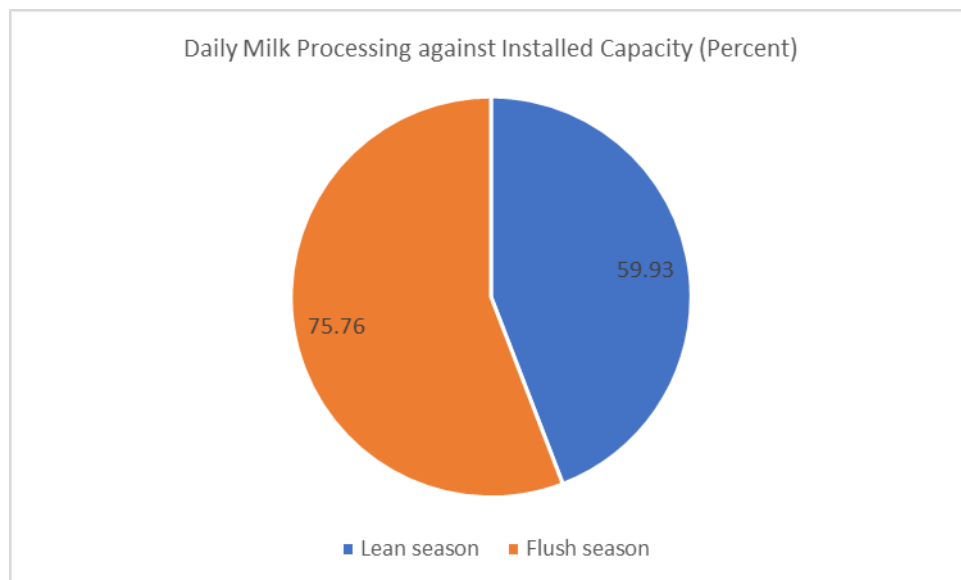


Chart: 4 Milk processing against processing capacity (Percent)

4.6 Raw materials flow locations of the dairy industries

DDC is the largest dairy industry and have been collecting milk from different districts and locations within the district. It has reached to 40 milk potential districts in Nepal. Milk Producers Cooperatives (MPCs) are the main source of milk for DDC. The collected milk has been processed in different 7 Milk Supply Schemes (MSS) located at 6 different provinces except in province 4.

Table: 4.6 DDC Milk Collection MPCs and Chilling Centers

DDC Chilling centers	No. of MPCs	No of Chilling Centers	Capacity (Lits)	Total Collection	Utilized capacity
Province 1	146	10	40000	34320	85.80
Province 2	33	3	6000	755	12.58
Province 3	451	50	179500	91140	50.77
Province 4	0	0	0	0	0.00
Province 5	79	10	36000	12200	33.89
Province 6	49	5	22000	5000	22.73
Province 7	27	6	3000	1500	50.00
Total	785	84	286500	144915	50.58

Source: DDC, Lainchour

There is chilling centres in province 4 as well.

According to Table: 4.6, DDC has been collecting milk from different 785 MPCs established 84 chilling centers and collecting 144915-liter milk daily. This data does not include the all the factory collection. From the data it was confirm that the chilling centers are operating only 50.58 percent of their installed capacity. Details of the chilling center is presented in Annex: 2

Sita Ram Gokul Milks

The survey team could not collect details data from Sita Ram Gokul Milks. However, it was learnt that it is collecting milk from Chitwan, Nawalparasi, Rupandehi, Kabre and Nuwakot districts. It collects both buffalo and cow milk in 2:3 ratio. Raw milk has been collected from different Milk Producers Cooperatives (MPCs) and milk collectors. It has established 11 Milk Chilling Centers (MCC)s and 7 road milk tankers have been serving to transport the milk from chilling centers to main processing plant at Kirtipur, Kathmandu.

Himalayan Dairy Pvt. Ltd

Hilamaya Dairy Pvt. Ltd collects milk mainly from Chitwan, Nawalparasi, Kapilbastu and Kabre districts. Eight milk collection/chilling centers have been set up for milk chilling. The chilled milk has been transported from chilling centers to its processing plant located at Patan Industrial Area, lagankhel.

Nepal Dairy

Nepal Dairy Pvt. Ltd. collects milk from different districts namely Kabre, Lalitpur, Chitwan, Nawalparasi, Tanahun districts. It has established Chilling centers at different locations and transport the milk from road milk tanker to its processing plant atHattiban, lalitpur.

Sujal Dairy Pvt. Ltd.

Sujal Dairy collects milk from Kaski, Syanja, Baglung, Chitwan and Tanahu districts. It has investigating new virgin milk shed areas in province 5 and 6also. It has established milk chilling centers at different locations and collects milk through road milk tanker to its processing plant located at Pokhara Industrial Area.

Most of the medium and small-scale dairies in Kathmandu collect milk from Kabre, Chitwan, Dhading, Nuwakot and Sindhupalchowk. Other medium scale dairies established outside the Kathmandu valley, collect milk from the local and adjoining districts. Other small and micro dairies are collecting milk from their local places, where they have established their tiny processing/ collection center. However, they also produce the dairy products as ordered by the customers.

4.7 Milk Product Production by type of industries and season

According to table 4.7, total fluid milk produced by the dairy industries in flush season was 3,69,395 liters and lean season was 2,97,690 as the current total milk collection stands at 4,66,150 liters per day. Thus, major portion (79.24%) of the collected milk was used for making processed fluid milk. Other products included Dahi, Paneer, Butter, Ghee, Cheese, Chhurpi, SMP, Sweets and other.

Table: 4.7 Milk Product Production by type of industries and season

Milk Products	Dairy Type											
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)		Total	
	Flush Season	Lean Season	Flush Season	Lean Season	Flush Season	Lean Season	Flush Season	Lean Season	Flush Season	Lean Season	Flush Season	Lean Season
Fluid milk (Lits)	218650	193000	111775	74800	22100	16550	16870	13340	0	0	369395	297690
Dahi/yoghurt (Lits)	24660	25740	6575	4400	1320	1290	3061	2194	0	0	35616	33624
Paneer (Kg)	4106	2636	6575	4400	194	252	646	403	0	0	11521	7691
Butter (Kg)	3513	2834	2630	1750	431	172	0	0	0	0	6574	4756
Ghee (Kg)	2063	1829	1315	880	183	156	605	427	1318	1085	5484	4377
Cheese (Kg)	504	504	0	0	0	0	190	190	0	0	694	694
Chhurpi (kg)	0	0	820	820	17	1009	168	148	0	0	1005	1977
SMP (Kg)	4000	4000	0	0	0	0	0	0	8000	7500	12000	11500
Sweets (kg)	77	77	60	60	0	0	57	72	0	0	194	209
Ice-cream (Lits)	191	185	62	70	11	30	63	100	0	0	327	386
Other products (list)	109	126	33	50	0	0	27	89	0	0	169	265
Other products (list)	265	282	33	50	0	0	27	89	0	0	326	421

Source: Field Survey 2018

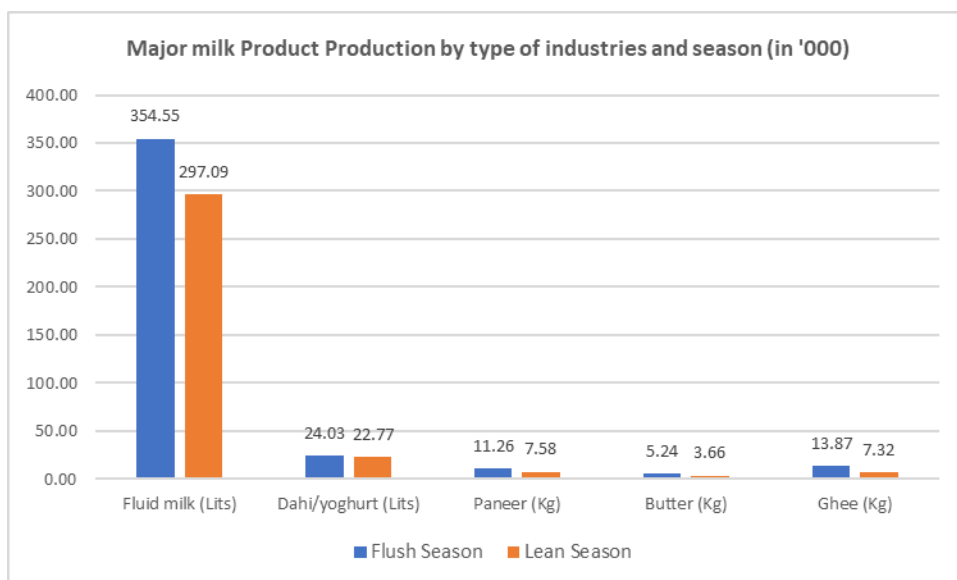


Chart: 5 Major milk and products produced by type of dairy industries and season (Percent)

4.8 Milk Product Sales by type of industries and season

According to table 4.8, total fluid milk produced by the dairy industries in flush season was 3,54,545 liters in flush season and 2,97,090 liters in lean season and production was 3,69,395 liters in flush and 2,97.690 liters in lean season. Thus, 95.97 percent in flush and 99.8 percent was sold in lean season rest unsold milk have been spoiled.

Table: 4.8 Milk Product Sales by type of industries and season

Milk Products	Dairy Type											
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)		Total	
	Flush Season	Lean Season	Flush Season	Lean Season	Flush Season	Lean Season	Flush Season	Lean Season	Flush Season	Lean Season	Flush Season	Lean Season
Fluid milk (Lits)	203650	192500	111775	74800	22100	16550	17020	13240	0	0	354545	297090
Dahi/yoghurt (Lits)	13650	15200	6575	4400	1320	1290	2481	1884	0	0	24026	22774
Paneer (Kg)	3910	2560	6575	4400	225	252	551	372	0	0	11261	7584
Butter (Kg)	2180	1733.33	2630	1750	431	172	0	0	0	0	5241	3655.33
Ghee (Kg)	2060	1776.67	2145	1105	7750	2850	597	422	1318	1162	13870	7316.56
Cheese (Kg)	504	504	0	0	0	0	190	190	0	0	694	694
Chhurpi (kg)	0	0	0	0	16	10	170	148	0	0	186	158
SMP (Kg)	4000	4000	0	0	0	0	0	0	8000	7500	12000	11500
Sweets (kg)	66.2658	54.989	0	0	0	0	29	30	0	0	95.2658	84.989
Ice-cream (Lits)	167.811	195.208	10	0	10	9	63	88	0	0	250.811	292.208
Other products (list)	248.8931	248.8931	0	0	0	0	24.726	22	0	0	273.6191	270.8931

Source: Field Survey 2018

It was found that, dairy industries are only focused on the production and supply of fluid milk to meet the immediate demand of the consumers. There is significant difference in milk production between lean and flush season. Dairy industries are thus practice unhealthy competition to get the milk in lean season while on the other hand in flush season they tend to refuse milk to collect. Thus, there is lack of trust between the dairy industries and the producing farmers. found lack of milk during lean season. On the other hand, many cottage dairy industries are operating locally and they are not following the GMP procedure, GHP, CoC and CoP. Unfair competition has been observed among the dairy industries to pool the available milk from other, that encourage farmers producing milk without caring GHP and GMP.

4.9 DDC Product Production and Sales by Fiscal Year

Dairy products production of the DDC has been in declining order. For each product produced, there has been decreasing trend of production and sales of the products and declining rate is 20-50 percent.

Table: 4.9 DDC Product Production and Sales by Fiscal Year

Milk Products	Fiscal Year									
	2068/69		2069/70		2070/71		2071/72		2072/73	
	Production	Sales	Production	Sales	Production	Sales	Production	Sales	Production	Sales
Standard Milk (Lits)	60689815	57289807	61951557	58643107	61207038	60342817	57622651	57003200	50628163	49989938
Special Dahi (Lits)	3005988	3052954	3014635	3057794	3891263	3885677	3750045	3733012	3693000	3672344
Skim Milk Powder	515250		553700						668900	
Ice-cream (Lits)	98802	98179	75712.7	75488.5	77928	78042	75533	76275	73678	61251
Paneer (Kg)	152176	148246	157189	153924	199194	193315	197609	197118	193252	165232
Lassi (lits)	21444	22244	10005	9767	11435	11211	16598	17395		15503
Poly Ghee (Lits)	633603	576115	585093	603846	341512	335665	454320	370591	479078	407711
Butter (Kg)	766745	159670	740134	213867	580545	92830	1201749	130171	693856	291878
Fresh Milk	374925	210620	418539	192547	330315	338725	282788	278312	75793	274151
Lanmohan (Container)	95302	89822	89414	13157	78134	77193	73500	72442	57072	57347
Canned rasbari (Cotainer)	427805	96258	490751	97145	48088	43846	40343	34141	27598	33499
Cheese (Kg)	258529	215891	237278	210861	244258	210036	246696	224776	181678	183696
Peda (Container)	30939	30806	35063	35053					24187	20071

Source: DDC, 2017/2018

There is significant potential to substitute the import of milk and milk products. Nepal imported dairy products of value NRs. 148.42 million in 2015/2016 which was 106.49 million in 2011/12. While on the other hand export was only NRs. 21 million in FY 2015/16 and 17.53 million in 2012/2013. IN such circumstances, only substituting the import, the country could save at least NRs.148 million. The trade deficit is due to high import of processed dairy products. On the other hand, our established dairy industries are not in condition to keep their eyes to produce such processed dairy products so that they can substitute the import at least.

Dairy industries are raising their issues that the produced raw milk is substandard and is not good enough to produce value added products. They are arguing that, it is very difficult to compete with cottage dairy industries who are selling un-processed dairy products and international dairy

processors whose production cost is low. Until and unless, the quality milk production assuring GHP and connectivity with unerupted supply of electricity, dairy industries could not flourish.

Unless and until the dairy industries complement the fluid milk marketing with other value-added products, the profit maximization could not be achieved. Our dairy industries are being fighting for their survival and demanding increase the consumer price. Only increasing the milk price could not bring permanent solution, for that our dairy industries should diversify their business and start to produce different dairy products that are being imported at the initial stage and increase production for export. There is tremendous opportunity to produce SMP, dairy whitener, butter oil, butter, cheese, confectionaries, chocolates, condensed milk,

It required considerable finance to execute the value-added product production facility, on the other hand, investors are reluctant due to un-availability of raw materials. There is no way to escape by the dairy industries and are to struggle to operate industries efficiently. For that, they have to diversify the potential dairy products establishing their own milk production pockets. It requires policy safeguard in financing (e.g. easy access and availability of finance) for increased milk production and milk marketing (e.g. buy back guarantee) including export and import (e.g. low export and high import tariff) of dairy products.

4.10 Dairy products production and distribution channel and ultimate markets

Most of the dairy industries are producing fluid milk, dahi, paneer and ghee. The small, medium and large dairies are also producing ice-cream, cheese (hard and mozzarella), churpi, butter, sweets and confectionaries. There are two Milk Powder Plants operating one under DDC and other Sujal dairy.

Table: 4.10 Dairy products, market and marketing channel of dairy industries

SN	Dairies	Products produced	Market	Marketing channel
1	Large Dairies	<p><u>DDC</u> the first dairy processing industry in Nepal has been producing fluid milk, curd, ghee, butter, cheese, paneer, ice-cream, sweets (lalmohan, Rasbari, Peda), lassi and fresh milk in “DDC” brand. DDC is also succeed to take organic label in Yak Cheese.</p> <p>Sujal dairy producing fluid milk, curd, ghee, ice cream, butter, nauni, paneer and flavored milk in “Safal” brand. After the inclusion of the powder plant facility it was the first company in the country to bring SMP for industrial use and Alpine Dairy Whitener, Lovebirds Ice-cream and confectionaries.</p> <p>Sitaram Gokum milks Pvt. Ltd. is being produced Pasteurized fluid milk, butter,</p>	<p>DDC has its market at different cities across the country. The market included Kathmandu, valley, Kabre, hetauda, Biratnagar, Itahari, Inaruwa, Lahan, Janakpur, Birgunj, Bharatpur, Nepalgunj, Surkhet, Dhangadi and other major cities of Nepal. Pokhara, Baglung, Putalibazaar, Chitwan.</p> <p>Kathmandu valley.</p>	<p>DDC has its 1702 milk sales booth, 54 franchise shops, 10 own sales counter and 13 distributors. It has market network in different 13 districts namely Kathmandu, Bhaktapur, Lalitpur, Kabre, Nuwakot, Dhading, Gorkha, Tanahu, Morang, Jhapa, Sunsari, super markets, Large marts Own sales counter, whole seller, retailers, super markets, Large marts.</p> <p>Whole sellers, retailers, super markets, Large marts. Whole sellers, retailers, super markets, Large marts.</p>

SN	Dairies	Products produced	Market	Marketing channel
		dahi, Ghee and peda Himalaya Dairy Pvt. Ltd. being produced fresh UHT fluid milk, curd, ice-cream, Ghee, paneer etc.	Kathmandu valley.	
2	Medium Dairies	Producing standard fluid milk, curd, paneer, ghee, butter, sweets, cheese (mozzarella). Nepal Dairy Nepal Dairy is producing fluid milk, curd, ice-cream in “ NDs ”, Pizzas, cakes, pastries, sweets and fast foods.	Medium dairies have their market in Kathmandu valley, Damak, Kakarbhitta, Birtamod, Itahari, Dharan, hetaunda	Whole sellers, retailers, super markets, Large marts, bakeries and own sales counters
3	Small Dairies	Producing standard fluid milk, curd, paneer, ghee, butter, sweets, chhurpi etc.	Local markets. mainly the district headquarters and its periphery.	Have own sales counters, bakeries and retailers.
4	Cottage Dairies	Producing standard fluid milk, curd, paneer, ghee, butter, sweets, chhurpi, cheese etc.	Local markets. Mainly district headquarters	Have own sales counter, sometimes home delivery to the fixed customers.
5	SMP Plants	Producing SMP, ghee and butter	The respective SMP plants are providing their product to their own industry.	

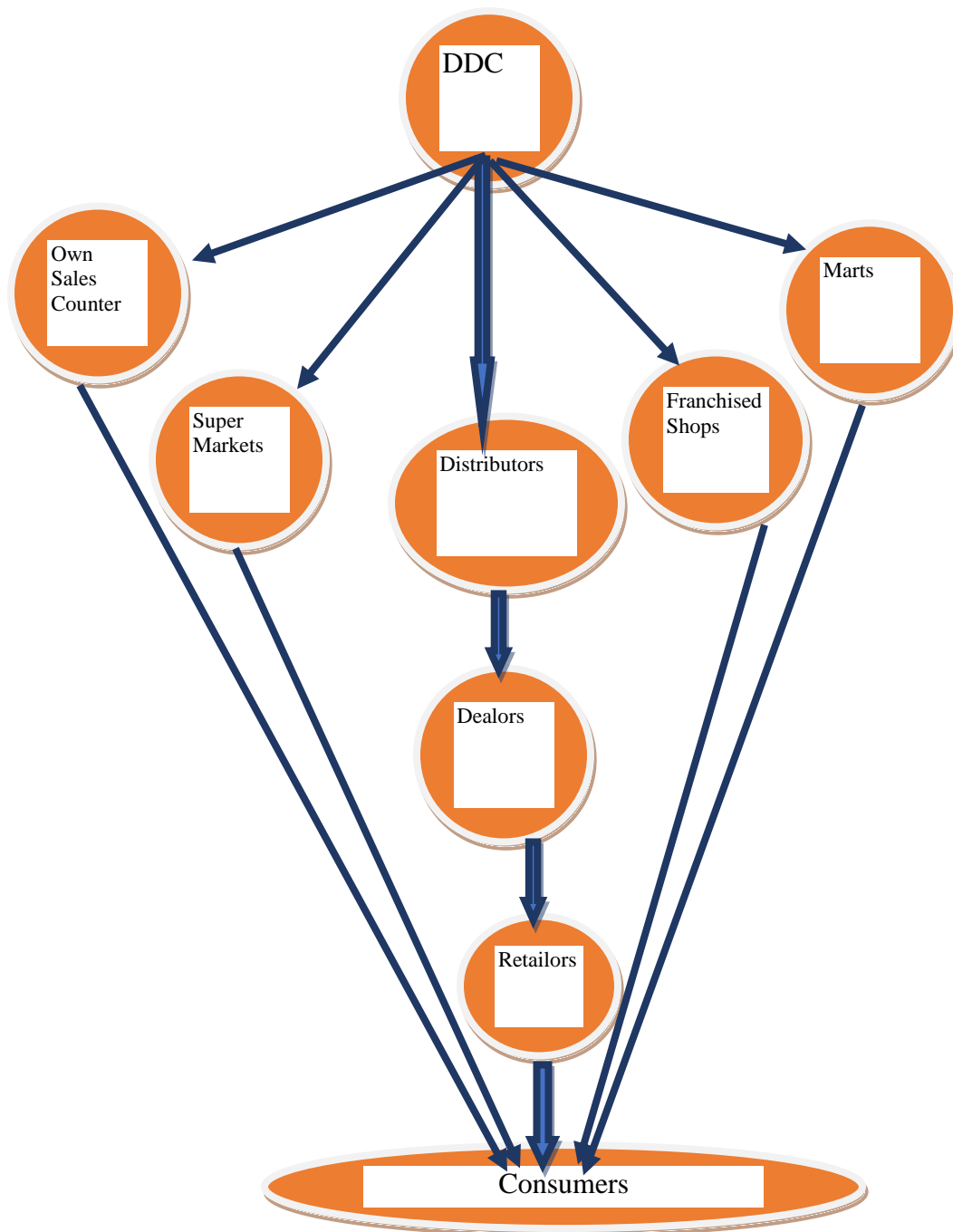


Fig: 1 Dairy Products Distribution Channel of DDC

The distribution channel of dairy products produced by DDC was found in spider net daiagramme. Fig 6 explains on the distribution channel of DDC. There are own sales counter, franchise sales outlets, contact to super market and marts. Similarly, DDC has distributors, these distributors supply dairy products to whole seller and whole seller to retailers and from retailers consumer get dairy products.

On the other hand, consumer can get the DDC products directly from sales counter, franchised outlets, marts or the super markets.

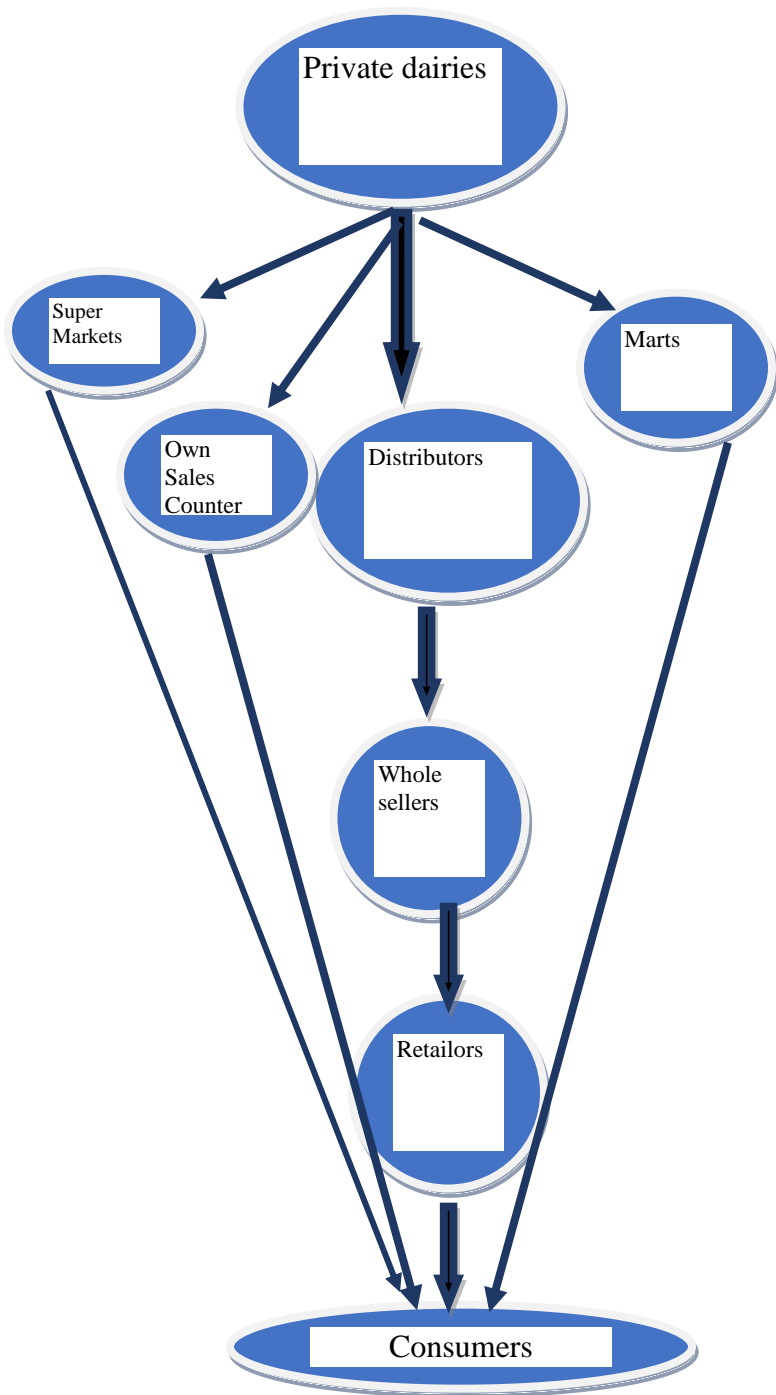


Fig: 2 Dairy Products Distribution Channel of Private Dairies

Fig 7 explains on the distribution channel of private dairies. Distribution channel of private dairies is like that of DDC except franchise outlets. There are own sales counter, contact to super market and marts. Private dairies have distributors, these distributors supply dairy products to whole seller and

whole seller to retailers and from retailers, consumer get dairy products. On the other hand, consumer can get their products directly from sales counter, franchised outlets, marts or the super markets.

4.11 Milk Products Marketing outlets of the Industries

Different outlets have been open by the dairy industries to sale their products. In an average large dairy had 5 own sales counters while medium dairies, small dairies, cottage dairies and SMP plants had 1 each own sales counter.

Table: 4.11 Milk marketing outlets by industries type

Marketing outlets	Dairy Type									
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	N	Avg	N	Avg	N	Avg	N	Avg	N	Avg
Own sales counter (Nos)	16	5	6	1	12	1	38	1	2	1
Wholesale (Nos)/distributors	19	6	60	10	45	5	9	0	4	2
Retail (Nos)	950	316	1070	178	100	11	0	0	0	0
Franchise (Nos)	54	18	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0
Total	1039	346	1136	189	157	17	47	1	6	3

Source: Field Survey 2018

Average whole seller/ distributors of large, medium, small, cottage and SMP plants were 6, 10, 5, 0 and 4 respectively. Average number of retail shop of the large dairies, medium dairies, small dairies were 316, 178, and 11 respectively, whereas no retailers was found of cottage dairies and SMP plants.

5.1 Hazard management practice

Hazard identification can be separated into two distinctly different parts, the identification of all potential hazards and the evaluation of the identified potential hazards to determine which are considered to have severe adverse health effects and/or are reasonably likely to occur and therefore need to be controlled through the implementation of effective control measures.

The hazard identification needs to be based on the initial descriptions developed during preliminary steps contained in the *General Principles of Food Hygiene* (CAC/RCP 1-1969), HACCP Annex and on experience, external information, as well as epidemiological and other historical data that have been associated with the type of food under consideration, the type of raw materials and ingredients used, and that may be introduced during the processing distribution. To insure a comprehensive approach, the various step(s) in the manufacturing process, from material selection through processing and distribution, where a hazard may occur or be introduced should be identified.

For microbiological hazards, the likelihood of occurrence will depend on the actual prevalence in the milk and raw materials used. Factors influencing the prevalence are climatic conditions, animal species, prevalence of animal disease (sub-clinically or clinically) caused by the organism, prevalence of mastitis including the relative distribution of causing organisms, the adequacy of primary production practices including the potential of environmental contamination (feeding practices, water quality, milking hygiene level), and the potential for human contamination.

Consultation of the competent authorities having jurisdiction in relation to the herds is recommended. When evaluating potential microbiological hazards, consideration has to be given to which of the organisms are likely to be present in the milk. For instance, microbiological hazards that are not relevant in the geographical area of concern (e.g. because the prevalence is insignificant or zero) can be ruled out at an early stage. Also, where it can be verified that specific sanitary measures are successfully applied during primary production to prevent or significantly reduce introduction of a pathogen into the herd, including efficient eradication programmes, the pathogen in question may be ruled out. The manufacturer or other appropriate party is responsible for documenting the conditions that support such a determination. This can be accomplished by documenting the OIE status (e.g. disease-free area), the effectiveness of national programmes, the effectiveness of individual producer screening programmes, on the basis of documented historical evidence, and through the development of epidemiological evidence.

Regular analysis of the milk (including but not restricted to microbiological analyses) received at the manufacturing establishment producing milk products can be used to verify the implementation of control measures affecting the likelihood of occurrence of a hazard, depending upon the technology used and the kind of milk product being made. Hazard identification needs to take into consideration the allergenic nature of some foods. Milk products may contain ingredients such as nuts, eggs and cereal grains that are known to be allergens.

Further, any additional hazards that can be introduced into the milk product during and after processing (e.g. environmental contamination, human contamination) should also be considered. During such considerations, the effectiveness of preventive measures taking place in the manufacturing environment (e.g., environmental and equipment sanitation programmes, employee practices, pest control programmes, etc.) could be evaluated to determine the likelihood of occurrence

of potential hazards. It was however, observed that the dairy industries are not serious on this aspect and only directed to dispatch the milk and products in the market.

5.2 Operation of Good Manufacturing Practice (GMP)

Good Manufacturing Practices (GMPs) describe the methods, equipment, facilities, and controls for producing processed food. As the minimum sanitary and processing requirements for producing safe and wholesome food, they are an important part of regulatory control over the safety of the nation's food supply. GMPs describe the general conditions or practices in a food processing facility, more specific sanitation procedures and standard operating procedures that are site specific should be developed for each plant. GMPs also apply to all parts of a food operation including: receiving, storage, processing, handling, and shipping of the finished product.

The Importance of GMPs

- GMPs extend the shelf and storage life of products
- GMPs reduce the risk of a product or process suspension
- Proper GMPs reduce the risk of foodborne illnesses
- Reduced product reprocessing
- Compliance with federal and commercial product specifications
- Reduced number of product rejections, returns, and/or complaints

GMP vs. SOP.

GMPs are usually refer to practices and procedures performed by a food processor which can affect the safety of the food product. GMPs may refer to the people, equipment, process and the environment in the production process. A **Standard Operating Procedure (SOP)** is “established or prescribed methods to be followed routinely for the performance of designated operations or in designated situations.” SOPs may be thought of as one task that is performed in the production process.

During the time of field survey, it was found that the GMP is not following particularly by the cottage and small industries. The dairies were operating in very congested place, lack of water supply frequent fluctuation of power supply, poor road (dusty), scratched wall and roof, soiled milk container, poorly established laboratory facility, easy access to all people was rampant.

- Dairies were not driving moving towards modernization, they don't have efficient management and maintaining surrounding cleanliness.
- Pipelines and valve were rusted, leaking in most of the medium, cottage and small dairies.
- The old machinery used for several years, never tested efficiency and updated as per required.
- Many cottage, small and medium scale dairies dose not had trained dairy technicians.
- None of the dairies had applied the training and motivation of the factory workers for maintaining personal hygiene and maintaining quality products through popper industry operating producers.
- The basic amenities for the workers were available in most of the industries
- Dairies lack treatment plant and management of effluent seems to a major problem.
- Many cottage and small dairies had poor laboratory or non-functional laboratory for micro biological test. The microbiological quality of the products and consumers were not conscious on quality and hygienic milk and milk products particularly the absence of coliform bacteria in the pasteurized milk.
- Most of the dairies have no quality testing practice and not following testing procedures
- The pest control system inside the dairy premises was lacking which need to be in place.

- Regulation for visitors were not stringent in most of the dairies
- The storage of packing materials was found elsewhere in the dairy premises that may cause handling/processing contamination.

5.3 Compositional quality of milk and milk products

Fat and SNF was tested for compositional quality. Compositional quality of the processed milk was checked using Lactoscan machine (LACTOSCAN SA, MILK ANALYZER, LCD display -4 lines x16 characters, HEAD OFFICE, 4, Narodni Buditeli Str., 8900 Nova Zagora, BULGARIA), as per the Milkotronic Operation Manual (2008). It was found that cent percent large, medium and small dairies meet the minimum percent of fat and SNF which was 3 percent and 8 percent respectively.

Table 5.1 Compotitional quality of processed standard milk

Quality	Dairy Type									
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	N	%	N	%	N	%	N	%	N	%
Fat < 3%	0	0	0	0	2	22.22	0	0	0	0
Fat 3%	3	100	6	100	6	66.66	19	50	1	50
Fat > 3%	0	0	0	0	1	11.11	19	50	1	50
Total	3	100	6	100	9	99.99	38	100	2	100
SNF < 8%	0	0	0	0	0	0	8	21.053	0	0
SNF 8%	3	100	6	100	8	88.88	22	57.894	0	0
SNF >8%	0	0	0	0	1	11.11	8	21.052	0	0
Total	3	100	6	100	9	99.99	38	99.999	0	0

Source: Field Survey 2018

It was found that 22.22 percent small dairies produced milk had less than 3 percent fat 11.11 percent had more than 8 percent SNF. Similarly, 50 percent of the cottage dairies produced milk had more than 3 percent fat and 21.05 percent had more than 8 SNF and 21.05 percent cottage dairies milk had less than 8 percent SNF. Thus, chemical quality of small and cottage dairies was not consistent with the national standard.

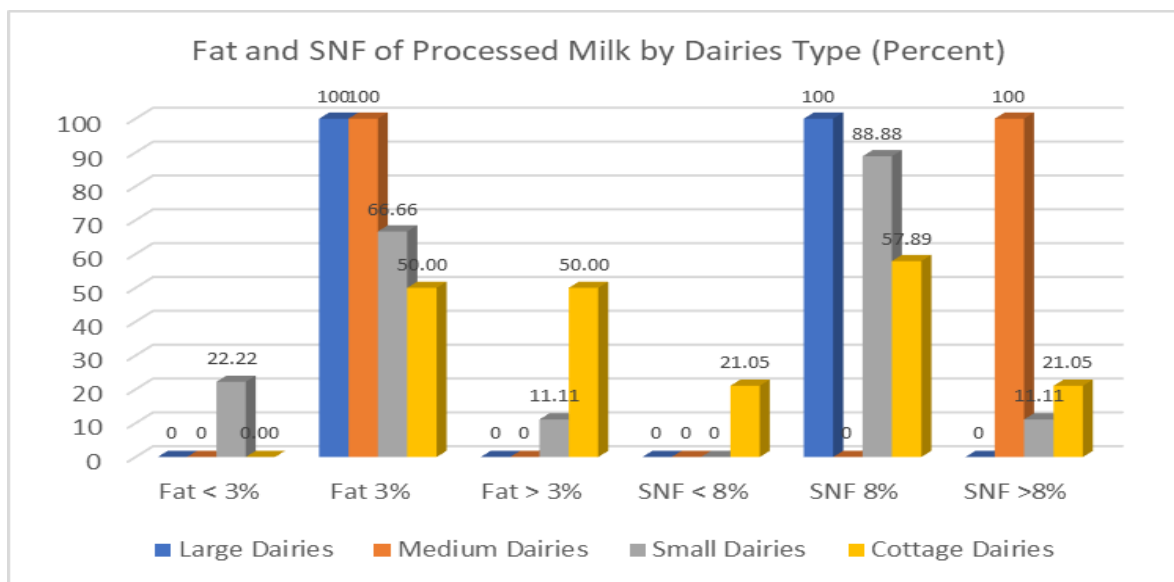


Chart:6 Fat and SNF of processed milk by dairies type (Percent)

5.4 Bacterial quality of processed milk and dairy products

Bacterial quality of the milk was tested by COB, MBRT and Total Plate Count where the facility was found. **For Methylene blue reduction test**, methylene blue tablets were dissolved in distilled water to prepare 0.005% solution. One mL of this dye was added to 10 ml of milk sample in a test tube placed in a water bath at 37°C (Vlab 2013). The MBRT result have been concluded using following standard.

Table: 5.2 Quality of milk for MBRT

Quality of the Milk	MBRT time	Appx self-life at 4° C	Appx bacterial count in 1 Ml
Good	5 hrs	40 hrs??	<500,000
Fair	2-5 hrs	30	500,000- 400,00,000
Bad	20 minute-2 hrs	10	40,00,000- 20,000,000
Very bad	20 minutes or less	Less than 10	> 20,000,000

The spread plate method was used for enumerating the bacteria (IDF, 1991). Serial decimal dilutions of raw milk samples were made in 0.1% buffered peptone water (CM 0509 Oxoid, England). One hundred micro-litres of milk sample was spread in duplicate over the dry sterile plates of Nutrient Agar (M001 Himedia, India) for TPC. The plates were then covered, inverted and incubated at 37°C for 48 hours. A colony counter was used to count the colonies on the plates and the results were recorded.

Table: 5.3 Bacterial quality of processed standard milk

Bacterial Quality	Dairy Type									
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	N	%	N	%	N	%	N	%	N	%
COB Positive	0	0	0	0	0	0	7	18.42	0	0
COB Negative	3	100	6	100	9	100	31	81.58	2	100
MBRT <3 hrs			0		0		0		0	
MBRT 3-5 hrs			0		0		0		0	
MBRT > 5 hrs	3		5	100	3	100	6	100	0	
TPC										
Null	3	100	3	100	1	25	1	25		
< 50000			0		3	75	3	75		

Source: Field Survey 2018

COB was negative to entire sample except in 18.42 percent cottage dairy industries. Hundred percent milk samples tested had MBRT time more than 5 hours. While counting the colonies for TPC, 100 percent of the milk produced by large dairies had no colony while 75 percent each from small and cottage industries had less than 50,000. Thus, the bacterial quality of milk was good from large and medium dairies and there is need to improve in small and cottage industries.

The laboratory hand book for dairy industries 2001 prepared by NDDB and being used by DDC was used to test the quality of dairy products. Table 5.4 describes on the quality of few dairy products, moisture content of the ice-cream was 60 percent, paneer 55.0 percent, dahi 84.5 percent, cheese 34.2 and churpi 14 percent. Fat content of the ice-cream was 15.8 percent, paneer 25 percent, dahi 3 percent and Cheese 24 percent.

Table 5.4 Compositional and bacterial quality of dairy few products

Dairy Products	Ice-cream	Paneer	Dahi	Cheese	Churpi
Moisture %	60.00	55.00	84.50	34.20	14.00
Fat %	15.80	25.00	3.00	24.00	NA
Acidity %	1.00	-	1.04	0.97	-
Protein %	5.30	14.40		27.50	56.80
Microbial analysis (TPC)/ gm	49X10 ¹ -79 X10 ¹	10 ¹ X12X10 ¹	12X4X10 ² -64X 10 ²	37X10 ¹	-ve

Source: DFTQC 2006/2007

TPC count of the all the dairy products was found more than the international standard specified by codex.

5.5 Bacterial quality of Raw milk

More than 60 percent of the raw milk collected by the dairy industries were found good quality raw milk collected as the MBRT time was more than 5 hours in 66.67 percent large, 60 percent medium, 42.86 percent small and 84.21 percent cottage industries. Fair quality milk was collected by 33.33 percent large, 40 percent medium, 57.14 percent small and 15.79 percent cottage industries. The quality of cottage industry collected milk was found good as they normally milk and collect and no need to bulking.

Table: 5.5 Bacterial quality of Raw milk

Bacterial Quality/ MBRT time	Dairy Type									
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	N	%	N	%	N	%	N	%	N	%
<3 hrs	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
3-5 hrs	1	33.33	2	40.00	4	57.14	6	15.79	1	50.00
> 5 hrs	2	66.67	3	60.00	3	42.86	32	84.21	1	50.00
Total	3	100.00	5	100.00	7	100.00	38	100.00	2	100.00

Source: Field Survey 2018

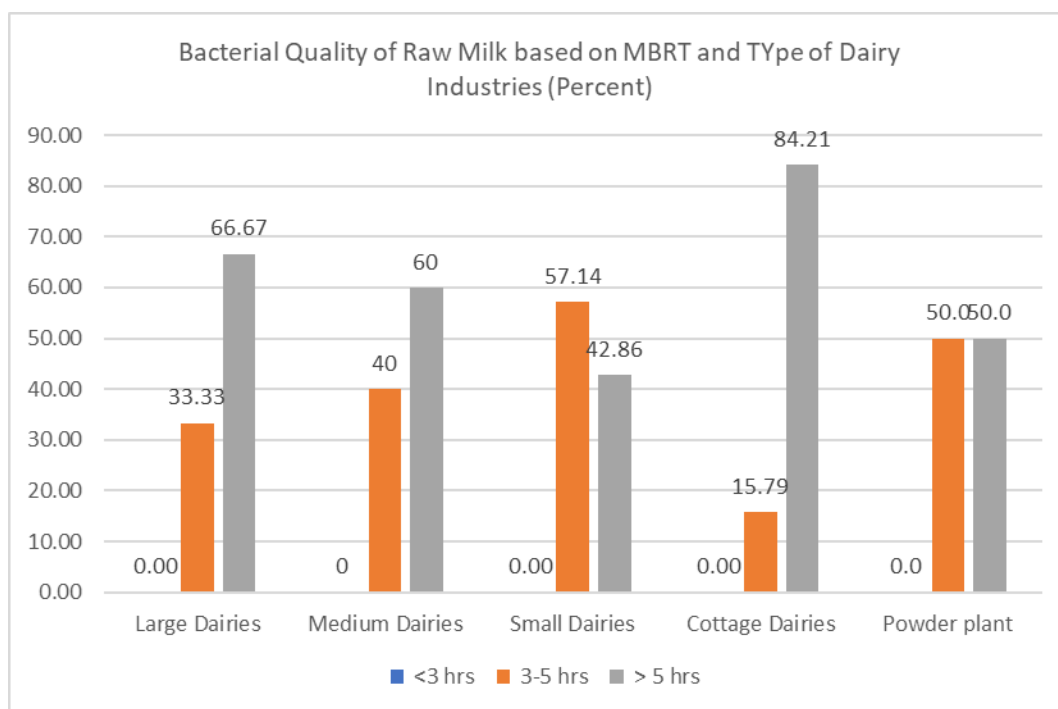


Chart:7 Bacterial quality of raw milk (Percent)

CHAPTER-VI
Financial Efficiency of Dairy Industries

6. The financial efficiency of the industries

Efforts was made to collect the financial information from the dairy industries, but it was very difficult to get such information. In few instances, responsible persons were not available in place and still others show reluctance to provide data. However, the analysis has been done based on the available data.

6.1 Fixed Cost of dairy Industries

The average annual fixed cost of the large, medium, small, cottage and SMP plant was NRs. 299,659.36, 26,550.13, 4,641.73, 4,661.14 and 22,826.25 thousand respectively.

Table: 6.1 Average annual fixed cost of the dairy industries ('000)

Costs	Dairy Type									
	Big (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	NRS	%	NRS	%	NRS	%	NRS	%	NRS	%
Building and civil works	3,652.38	1.22	4,702.50	17.71	362.52	7.81	173.00	3.71	3,096.00	13.56
Machinery/ equipment	7,941.30	2.65	10,226.37	38.52	782.28	16.85	371.00	7.96	6,871.00	30.10
Office equipment	426.42	0.14	551.76	2.08	38.16	0.82	49.00	1.05	371.00	1.63
Furniture	182.31	0.06	238.26	0.90	19.08	0.41	49.00	1.05	155.00	0.68
Vehicle	2,422.56	0.81	3,122.46	11.76	238.50	5.14	49.00	1.05	2,119.00	9.28
Insurance (a. @. on Fixed Asset Investment)- As per audit report										
Building and civil works	324.64	0.11	280.00	1.05	150.00	3.23	10.00	0.21	280.00	1.23
Machinery/equipme nt	1,025.00	0.34	487.5	1.84	250.00	5.39	10.00	0.21	1,025.00	4.49
Office equipment	20.00	0.01	40	0.15	25.00	0.54	0.50	0.01	20.00	0.09
Vehicle	150.00	0.05	250	0.94	100.00	2.15	1.00	0.02	150.00	0.66
Furniture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Others (if any)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Office Overheads		0.00		0.00		0.00		0.00		0.00
a. Postage, telephone, fax etc,	4.02	0.00	4.87	0.02	0.95	0.02	1.09	0.02	3.10	0.01

Costs	Dairy Type									
	Big (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	NRS	%	NRS	%	NRS	%	NRS	%	NRS	%
b. Stationery & printing,	12.05	0.00	15.23	0.06	0.95	0.02	1.09	0.02	9.70	0.04
c. Audit fee and others	1.85	0.00	3.05	0.01	0.10	0.00	0.38	0.01	1.70	0.01
d. Publicity & promotion	8,300.00	2.77	766.00	2.89	757.00	16.31	395.00	8.47	8,300.00	36.36
e. Traveling Expenses	7.73	0.00	9.14	0.03	0.19	0.00	0.08	0.00	2.75	0.01
f. Others (if any)	274,057.00	91.46	5,050.00	19.02	852.00	18.36	172.00	3.69	0.00	0.00
Fixed Electricity Charges (On installed Capacity of 150 KW @ KW)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Indirect Labor										
Manager	150.00	0.05	187.00	0.70	232.00	5.00	746.00	16.00	90.00	0.39
Officers	90.00	0.03	147.00	0.55	193.00	4.16	543.00	11.65	62.00	0.27
Accountant/Storekee per	172.00	0.06	152.00	0.57	194.00	4.18	553.00	11.86	112.00	0.49
Assistants	57.00	0.02	111.00	0.42	156.00	3.36	533.00	11.43	42.00	0.18
Peons, guards	138.00	0.05	206.00	0.78	260.00	5.60	958.00	20.55	82.00	0.36
Perk (if any)	525.00	0.18	0.00	0.00	30.00	0.65	46.00	0.99	34.00	0.15
Total	299,659.26	100.00	26,550.13	100.00	4,641.73	100.00	4,661.14	100.00	22,826.25	100.00

Source: Field Survey 2018

6.2 Variable Cost of dairy Industries

Average annual variable costs of the large, medium, small, cottage dairy industries and SMP plant was 6,442,210.33, 2,423,790.85, 598,461.25, 487,657.28 and 1,170,552.31 thousand respectively

Table: 6.2 Average annual variable cost of the milk processing plant ('000)

Costs	Dairy Type									
	Big (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	NRS	%	NRS	%	NRS	%	NRS	%	NRS	%
Material Inputs										
a. Raw Milk,	4,981,950.00	77.33	1,884,147.00	77.74	478,072.50	79.88	403,898.25	82.82	1,164,390.80	99.47

Costs	Dairy Type									
	Big (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	NRS	%	NRS	%	NRS	%	NRS	%	NRS	%
b. Auxiliary Materials (Sugar, Skimmed Milk Powder, lactic acid, essence, ice-cream flavor etc) @ of raw milk	752,812.50	11.69	193,300.00	7.98	101,045.00	16.88	71,677.10	14.70	245.64	0.02
c. Packaging Material (fluid milk, dahi, paneer, ghee.....),	701,393.30	10.89	326,147.00	13.46	13,000.00	2.17	7,103.50	1.46	3,215.87	0.27
d. Chemicals & Glassware,	1,174.00	0.02	158.00	0.01	190.00	0.03	77.70	0.02	1,000.00	0.09
e. Miscellaneous	174.00	0.00	100.00	0.00	102.00	0.02	9.00	0.00	0.00	0.00
Utilities -Processing Cost										
Diesel /lit, Lubricants	100.00	0.00	9,058.56	0.37	3,477.75	0.58	464.73	0.10	100.00	0.01
Water and Electricity	1,100.00	0.02	746.99	0.03	635.57	0.11	1,618.50	0.33	1,100.00	0.09
3. Repair & Maintenance	500.00	0.01	630.00	0.03	1,481.55	0.25	204.50	0.04	500.00	0.04
a. Building & Civil Works	750.69	0.01	5,000.00	0.21	0.00	0.00	2,000.00	0.41	0.00	0.00
b. Plant & Machinery	1,632.66	0.03	705.00	0.03	243.52	0.04	0.00	0.00	0.00	0.00
c. Vehicles	498.06	0.01	3,638.30	0.15	179.86	0.03	450.00	0.09	0.00	0.00
d. Furniture & Fixtures	125.12	0.00	160.00	0.01	33.49	0.01	154.00	0.03	0.00	0.00
Total	6,442,210.33	100.00	2,423,790.85	100.00	598,461.25	100.00	487,657.28	100.00	1,170,552.31	100.00

Source: Field Survey 2018

6.3 Average investment cost of dairy Industries

Total investment costs of the large, medium, small, cottage dairy industries and SMP plant was 313,879.67, 178,260.37, 115,043.63, 3,853.08 and 233,771.50 thousand respectively.

Table: 6.3 Average investment cost of the milk processing plant ('000)

Costs	Dairy Type									
	Big (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	NRS	%	NRS	%	NRS	%	NRS	%	NRS	%
Land and land development (Ropani)	98,937.68	31.52	53,336.58	29.92	33,777.78	29.36	714.47	18.54	38,115.00	16.30
Factory and office	30,094.13	9.59	24,414.81	13.70	14,722.22	12.80	861.84	22.37	26,460.00	11.32

Costs	Dairy Type									
	Big (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	NRS	%	NRS	%	NRS	%	NRS	%	NRS	%
building										
Godown, latrine	975.00	0.31	771.00	0.43	451.11	0.39	29.08	0.75	845.00	0.36
Electrification	960.00	0.31	774.00	0.43	444.44	0.39	29.42	0.76	850.00	0.36
Water boring, contingency	1,168.67	0.37	936.83	0.53	532.22	0.46	35.92	0.93	1,004.00	0.43
Plant, Equipment & Machinery (including crates and trays)	100,836.67	32.13	37,833.33	21.22	25,277.78	21.97	1,009.21	26.19	48,725.00	20.84
Raw Milk Reception Section	5,021.25	1.60	3,918.75	2.20	2,650.00	2.30	97.84	2.54	10,275.00	4.40
Refrigeration / Chilling section	15,063.75	4.80	11,732.67	6.58	7,950.00	6.91	294.68	7.65	30,775.00	13.16
Processing Section	5,021.25	1.60	3,918.75	2.20	2,650.00	2.30	97.84	2.54	10,275.00	4.40
Rage and packaging section	5,016.10	1.60	3,866.50	2.17	2,703.00	2.35	98.34	2.55	10,175.00	4.35
Steam Section	5,026.40	1.60	3,989.83	2.24	2,428.17	2.11	98.03	2.54	10,150.00	4.34
Butter and ghee section	4,918.25	1.57	3,971.00	2.23	2,671.20	2.32	96.76	2.51	10,425.00	4.46
Yoghurt, Ice cream and Paneer Section	1,506.38	0.48	1,149.38	0.64	781.25	0.68	29.55	0.77	3,077.50	1.32
Laboratory equipment	1,004.25	0.32	766.25	0.43	520.83	0.45	19.97	0.52	2,025.00	0.87
Crate, Crate Washer, Deep freeze,	1,005.28	0.32	764.21	0.43	531.25	0.46	19.97	0.52	2,012.50	0.86
CIP system complete	4,919.28	1.57	3,960.55	2.22	2,650.00	2.30	96.76	2.51	10,425.00	4.46
Custom and freight cost	1,003.22	0.32	768.29	0.43	519.79	0.45	19.97	0.52	2,001.00	0.86
Erection and Commission	502.13	0.16	383.13	0.21	260.42	0.23	9.76	0.25	1,022.50	0.44
Furniture & Fixtures	1,236.00	0.39	919.50	0.52	781.25	0.68	14.47	0.38	599.00	0.26
office equipment	2,884.00	0.92	2,145.50	1.20	1,822.92	1.58	33.32	0.86	1,405.00	0.60
Vehicles (Milk and Milk Product Transport Vehicles, milk tanker)	25,750.00	8.20	17,417.02	9.77	10,600.00	9.21	96.76	2.51	12,725.00	5.44
Pre-operating Expenses (Feasibility Study, Project design, management, consultation & supervision, Traveling expenses, Postal/communication Expenses, Advertisement & publicity, License & registration, Rentals, Miscellaneous)	1,030.00	0.33	522.50	0.29	318.00	0.28	49.08	1.27	405.00	0.17
Total	313,879.67	100.00	178,260.37	100.00	115,043.63	100.00	3,853.08	100.00	233,771.50	100.00

Source: Field Survey 2018

6.4 Profit of the dairy Industries

Profit of the dairy industries was calculated assessing the fixed and variable costs and the revenue generated out of sale of the dairy products. Net profit was calculated after deducting commission offered, distribution cost, loss and the tax incurred. It was found that the net profit of the large dairy industries was NRs. 179,139.28 thousand medium dairy industries were Rs. 61,462.34 thousand, small dairies were NRs. 10,559.31 thousand, cottage dairies was NRs. 1,989.85 thousand and SMP plant was NRs. 88,125.36 thousand. The IRR was 16.30 percent, 25.06 percent, 25.66 percent, 25.59 percent and 24.44 percent respectively in large, medium, small, cottage and SMP plants.

Table: 6.4 Profit of the dairy industries ('000)

Costs Items	Dairy Type				
	Big (processing > 50,000 Lits/day)	Medium (processing 10,000- 50,000 Lits/day)	Small (processing 1000- 10000 Lits/day)	Cottage (processing 1000 or less Lits/day)	Powder plant (8 ton/day)
	NRS	NRS	NRS	NRS	NRS
Fixed cost of the milk processing plant	299,659.26	26,550.13	4,641.73	4,661.14	22,826.25
Variable costs	6,442,210.33	2,423,790.85	598,461.25	487,657.28	1,170,552.31
Interest on fixed cost	37,665.56	21,391.24	13,805.24	462.37	28,052.58
Total Cost	6,779,535.16	2,471,732.23	616,908.22	492,780.79	1,221,431.14
Income	7,884,884.51	3,091,046.88	775,226.28	618,870.88	1,519,983.97
Comission 2%	157,697.69	61,820.94	15,504.53	12,377.42	30,399.68
Distribution cost 2%	157,697.69	61,820.94	15,504.53	12,377.42	30,399.68
Loss 2%	157,697.69	61,820.94	15,504.53	12,377.42	30,399.68
Gross profit	632,256.28	433,851.84	111,804.49	88,957.83	207,353.80
Tax 15%	94,838.44	65,077.78	16,770.67	13,343.68	31,103.07
Income after tax	537,417.84	368,774.06	95,033.81	75,614.16	176,250.73
Average net profit	179,139.28	61,462.34	10,559.31	1,989.85	88,125.36
IRR	16.30	25.06	25.66	25.59	24.44

Source: Field Survey 2018

6.5 Contribution of dairy industries in economic development

Dairy sector has been an instrument to pull the urban capital to rural areas and provide services to the urban consumer. Dairy industries have been working to bridge dairy farmers and the consumers and

urban and rural trade. It is said that; dairy sector contributes nearly two-third of the livestock and around 9 percent in the total GDP and regarded as the most important livestock subsector in Nepal. Nearly 1658 (DoC website, 2074 Chait) Milk Producers Cooperatives (MPCs) having 12853 executive members and total share members are 105,893. There are 1653 staff members in those MPCs, total share capital was NRs. 330,980,000, total deposited capital was NRs. 850,669,000, loan distribution was NRs. 812,097,000 and reserve fund was NRs. 9,953,000. Major market of these MPC are the dairy industries.

In an average, large dairies have been providing employment for nearly 150 people, medium dairies proving employment to 44, small providing to 10 and cottage dairy industries providing employment to 4 people. According to dairy industries, the minimum pay scale of the employee has been not less than NRs. 15,000 and maximum of NRs. 200,000 per month.

Key informants interview and FGD participants mention the contribution of dairy industries in different ways. The contribution mentioned were: Increased employment opportunity, expansion of the dairy business, encourage the dairy farmers to produce more, increased source of income, improvement in the livelihood of the people, increased collaboration and partnership, support for roads construction and increased investment in education.

CHAPTER-VII
Management Efficiency of Dairy Industries

7. Management efficiency of the dairy industries

Personnel management is an administrative function of an organization that exists to provide the personnel needed for organizational activities and to manage the general employee-employer relationship.

The job of **human resource management** is to ensure that the organization has the human capital it needs to accomplish its goals. 'Human capital' is a fancy way of describing employees with a certain set of knowledge, skills and abilities that can be used by an organization in a productive way.

Different parameters were analysed to gauge the management of the dairy industries viz: human resource management, financial management, personal management and marketing management.

7.1 Human resource management

Table 6.1 bellow spell out the human resource management of the dairy industries. It was found that 100 percent large industries, 33.33 percent medium industries, 33.33 percent small industries, 23.68 percent cottage industries and 100 percent SMP plants manage the staff training.

When asked the type of the training offered by the dairy industries, 100 percent large and SMP plants said they offered skill training. Processing training was offered by 66.67 percent large and 100 percent SMP plants while marketing training was offered by 50 percent medium and 33.33 percent large dairy industries.

Staff upgrading practice was in place in 100 percent large and SMP plants while 66.67 percent medium, 33.33 percent small and 15.79 percent cottage dairy industries were also practicing it.

Table: 7.1 Human resource management of the dairy processing industries

Human resource management indicators	Dairy Type									
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	Nos	%	Nos	%	Nos	%	Nos	%	Nos	%
Manage training to staffs by the dairy industries										
Yes	3	100.00	2	33.33	3	33.33	29	23.68	2	100.00
No	0	0.00	4	66.67	6	66.67	9	76.32	0	0.00
Total	3	100.00	6	100.00	9	100.00	29	100.00	2	100.00
Type of training offered by the dairy industries										
Skill training	3	100.00	1	50.00	2	66.67	5	55.56	2	100
Processing	2	66.67	0	0.00	1	33.33	3	33.33	2	100
Packing training	1	33.33	0	0.00	0	0.00	1	11.11	0	0

Human resource management indicators	Dairy Type									
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	Nos	%	Nos	%	Nos	%	Nos	%	Nos	%
Marketing	1	33.33	1	50.00	0	0.00	0	0.00	0	
Total	7	100.0	2	100.00	3	100.00	9	100.00	4	
Personnel up grading system in the dairy industries										
Yes	3	100.00	4	66.67	3	33.33	6	15.79	2	100.00
No	0	0.00	2	33.33	6	66.67	32	84.21	0	0.00
Total	3	100.00	6	100.00	9	100.00	38	100.00	2	100.00
Personal development plan following by the dairy industries										
Yes	3	100.00	3	50.0	2	22.22	6	15.79	2	100.00
No	0	0.00	3	50.0	7	77.78	32	84.21	0	0.00
Total	3	100.00	6	100.00	9	100.00	38	100.00	2	100.00
Staff recruitment process used by the industries										
Interview	0	0.00	0	0.00	1	11.11	1	2.63	0	0.00
Open competition	1	33.33	1	16.67	1	11.11	1	2.63	2	100.0
By personal contract	2	66.67	5	83.33	7	77.78	35	92.11	0	0.00
Direct	0	0.00	0	0.00	0	0.00	1	2.63	0	0.00
Total	3	100.00	6	100.00	9	100.00	38	100.00	2	100.0

Source: Field Survey 2018

Personal Development Plan (PDP) was practiced by 100 percent large and SMP plants where as this practice was using by 50 percent medium, 22.22 percent small and 15.79 percent cottage industries.

Open competition practice was used by 33.33 percent large dairy industries, 100 percent SMP plants, 16.67 percent medium, 11.11 percent small and only 2.63 percent cottage dairy industries. Personal contact was the major staff recruitment process which was practiced by 92.11 percent cottage, 83.33 percent medium, 77.78 percent small and 66.67 percent large dairy industries.

7.2 Personal management practice in the dairy industries

Permanent staff predominated in the dairy processing industries. Large dairies had 75.73 percent, SMP plant had 61.11 percent staff were permanent while permanent staff were 35.58 percent, 36.84 percent and 18.12 percent respectively in medium, small and cottage dairy industries.

Practice of issuing appointment letter was found in 100 percent large and SMP industries while it was practiced by 83.33 percent medium dairies, 44.44 percent small and 15.79 percent cottage industries .

Table: 7.2 Personal management in the dairy processing industries

Management indicators	Dairy Type									
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	Nos	%	Nos	%	Nos	%	Nos	%	Nos	%
Number of staffs in the dairy industries										
Permanent	337	75.73	95	35.58	35	36.84	25	18.12	88	61.11
Temporary	108	12.13	172	64.42	60	63.16	113	88.88	56	38.89
Total	445	87.87	267	100.00	95	100.00	138	100.00	144	100.00
Practice of issuing appointment letter										
Yes	3	100.00	5	83.33	4	44.44	6	15.79	2	100.00
No		0.00	1	16.67	5	55.56	32	84.21	0	0.00
Total	3	100.00	6	100.00	9	100.00	38	100.00	2	100.00
Office/ working hour of the staff										
8 hrs	2	66.67	6	100.00	4	44.44	11	28.95	1	50.00
>8 hrs	1	33.33	0	0.00	5	55.56	27	71.05	1	50.00
Total	3	100.00	6	100.00	9	100.00	38	100.00	2	100.00
Minimum monthly salary (NRs)										
>15000	3	100.00	6	100.00	8	88.89	30	78.95	1	100.00
<15000	0	0.00		0.00	1	11.11	8	21.05		0.00
Total	3	100.00	6	100.00	9	100.00	38	100.00	1	100.00
Provision of Annual leave (days) to the staff										
1 Month >	2	66.67	4	66.67	2	22.22	16	42.11	1	50.00
15 days > <30 days		0.00	1	16.67	5	55.56	15	39.47		0.00
one week > < 15 days	1	33.33	1	16.67	2	22.22	7	18.42	1	50.00
Total	3		6		9		38		2	

Source: Field Survey 2018

Normally staffs work 8 hours in a day with provision of overtime allowance. It was found that 100 percent in medium dairies, 66.67 percent large dairies and 50 percent SMP plants staffs worked for eight hours in a day. While on the other hand staffs from 71.05 cottage dairy industries works for more than 8 hours which was found in 50 percent SMP plants and 55.56 percent small dairy industries.

It was said that 100 percent staffs from large, medium and SMP plants have minimum salary of the staff more than 15000 per month, less than 15000 monthly salary was found in 21.05 percent cottage and 11.11 percent small dairy industries. One-month annual leave was provisioned by 66.67 percent large and medium, 50 percent SMP plant and 42.11 percent cottage dairy industries. From the survey

it was confirmed that 55.56 percent small industries offered 15 days to 30 days annual leave while it was said in 39.47 percent cottage dairy industries.

7.3 Financial management practice in the dairy industries

Accounting software was used by 100 percent large dairy industries and SMP plants while it was practiced by 66.67 percent each medium and small dairy industries and 13.16 percent cottage industries. Harti software used by large dairy industries, swastika, smart digit, excel and oxpan software was used by medium dairies, swostic and fin pro by small, excel by cottage and government tally software was used by SMP plants.

Table: 7.3 Financial management in the dairy processing industries

Financial management indicators	Dairy Type									
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	Nos	%	Nos	%	Nos	%	Nos	%	Nos	%
Software used to keep account by the dairy industries										
Yes	3	100.00	4	66.67	6	66.67	5	13.16	2	100.00
No	0	0.00	2	33.33	3	33.33	33	86.84	0	0.00
Total	3	100.00	6	100.00	9	100.00	38	100.00	2	100.00
Name of software	Harti		Swastik		Swastik		Excel		Government	
Name of software			Oxpan		Finpro				Tally	
Name of software			Excel							
Name of software			Smart digit							
Total										
Book entry system used by the dairy industries										
Single	0	0.00	0	0.00	4	57.12	29	76.32	0	0.00
Double	2	100.00	3	100.00	3	42.86	9	23.68	2	100.00
Total	2	100.00	100.00	100.00	7	100.00	38	100.00	2	100.00
Practice of internal audit done by the dairy industries										
Yes	3	100.00	4	100.00	9	100.00	8	21.05	2	100.00
No	0	0.00	0	0.00		0.00	30	78.95	0	0.00
Total	3	100.00	4	100.00	9	100.00	38	100.00	2	100
Dairy Industries doing external audit										
Yes	3	100.00	4	100.00	4	44.44	4	10.53	2	100.00
No	0	0.00	0	0.00	5	55.56	34	89.47	0	0.00
Total	3	100.00	4	100.00	9	100.00	38	100.00	2	100
Annual turnover Rs (Fy 2063/64)										
<500000	0	0.00	1	16.67	3	33.33	20	52.63	0	0.00
5-20lakh	1	33.33	4	66.67	5	55.56	18	47.37	0	0.00
20lakh>	2	66.67	1	16.67	1	11.11	0	0.00	2	100.00

Source: Field Survey 2018

Double entry system for account keeping was practiced by 100 percent large, medium and SMP plants while single entry was practiced by 76.32 percent cottage and 57.17 percent small dairy industries. Internal audit was practiced by 100 percent large, medium, small and SMP plants while it was practiced only by 21.05 percent cottage dairy industries. External audit was practiced by 100 percent large, medium and SMP plants while it was practiced only by 44.44 percent small and 10.53 percent cottage dairy industries.

Annual turnover more than 20 lakh was reported by 100 percent SMP plants and 66.67 percent large dairy industries, 5-10 lakh was reported by 66.67 percent medium, 55.56 percent small and 47.37 percent cottage industries.

7.4 Marketing management practice in the dairy industries

It was found that 66.67 percent large dairy industries, 50 percent SMP plant and medium dairies, 55.56 percent small and 52.63 percent cottage dairy industries had marketing strategy. Strategies were among others advertisement, discount, product diversification, commission offering, quality improvement etc. Quality improvement strategy was mentioned by 100 percent large and SMP plants while 100 percent large dairies mentioned more commission while advertisement was the marketing strategy of only 50 percent large dairy industries. On the other hand, 100 percent medium, 50 percent each large and SMP plants mentioned advertisement strategy.

Bearing social responsibility was practiced by 85.71 percent medium, 66.67 percent large, 55.56 percent small and 42.12 percent cottage industries. The social responsibilities bearing were among other celebration of the milk day, support for the sports clubs (foot ball), offering scholarship to students.

Table: 7.4 Marketing management of the dairy processing industries

Financial management indicators	Dairy Type									
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	Nos	%	Nos	%	Nos	%	Nos	%	Nos	%
Whether the Industry has marketing strategy or not										
Yes	2	66.67	3	50.00	5	55.56	20	52.63	1	50.00
No	1	33.33	3	50.00	4	44.44	18	47.37	1	50.00
Total	3	100.00	6	100.00	9	100.00	38	100.00	2	100.00
Strategies undertaken for market promotion by the Industries										
Advertisement	1	50.00	3	100.00	2	40.00	10	50.00	1	100.00
Discounts	0	0.00	0	0.00	1	20.00	4	20.00	0	0.00
More products	0	0.00	1	33.33	1	20.00	1	5.00	0	0.00
More commission	2	100.00	2	66.67	1	20.00		0.00	0	0.00
Improve quality	2	100.00	1	33.33	1	20.00	5	25.00	1	100.00
Total	5		7		6		20		2	

Financial management indicators	Dairy Type									
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	Nos	%	Nos	%	Nos	%	Nos	%	Nos	%
Whether the industry bear social responsibility or not										
Yes	2	66.67	6	85.71	5	55.56	16	42.11	0	0.00
No	1	33.33	1	14.29	4	44.44	22	57.89	0	0.00
Total	3	100.00	7	100.00	9	100.00	38	100.00	0	0.00
Whether the industry undertake promotional activities										
Yes	2	66.67	7	100.00	3	33.33	13	34.21	1	50.00
No	1	33.33	0	0.00	6	66.67	25	65.79	1	50.00
Total	3	100.00	7	100.00	9	100.00	38	100.00	2	100.00
If yes, promotional activities undertaken by the industries										
Advertisement	1	50.00	1	14.29	1	33.33	3	23.08	0	0.00
Quality Improvement	2	100.00	2	28.57	0	0.00	7	53.85	1	100.00
Discounts	0	0.00	0	0.00	0	0.00	1	7.69	0	0.00
Training	1	50.00	4	57.14	2	66.67	2	15.38	0	0.00
Total	4		7		3		13		2	
Whether the industries offer extension service to the producers or not										
Yes	2	66.67	3	50.00	1	11.11	0	0.00	1	50.00
No	1	33.33	3	50.00	8	88.89	38	100.00	1	50.00
Total	3	100.00	6	100.00	9	100.00	38	100.00	2	100.00

Source: Field Survey 2018

Promotional activities were undertaken by 100 percent medium, 66.67 percent large and 50 percent SMP plants, 34.21 percent cottage and 33.33 percent small dairy industries. Promotional activities were among others advertisement, quality improvement, training etc. Hundred percent large industries said promotional activities toward quality improvement and 50 percent each advertisement and training while on the other hand 100 percent SMP plants mentioned quality improvement

Extension services was offered by 66.67 percent each large and medium, 50 percent SMP plants, 66.67 percent medium and 11.11 small dairy industries.

7.5 Time of reaching milk in the market

Normally, the dairy industries distribute the milk before 6 AM. From the survey it was confirmed that, 78.38 percent cottage dairy industries' dairy products reach to milk sales booth before 6 Am, while 66.67 percent each large and medium dairy responded the same information. While 33.33 percent each large and medium dairy provide milk 4-6 AM to the sales booth while 22.22 percent dairy industries mentioned the same.

Table: 7.5 Time of reaching milk in the market

Time	Dairy Type									
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	N	%	N	%	N	%	N	%	N	%
Morning 4-6 am	1	33.33	2	33.33	2	22.22	9	21.62	0	0.00
Morning 6>	2	66.67	4	66.67	5	55.56	29	78.38	0	0.00
Evening 4-6 pm	0	0.00	0	0.00	1	11.11	0	0.00	0	0.00
Evening 6 >	0	0.00	0	0.00	1	11.11	0	0.00	0	0.00
Total	3	100.00	6	100.00	9	100.00	38	100.00	2	100.00

Source: Field Survey 2018

7.6 Availability of Milk and dairy products in the market

Most of the dairy industries claimed that their dairy products (fluid milk) are available in the market. From the survey, it was found that 84.21 percent cottage dairy industries, 66.67 percent each large and medium dairy industries and 55.56 percent small dairy industries confirm that their dairy products are available in the market all the time. While 33.33 percent each large and medium, 44.44 percent small and 15.79 percent cottage dairy industries mentioned their fluid milk is available in the market only in morning.

Table: 7.6 Availability of Milk and dairy products in the market

Time	Dairy Type									
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	N	%	N	%	N	%	N	%	N	%
All the time	2	66.67	4	66.67	5	55.56	32	84.21	2	100.00
Only in the morning	1	33.33	2	33.33	4	44.44	6	15.79		0.00
Only in the evening	0	0.00	0	0.00		0.00		0.00		0.00
Total	3	100.00	6	100.00	9	100.00	38	100.00	2	100.00

Source: Field Survey 2018

It was said that the dairy industries are struggling for maintaining the cold chain. The method of the maintain the cold chain for processed fluid milk was the use of freeze and deep freeze. The distributors do not have enough cold rooms and the dealers, retailers are relying on small freeze, which is bit difficult to maintain the cold chain. Thus, consumers are compelled to purchase fluid milk of their daily need in the morning and keep in their own freeze at home.

7.7 Problems faced by the dairy industries for better efficiency

When asked what are the problems faced by the dairy industries, 100 percent large dairies and SMP plant said lack of raw milk , poor transportation network was said by 66.67 percent large and 50 percent medium dairies, 100 percent SMP plant, 55.26 percent cottage, 50 percent medium and 33.33 percent each large and small-scale dairy reported unpredictable electricity as problem.

Tables:7.7 Problems faced by the dairy industries

Problems	Dairy Type									
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
		%		%		%		%		%
Lack of unerupted electricity	1	33.33	3	50.00	3	33.33	21	55.26	2	100.00
Lack of skilled worker	0	0.00	2	33.33	4	44.44	12	31.58		0.00
Lack of marketing strategy	1	33.33	3	50.00	5	55.56	15	39.47		0.00
Low Investment	2	66.67	3	50.00	3	33.33	4	10.53	1	50.00
Lack of water	2	66.67	4	66.67	4	44.44	10	26.32		0.00
Poor transportation	2	66.67	3	50.00	2	22.22	8	21.05		0.00
lack of raw milk	3	100.00	4	66.67	5	55.56	12	31.58	2	100.00

Source: Field Survey 2018

Other problems mentioned were lack of marketing strategy, lack of water, low investment and lack of skilled manpower.

7.8 Solutions measures as perceived by dairy industries to solve the problems

Policy change in increase investment in milk production, import substitution and export promotion (low tariff in export and high in import etc), Increase access i.e. all-weather roads, **Uninterrupted electricity supply** were the solution measures for 100 percent SMP plants and large dairies. Other solution measure cited was increase milk production as mentioned by 66.67 percent each large and medium and 47.37 cottage and 100 percent SMP plants. Training was the other solution measure for 66.67 percent large, 50 percent medium, 33.33 percent small and 31.51 percent cottage industries. Other solution measures were market management, provision of generator, need of grant and easy access to loan

Tables: 7.8 Solution measures undertaken by the dairy industries to solve the problems

Solution	Dairy Type									
	Large (processing > 50,000 Lits/day)		Medium (processing 10,000- 50,000 Lits/day)		Small (processing 1000- 10000 Lits/day)		Cottage (processing 1000 or less Lits/day)		Powder plant (8 ton/day)	
	N	%	N	%	N	%	N	%	N	%
Market Management	1	33.33	2	33.33	2	22.22	8	21.05	0	0.00
Need Generator	0	0.00	2	33.33	4	44.44	13	34.21	2	100.00
Need Training	2	66.67	3	50.00	3	33.33	12	31.58	1	50.00
Unerupted electricity supply	3	100.00	5	83.33	4	44.44	5	13.16	2	100.00
Need grant	2	66.67	2	33.33	3	33.33	4	10.53	1	50.00
Increase milk production	2	66.67	4	66.67	2	22.22	18	47.37	2	100.00
Increase access i.e. all-weather roads	3	100.00	3	50.00	2	22.22	9	23.68	2	100.00
Increase access and availability of loan	2	66.67	4	66.67	4	44.44	12	31.58	0	0.00
Policy change in increase investment in milk production, import substitution and export promotion (low tariff in export and high in import etc)	3	100.00	3	50.00	2	22.22	6	15.79	2	100.00

Source: Field Survey 2018

Further the key informants suggested differently for solving the problems. The suggestions were among others, to execute dairy extension services to the dairy farmers , maintain quality of milk , endorse the Code of Practice (CoP), Code of Conduct (CoC), Good Manufacturing Practice (GMP) and Good Husbandry Practice (GHP) and maintain bio-diversity. Provide additional training to small and micro dairies, upgrade the processing capacity of cottage industries to at least pasteurization facility, provide soft loan or subsidy in the interest to dairy industries and develop package of practice, manage the transportation facility and maintain cold chain strictly establishing central cold chain network, discourage to sale loose milk and other dairy products, massive consumer awareness program should be done through different media.

4.1 Conclusion

There is increased in number of dairy processing industries and are working despite obstacles faced. Government owned DDC is the first dairy processing industry and with the liberalization of economy, private sector also came up. Until now these industries only utilize 67.84 percent of the total installed capacity, showing poor efficiency. When observe the capacity of utilization by season, there is nearly 60 percent and 40 percent in flush and lean season.

It was found that, dairy industries are only focused on the production and supply of fluid milk to meet the immediate demand of the consumers. On the other hand, many cottage dairy industries are operating locally and they are not following the GMP procedure, CoC and CoP. Unfair competition has been observed among the dairy industries to pull the available milk from other, that makes the farmers not compel to produce quality milk and execute GHP and GMP. Same case is happening to the industries as consumers are eager to get the milk irrespective of quality.

Unless and until the dairy industries complement the fluid milk marketing with other value-added products, the profit maximization could not have achieved. Our dairy industries are focusing only to produce fluid milk and not trying to diversify the dairy products. Only increasing the consumer price could not bring permanent solution, for that our dairy industries should diversify their business and start to produce different dairy products that are been imported at the initial stage and increase production for export. There is tremendous opportunity to produce SMP, dairy whitener, butter oil, butter, cheese, confectionaries, chocolates, condensed milk.

It required considerable finance to execute the value-added production facility and the investors are reluctance showing reasons maximum seasonal variation in milk production and poor quality raw milk. However, they have no way to escape and are to be stimulant to operate the industries efficiently. For that, they have to diversify the potential dairy products establishing their own milk production pockets. It requires policy safeguard in financing (e.g. easy access and availability of finance) for increased milk production and milk marketing (e.g. buy back guarantee) including export and import (e.g. low export and high import tariff) of dairy products.

Efficiency from quality point of view was found critical in the dairy industries especially in the small and cottage dairy industries. It was however, large and medium dairy industries are trying to meet GMP, CoC and CoP. The compositional and bacterial quality of the processed milk was found meeting the national standard with some exception. Hazard management practice was not care by the dairy industries at all.

Marketing efficiency is also not found consumer friendly. Normally milk dispatched by the dairy industries in the morning between 4-6 AM when the consumers are to be purchased in morning time and when they search milk in day time it is still problem. The retailer shops are selling milk with expectation that the consumer buy other products in their own shop, but they don't have cold chain facility.

Personal management and human resource development have practiced by the large dairies and few medium dairies while there is no documented plan. Normally one staff handled 300 liters of milk in large dairy while, in collage industries 200 liters by a staff.

Financially, the dairy industries were found in comfortable position as benefit cost ration was found at 70-80 percent. The profit margin was found good even thy are operating in 67 percent of their installed capacity, this profit could be accelerated at least proportionately with the capacity of utilization.

4.2 Recommendation

1. There is huge gap between the installed capacity and the capacity of utilization, this situation need to be break and the processing industries should at least have operated to 80-90 percent. In these regards, the dairy industries should develop their own milk production area with supply of inputs and services to the dairy farmers in respective pocket area establishing Code of Conduct (CoC) between the dairy industries that one dairy industry can not go to other's pocket area.
2. It has been found poor cold chain status from milk production site to the consumer's kitchen. There should be unerupted supply of electricity across the road corridor of milk pocket areas, collection and chilling center, road transport, dairy processing industries up to the consumer kitchen. Where not possible solar system could be the alternative option to maintain it. Road milk tanker with insulation facility should be managed by all dairy industries.
3. There should be all weather road networks across the milk pocket areas and the milk transportation route.
4. Access and availability of loan to the dairy farmers and dairy processing industries could be instrumental to increase the milk production. This loan facility need to be tied with the dairy farmers, dairy processing industries and the financial institution. Mechanism of repayment shall be made proportionately deducting in the payment of the products produced by the respective party.
5. Policy change in increase investment in milk production, import substitution and export promotion (low tariff in export and high in import etc) could be credential for the improvement in the current situation.
6. The dairy industries are not trying to meet the market need of fluid milk due to unavailability of raw milk and are not exploring their eyes on the value-added products. There is tremendous opportunity to minimize the trade gap by producing SMP, dairy whiteners, chocolates, confectionaries, butter, butter oil, cheese and many other dairy products. The dairy industries should start to prepare these products.

Annex: 1 Inventory of Dairy Processing Industries

SN	Name of the dairy	District	Contact person	Contact number	Dairy type					Actual operation in lean season	Actual operation in flush season	Milk shed area	Product manufacture
					Install capacity	Cottage	Small	Medium	Large				
1	Himalaya deri udhog	baglung	Ram bahadur	9860439791	2000		1			1000	1500	Rampur	milk, paneer, ghee, dahi
2	shree ram dairy	baglung	hari sapkota	9849019944	500	1				250	450	phalebas	milk, Youghurt
3	kamadehenu dairy	banke	9843200153	9843200153	1000		1			7	10	sanmpur	milk, dahi, ghee
4	shree krishna dairy	banke	9847929160	9847929160	50	1				82	54	pipara	milk, dahi, ghee
5	Jaya Bageswari milk utapadan kendra	banke	Dandapadi paudal	9848103234	1100		1			1100	1100	sitapur, khajura, udara, chisapani ,duduwa ,kamdi	Dahi,paneer,muhi,Ghee, ic cream,churpi
6	Anupam dairy industry	banke	sunil shah	9858024374	1000	1				800	1000	Chisapani, bageshwari, duduwa khajura	Dudh, dahi, mahi, paneer, chhurpi
7	Banke	banke	vabu	9845033895	1000	1				400	500	Bazar	milk, paneer, ghee, dahi
8	Milan Dairy	bara	phanindra timilsina	9845288221	1000	1				1000		chhapkaiya	Milk, Dahi, paneer, Ghee
9	muskan dairy	bara	rabindra pd. Jaisawal	9845709464	200	1				100	300	hariya	
10	manroma dairy	bara		9845709469	1600		1			1500		simraungarh	Milk, Dahi, paneer, Ghee
11	sital dairy	bara	Pradip	876556786	300	1				300	386	nijgadh	Udghs
12	Gaumukhi	bardiya	Rita Rana	9847921560	50	1				50	52	Kohalpur	54
13	Harit agro farm	bardiya	Nitesh	988654222	1500		1			1000	1200	Pokhara	Dudh, dahi, icecream, Lassiter's
14	sanam dairy	bhaktapur	Ram hari	9849215374	4000		1			20000	50000	Lalitpur	Ghee
15	sanju dairy	bhaktapur	Sanju	9841039178	10000		1			8000	9000	Chapapgun	Ghee paneer dahi
16	new kamana dairy	bhaktapur	9862383901	9842390751	200	1				200	200	suryabinayek	Ghee
17	Divshwori Dairy	bhaktapur	Om prajuli	9849170291	150	1				100	150	Own farm	Dahi, Ghee, Paneer,
18	Kalika Dairy	bhaktapur	Shiva Prasad tyata	9851059909	20000			1		13000	15000	Chitwan	Milk butter dahi ice cream
19	Modern Dairy	bhaktapur	Sujan bazagain	9841180537	6000		1			7000	5000	Chitwan , kavre	Dudh dahi mohi panner, Butter
20	Bhaktapur Dairy Pvt. Ltd	bhaktapur			10000		1			3500		Chitwan , kavre	Pastuarised Milk
21	Kalika Dairy Co. Pvt. Ltd	bhaktapur			20000			1		15000		Chitwan , kavre	Process Milk , Dahi, Paneer, Ghee
22	Kharipati Dairy Pvt. Ltd	bhaktapur			20000			1		15000		Chitwan , kavre	Process Milk , Dahi, Paneer, Ghee
23	Nava Pravat Dairy Pvt. Ltd	bhaktapur			20000			1		14000		Chitwan , kavre	Process Milk , Dahi, Paneer, Ghee

SN	Name of the dairy	District	Contact person	Contact number	Dairy type					Actual operation in lean season	Actual operation in flush season	Milk shed area	Product manufacture
					Install capacity	Cottage	Small	Medium	Large				
24	Sainju Dairy Pvt Ltd	bhaktapur			20000			1		13000		Chitwan , kavre	Process Milk , Dahi, Paneer, Ghee
25	Sainju Dairy	bhaktapur	Durga Ram sainju	9841972860	20000			1		10000	10000	Kavre chitwan	Milk Butter, Dahi
26	Kharapati Dairy,	bhaktapur	Vishwaram Khadka	9851035177	30000			1		20000	20000	kavre! Chitwn,	Milk' Dahi, Paaner, Ghee,
27	Jeena Bikash Dairy	bhaktapur			12000			1		7000		bhaktapur	Process Milk , Dahi, Paneer, Ghee
28	Country Food Pvt. Ltd.	bhaktapur			20000			1		12000		kavre, sindhupalch owk	Process Milk , Dahi, Paneer, Ghee
29	Samuhik Krishak Dairy Ltd.	bhaktapur			10000		1			4500		kavre, bhaktapur	Process Milk , Dahi, Paneer, Ghee
30	Jagadamba Dairy Pvt. Ltd	bhaktapur			15000			1		8000		kavre, bhaktapur	Process Milk , Dahi, Paneer, Ghee
31	Shuvalaxmi dairy udyog	dadeldhura	Laxmi prasad bhandari	98511074915	400	1				600	700	Amargadi	Dudh, dahi, ghee, mahi, chhurpi icecream
32	dudh dairy	dadeldhura	suman bhatta	65560575	400	1				3000	1800	amargadi	Dudh, dahi, paneer Icecream, nauni, ghee, khuwa
33	Saileswori dudha deri udhyog	doti	lal bahadur dhani	9848549190	500	1				150	200	Saileswori tol	Ghee yoghurt
34	Belpata d Dugdha utapadan sahakari chupara	dailekh	khagendra prasad wagle	9844812321	1250		1			1150	125	kalbhairab, lakhu, belpata	दूध, दही, पनीर, लुगुनी
35	Nirman Dudh Dairy	dailekh	til kumar dulal	9824037888	500	1				430		ranimatta	Milk, Dahi, paneer, Ghee
36	Ganesh dairy	dang	Binil kc	9857820138	1000	1				350	800	ghorahi	Paneer yogurt ice cream
37	Sakar saurav dairy	dang	Sakar khadka	9858023788	2000		1			500	800	tulsipur	Ice cream paneer flavour milk
38	Pokharel dairy	dang	Deepak pokharel	9847887104	400	1				150	300	ghorahi	Yougcourt ice-cream sweets
39	Lila dairy	dang	Liladhar sharma	9857832107	500	1				350	400	dang	Yougcourt paneer sweets
40	New pashupati dairy	dang	Arjun basnet	9857822695	1000	1				300	200	lamahi	Yougcourt pustakari
41	Sworgadwari dairy	dang	Bhushan subedi	9847965101	600	1				250	600	tulsipur	Yougcourt paneer ghee ice cream sweets
42	Rapti dairy	dang	Gangadhar bhusal	9847822570	100	1				80	150	tulsipur	Ice cream milkshake yogurt
43	Khanal dairy	dang	Naresh khanal	9847841127	500	1				200	300	ghorahi	Ice cream sweets yogurt
44	Lamahi dairy	dang	Khem raj gheemire	9857840454	800	1				300	600	lamahi	Ice cream paneer yogurt
45	Sakar Saurab Dairy	dang			1200		1			700		lamahi	Milk, Dahi, paneer, Ghee

SN	Name of the dairy	District	Contact person	Contact number	Dairy type					Actual operation in lean season	Actual operation in flush season	Milk shed area	Product manufacture
					Install capacity	Cottage	Small	Medium	Large				
46	Khanal Dairy	dang			800	1				500		dang	Milk, Dahi, paneer, Ghee
47	Ganesh Dairy Industry	dang			500	1				300		dang	Milk, Dahi, paneer, Ghee
48	Rapti krishna Dairy	dang			400	1				250		tulsipur	Milk, Dahi, paneer, Ghee
49	Sworgadwari Dairy	dang			500	1				400		tulsipur	Milk, Dahi, paneer, Ghee
50	New Pashupati Duddha Sankalan Kendra	dang			4000		1			3000		lamahi	Milk, Dahi, paneer, Ghee
51	Pokharel Dairy	dang		9857822687	500	1				400		dang	Milk, Dahi, paneer, Ghee
52	sangam Dairy	dang			300	1				300		koilabas	Milk, Dahi, paneer, Ghee
53	Bhairab dairy	dang	Ramesh godar	9847099239	300	1				200	350	rajmarga	Yogurt ghee paneer churpi kulfi
54	Shivakali Dairy Milk Industry	dhanusa		9855028303	2000		1			2000		dhalkebar	Milk, Dahi, paneer, Ghee
55	Laxmi Dairy Industry	dhanusha			500	1				0		dhalkebar	Milk, Dahi, paneer, Ghee
56	Mithila dairy	dhanusha	account	9815406712	1500		1			800	1000	janakpur	Ghee dahi pani lassi
57	gwala dairy	dhanusha	karmachari	984562331	2000		1			800	1000	Esthniye Bazar	Dhagi pani ghee ic cream
58	Dip Dairy	dhanusha			400	1				0		dhalkebar	Milk, Dahi, paneer, Ghee
59	janasewa dairy	ilam	Arjun Dhakal		100	1				60	70	ilam, panchthar	lolipop, pushtakari
60	Kanchan dairy udhyog	ilam	kalawati bamjan		100	1				50	52	ilam, fikkal, pashupatina gar	lolipop, pushtakari
61	godawari dairy industry	ilam	shubhadra rai		500	1				100	125	shantidanda	lolipop, pushtakari
62	suntalbari dairy	ilam	pabitra deewan		500	1				200	300	Ilam pachther	lolipop, pushtakari
63	Neupaney Dairy	ilam	yam bdr neupane		500	1				300	400	jirmale, ilam	churpi, lolipop
64	sudip dudh bikash dairy	ilam	sudip ale		100	1				80	100	lumde	churpi, lolipop
65	Gheemire dudh bikash Dairy	ilam	bed parsad gheemire		100	1				60	70	lumde	churpi, lolipop
66	Khanal dairy	ilam	Gobinda Khanal		200	1				100	150	lumde	churpi, lolipop
67	Kanchanjunga dudh bikas dairy	ilam	shabin sherpa		200	1				100	120	fuyatappa	churpi, lolipop
68	kinarbabu dairy	ilam	Buddhikumar rai		200	1				115	130	Amchowk	churpi, lolipop
69	lamidanda dudh bikas dairy	ilam	badri budathoki		100	1				66	80	Gajurmukhi	churpi, lolipop
70	Nepal Dairy product	ilam	Rudra nepal		100	1				70	80	Gajurmukhi	churpi, lolipop

SN	Name of the dairy	District	Contact person	Contact number	Dairy type					Actual operation in lean season	Actual operation in flush season	Milk shed area	Product manufacture
					Install capacity	Cottage	Small	Medium	Large				
71	Sangam Dairy	ilam	Hari Pandey		500	1				200	350	Amchowk	churpi, lolipop
72	Kamal Dairy industry	ilam	Kamal Gurung		500	1				205	300	Jamuna	churpi, lolipop
73	Pathivara Dairy industry	ilam	buddha bir Tamang		300	1				160	250	Gorkhe, Namsaling	churpi, lolipop
74	Binayek cheese	ilam	mahendra pradhan		1000	1				600	800	Fikkal, pashupatina gar	Cheese, Ghee
75	Prashant Dairy	ilam	Dawa sherpa		1000	1				700	1000	shree antu	Cheese, Ghee
76	Anamol dairy	ilam	Gobinda Khadka		2000		1			1000	1500	Fikkal, pashupatina gar	Cheese, Ghee
77	Panchamreet Dairy	ilam	Chandra bdr Rai		1000	1				705	905	Fikkal, pashupatina gar	Cheese, Ghee
78	Sherpa Dairy	Ilam	Hementa Sherpa		500	1				400	500	Fikkal, pashupatina gar	Cheese, Ghee
79	lucky Dairy	Ilam	Lukamit Tamang		2000		1			1200	1600	Fikkal, pashupatina gar	Cheese, Ghee
80	Kusang Dairy industry	Ilam	Bagel Sherpa		500	1				300	450	Fikkal, pashupatina gar	Cheese, Ghee
81	Trijuga cheese industry	Ilam	Sonam Lama		500	1				200	250	ilam,ranke, panchthar	Cheese, Ghee
82	Karma Dairy	Ilam	Kumar Jirel		1000	1				600	8000	Fikkal, pashupatina gar	Cheese, Ghee
83	Pandab Dairy udhyog	Ilam			1000	1				700	1000	Ilam pachther	Cheese, Ghee
84	Ilameli Agriculture	Ilam	sabin sherpa		1000	1				500	700	ilam,ranke, panchthar	Cheese, Ghee
85	Sherpa Dairy industry	Ilam	Rinjifurba Sherpa		1000	1	1			600	750	sulubung, ilam, barbote	Cheese, Ghee
86	Maipatal cheese Utpadan	Ilam			2000					1000	1500	sulubung, ilam, barbote	Cheese, Ghee
87	Pathivara Dairy industry	Ilam	Lakpa Yalmu		500	1				250	3000	namsaling	Cheese, Ghee
88	Janajagaran Dairy	Ilam	Pasang tamang		500	1				184	256	namsaling	Cheese, Ghee
89	Uchha Pahadi cheese utpadan kendra	Ilam			500	1				147	200	nayabazar, namsaling	Cheese, Ghee
90	Cheese utpadan Kendra	Ilam	Nepal Government		5000		1			1500	2000	Fikkal, pashupatina gar	Cheese, Ghee
91	Himalaya cheese industry	Ilam	DDC		2000		1			1100	1500	ilam,ranke, panchthar	Cheese, Ghee

SN	Name of the dairy	District	Contact person	Contact number	Dairy type					Actual operation in lean season	Actual operation in flush season	Milk shed area	Product manufacture
					Install capacity	Cottage	Small	Medium	Large				
92	Nayabazar cheese processing industry	Ilam	Ganesh Puri		2000		1			1400	2000	namsaling, nayabazar	Cheese, Ghee
93	Binod Dairy	Ilam	Binod lama		200	1				60	80	siddhithumka	churpi, lolipop
94	Katuwal dairy	Ilam	Tejendra Katuwal		100	1				54	65	sarumba	churpi, lolipop
95	kanchan lollipop	Ilam	kalawati bamjan		100	1				40	55	Fikkal, pashupatina gar	churpi, lolipop
96	Trishakti industry	Ilam	shyam bdr rai		100	1				60	70	Fikkal, pashupatina gar	churpi, lolipop
97	laxmi narayan dairy	Ilam	sewanta koirala		100	1				60	65	Fikkal, pashupatina gar	churpi, lolipop
98	paudel dairy	Ilam			500	1				120	200	chamaita	churpi, lolipop
99	diety cream sepreator	Ilam	chindu lama		100	1				60	80	pyang	churpi, lolipop
100	diety cream sepreator	Ilam	Pasanga sherpa		100	1				50	60	pyang	churpi, lolipop
101	surke dairy industry	Ilam	shree bahadur Rai		500	1				200	350	Amchowk	churpi, lolipop
102	laxmi dairy	Ilam	Rudra Adhikari		100	1				60	80	Amchowk	churpi, lolipop
103	Karki dairy	Ilam	Mati Karki		500	1				200	300	Amchowk	churpi, lolipop
104	Kamdhenu dairy	Ilam	Shyam parsad Adhikari		100	1				50	65	Amchowk	churpi, lolipop
105	paudel dairy	Ilam	Bhupal paudel		500	1				150	250	Amchowk	churpi, lolipop
106	Salleri dairy	Ilam	Ramesh khatiwada		100	1				70	80	Amchowk	churpi, lolipop
107	khadka dairy	Ilam	Dor bahadur khadka		100	1				80	100	fakfok	churpi, lolipop
108	Kulung Dairy	Ilam	Masina kumari rai		100	1				50	60	Amchowk	churpi, lolipop
109	Basnet dairy	Ilam	Purna Basnet		500	1				200	400	Amchowk	churpi, lolipop
110	Dhakal Dairy	Ilam	Lok prasad dhakal		200	1				100	130	Amchowk	churpi, lolipop
111	pulami Dudh bikas dairy	Ilam	pem badhur pulami		100	1				60	65	Gajurmukhi	churpi, lolipop
112	shrestha dairy	Ilam	Ram Shrestha		100	1				60	70	Gajurmukhi	churpi, lolipop
113	Thamdanda dairy	Ilam			100	1				60	80	fuyatappa	churpi, lolipop
114	Lordbuddha dudha bikas dairy	Ilam	Jiwan saruu		200	1				70	100	fuyatappa	churpi, lolipop
115	Aitabare dudha bikas dairy	Ilam	Dhan bahadur Tama		100	1				50	60	fuyatappa	churpi, lolipop
116	NMC Dairy Coop Ltd	jhapa			20000			1		10000		birtamod, charaali	Milk ' Dahi, Peda, Ghee,
117	Zesp dairy	jhapa	Ahjsjd	9811231231	500	1				300	500	Hdofk	Process Milk , Dahi, Paneer, Ghee

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					Install capacity	Cottage	Small	Medium	Large				
118	Ritika dairy udhyog	jhapa	Rajan chimoriya	23460036	20000			1		12000	10000	Jhapa, ilam	Jsjdkggk
119	Kanchanjunga cheese udhyog	jhapa	Angrita sherpa	98188282	11000			1		10000	11000	Ilam pachther	Milk, Dahi, paneer, Ghee
120	Nikita Dugdha Kharid Bikri Kendra	jhapa			400	1				300		aitabare	Cheese, Ghee
121	Purba Nepal Dugdha Bikash Kendra	jhapa		9842658964	1200		1			800		sukrabare	Milk, Dahi, paneer, Ghee
122	Shree Krishna Dhamala Dairy	jhapa			500	1				300		aitabare	Milk, Dahi, paneer, Ghee
123	Ma Kalikal Dugdha Bikash Sahakari Sanstha	jhapa			500	1				400		satashidham	Milk, Dahi, paneer, Ghee
124	Sajha Dairy	jhapa			500	1				300		aamargadi	Milk, Dahi, paneer, Ghee
125	Panchamrit Dairy	jhapa			600	1				400		gauringinj	Milk, Dahi, paneer, Ghee
126	Kerkha Dairy	jhapa			500	1				300		kerkha	Milk, Dahi, paneer, Ghee
127	Amrit Dairy Industry	jhapa			500	1				300		maharani jhoda	Milk, Dahi, paneer, Ghee
128	Khaptad Dairy Industry	kailai		9858420041	6000		1			4000			Milk, Dahi, paneer, Ghee
129	Kailpak gai bhaisi from tatha dairy udhok	kailai	hikmat bdr mahat	9848583860	200	1				200	200	Dhangadhi up n p 2	Milk, Dahi, paneer, Ghee
130	Shree krishna dairy	kailai	bikram kandel	9868141000	200	1				200	200	Gulariya n p 6	ghee dahi moho paneer
131	Aa Anchal Dairy	kailai			200	1				200		lamki	ghee dahi moho ice crem paneer
132	Sarbodaya Dairy	kailai			500	1				400		godavari	Milk, Dahi, paneer, Ghee
133	Sagar Samundra Dairy	kailai			200	1				200		godavari	Milk, Dahi, paneer, Ghee
134	New Kush Lav Dairy	kailai			400	1				400		dhangadi	Milk, Dahi, paneer, Ghee
135	Janaki Dairy	kailai			300	1				200		attariya	Milk, Dahi, paneer, Ghee
136	Saud Dairy	kailali			300	1				250		dhangadi	Milk, Dahi, paneer, Ghee
137	Badi Malika Dairy	kailali			400	1				300		bansi	Milk, Dahi, paneer, Ghee
138	Karnali Dairy Industry	kailali			300	1				250		ghodaghodi	Milk, Dahi, paneer, Ghee
139	New Anchal Dairy Industry	kailali			800	1				500		attariya	Milk, Dahi, paneer, Ghee
140	Purnima Dairy	kailali			300	1				250		tikapur	Milk, Dahi, paneer, Ghee
141	Aaama Dairy	kailali		091-526644	800	1				700		tikapur	Milk, Dahi, paneer,

SN	Name of the dairy	District	Contact person	Contact number	Dairy type					Actual operation in lean season	Actual operation in flush season	Milk shed area	Product manufacture
					Install capacity	Cottage	Small	Medium	Large				
	Industry											Ghee	
142	Balaji Dairy Industry	kailali		091-521325	1000	1				800		ghodaghoti	Milk, Dahi, paneer, Ghee
143	Patha Dairy	kanchanpur		9848810548	1200		1			1000		mahendranagar	Milk, Dahi, paneer, Ghee
144	Aanchal Dairy Industry	kanchanpur			400	1				250		mahendranagar	Milk, Dahi, paneer, Ghee
145	kamal dudh dairy	kanchanpur	dhanjit gurudhami	984870224	300	1				250		dhangadi	Milk, Dahi, paneer, Ghee
146	Sujal Dairy Pvt. Ltd, Pokhara	kaski			50000				1	25000		dhangadi	Milk, Dahi, paneer, Ghee
147	Asal Dairy	kaski	Prakash Bhattarai	9846701014	2000		1			1500	1800	Ghachowk, Harabhara	Process Milk, Dahi, Paneer, Ghee
148	Panthi Dairy	kaski	Rajkumari Panthi	9856026070	5000		1			3000	3500	Lekhanath, Chhahari	Dudh, dahi, paneer ghee, ice cream
149	Bajgai Dairy	kaski	Gyanendra Bajgai	9856028738	2000		1			1800	1500	Lekhnath	Dudh, dahi, paneer, Ghee, ice cream
150	Shree Kriahna Dairy	kaski	Suresh Bahadur Shrestha	9856020975	1000	1				0	500	Pumdi	Dudh, dahi, Ice cream
151	Panji Dairy	kaski	Pan Bahadur Gharti	9856035972	2000		1			1000	1600	Chhahari	Ice cream
152	Ramjanaki Dairy	kaski	Not	0	1000	1				400	600	Pokhara	Dudh, dahi, ghee
153	Himal Dairy	kaski	Shivhari Aacharya	9856021545	4000		1			2000	2000	Pokhara	Dudh, dahi paneer
154	Fistel Dairy Pvt.Ltd	kaski		9856020344	10000		1			10000		pokhara, hemja	Dudh, dahi, ghee, ice cream
155	Lava Kush Dairy	kaski		9856021632	10000		1			10000		lekhath	Dahi, Ghee, Paneer,
156	Shree Ram Krishna Dairy	kaski		9856035371	3000		1			7000		lekhath	Dahi, paneer, Ghee, mohi,
157	Asal Dairy Industry	kaski		9856022139	1200		1			1000		hemja	Dahi, Paneer, Ghee,
158	District Cooperative Union	kaski		9856025775	2000		1			2000		hemja	Milk, Dahi, paneer, Ghee
159	Gauri Shanker Dugdha Industry	kaski			800	1				500		kalika	Milk, Dahi, paneer, Ghee
160	Bajgain Dairy	kaski			300	1				300		kalika	Milk, Dahi, paneer, Ghee
161	Shakti Dairy Industry	kaski			400	1				400		bitta	Milk, Dahi, paneer, Ghee
162	Nagdanda Dairy	kaski		9846185205	5000		1			3000		kalika	Milk, Dahi, paneer, Ghee
163	Sitaram Gokul Milks	kathmandu		9851034781	1,00,000				1	40000		chitwan, nawalparasi, rupandehi, makwanpur	Milk, Dahi, paneer, Ghee
164	Ugrachandi Dairy	kathmandu		9851065824	800	1				800		kathmandu	Milk, Dahi, paneer, Ghee
165	Shree Ram Dairy Industry	kathmandu		9841856195	3000		1			2000		kavre, kathmandu	Milk, Dahi, paneer, Ghee

SN	Name of the dairy	District	Contact person	Contact number	Dairy type					Actual operation in lean season	Actual operation in flush season	Milk shed area	Product manufacture
					Install capacity	Cottage	Small	Medium	Large				
166	Kafle Dairy	kathmandu		9849848219	400	1				200		kavre	Milk, Dahi, paneer, Ghee
167	Kirtika Dairy and Sweets Center	kathmandu		9851097338	500	1				300		kathmandu	Milk, Dahi, paneer, Ghee
168	Ashok Dairy Industry	kathmandu		9841259153	400	1				250		kathmandu	Milk, Dahi, paneer, Ghee
169	Ujjawal Dairy Industry	kathmandu		9851024249	600	1				400		kavre	Milk, Dahi, paneer, Ghee
170	Namuna Sudhar Dairy Industry	kathmandu		9851044805	400	1				200		kavre	Milk, Dahi, paneer, Ghee
171	Deepak Dahi Pasal	kathmandu		9841977891	400	1				300		kathmandu	Milk, Dahi, paneer, Ghee
172	Palanchowk Dairy Industry	kathmandu		9851030934	500	1				250		kathmandu	Milk, Dahi, paneer, Ghee
173	Dhamala Saugat Dugdha Bikas Sahakari Sanstha	kathmandu		9843458045	500	1				300		kavre	Milk, Dahi, paneer, Ghee
174	Anum (Royal) Dairy Industry	kathmandu		9851107681	800	1				700		nuwakot	Milk, Dahi, paneer, Ghee
175	Bidue Dairy Industry	kathmandu		9841464647	300	1				200		nuwakot	Milk, Dahi, paneer, Ghee
176	Siulav Dairy Milk	kathmandu			500	1				300		kathmandu	Milk, Dahi, paneer, Ghee
177	Indrabati Dugdha Vhandar	kathmandu		9841844724	300	1				150		kathmandu	Milk, Dahi, paneer, Ghee
178	Beshigaon Dahi and Bekary	kathmandu			300	1				100		nuwakot	Milk, Dahi, paneer, Ghee
179	Parashi Devi Dairy Pvt.Ltd	kathmandu		9851060262	4000		1			2000		dhading	Milk, Dahi, paneer, Ghee
180	Miteri Dairy	kathmandu			300	1				150		kathmandu	Milk, Dahi, paneer, Ghee
181	Dahal Dairy	kathmandu		9741188609	300	1				150		kathmandu	Milk, Dahi, paneer, Ghee
182	Suvani Dairy	kathmandu		9751009854	300	1				200		kavre	Milk, Dahi, paneer, Ghee
183	Kageshowari Dugda Dairy	kathmandu		9841531566	300	1				300		kavre	Milk, Dahi, paneer, Ghee
184	Dangal Dairy	kathmandu			200	1				100		nuwakot	Milk, Dahi, paneer, Ghee
185	Badri Dairy	kathmandu			200	1				200		niwakot	Milk, Dahi, paneer, Ghee
186	Kabrepalanchowk Dairy	kathmandu			500	1				350		kavre	Milk, Dahi, paneer, Ghee
187	Roshani Dairy	kathmandu			300	1				150		kathmandu	Milk, Dahi, paneer, Ghee
188	Komal Dairy	kathmandu			300	1				250		kavre	Milk, Dahi, paneer, Ghee
189	New Indra Dairy	kathmandu			300	1				300		nuwakot	Milk, Dahi, paneer, Ghee
190	Prashiddha Prasasanta Dairy	kathmandu			500	1				350		kavre	Milk, Dahi, paneer, Ghee

SN	Name of the dairy	District	Contact person	Contact number	Dairy type					Actual operation in lean season	Actual operation in flush season	Milk shed area	Product manufacture
					Install capacity	Cottage	Small	Medium	Large				
191	Shree Krishna Dairy Udhog	kathmandu			300	1				150		dhading	Milk, Dahi, paneer, Ghee
192	Bibek Dairy	kathmandu			500	1				300		kathmandu	Milk, Dahi, paneer, Ghee
193	Om Shree Muktinath Dairy	kathmandu			400	1				250		dhading	Milk, Dahi, paneer, Ghee
194	Khariboth Dugdha Bhandar	kathmandu			200	1				150		kavre	Milk, Dahi, paneer, Ghee
195	Bhagwan Dairy	kathmandu			300	1				300		kavre	Milk, Dahi, paneer, Ghee
196	Chamunda Dairy	kathmandu		9841071766	300	1				200		kathmandu	Milk, Dahi, paneer, Ghee
197	Satkar Dairy	kathmandu		9841732529	300	1				100		kavre	Milk, Dahi, paneer, Ghee
198	Sindhu Dairy	kathmandu			300	1				100		kavre	Milk, Dahi, paneer, Ghee
199	Shree Radha Krishna Dairy	kathmandu			300	1				250		kathmandu	Milk, Dahi, paneer, Ghee
200	Dhakal Dairy	kathmandu			200	1				150		niuwakot	Milk, Dahi, paneer, Ghee
201	Radha Krishna Dairy Firm	kathmandu			400	1				250		dhading	Milk, Dahi, paneer, Ghee
202	Ashok Dairy	kathmandu	Vishma dahal	9851097383	250	1				150	300	kavre	Dahi, Ghee, Paneer,
203	Malika Dairy Industry	kathmandu		9851054835	1200		1			1000		kavre	Milk, Dahi, paneer, Ghee
204	Dhumbarahi Dairy	kathmandu		9851095127	800	1				700		dhading	Milk, Dahi, paneer, Ghee
205	Bagmati Dairy Company Pvt. Ltd	kathmandu		9801010784	800	1				500		kavre	Milk, Dahi, paneer, Ghee
206	Jayashree Krishna Dairy Industry	kathmandu		9851079454	8000		1			6000		kavre	Dahi paneer ,ghee,
207	HD Dairy Milks	kathmandu		9851107478	6000		1			6000		kavre	Dahi, paneer, ghee ,kulfi,
208	Dhamala Dairy Products	kathmandu			500	1				350		kavre	Milk, Dahi, paneer, Ghee
209	Alisaj Dairy	kathmandu			400	1				250		kathmandu	Milk, Dahi, paneer, Ghee
210	Gopi Krishna Dairy	kathmandu			300	1				300		kathmandu	Milk, Dahi, paneer, Ghee
211	Trisul Dairy	kathmandu			400	1				350		kavre	Milk, Dahi, paneer, Ghee
212	Kailash Dairy	kathmandu			200	1				200		kavre	Milk, Dahi, paneer, Ghee
213	new dairy	kathmandu	ramesh gautah	9861234221	200	1				14	1245	kavre	Gheee
214	Kathmandu dairy	kathmandu	Ranju bhandari	9861111213	10000		1			14	1245	kavre	Gheee
215	Adhunik Dairy Pvt. Ltd	Kathmandu			15000			1		10000		nuwakot	Process Milk , Dahi, Paneer, Ghee
216	Kathmandu Dairy Pvt. Ltd	Kathmandu			10000		1			6000		dhading	

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					Install capacity	Cottage	Small	Medium	Large				
217	Nepal Dairy Pvt. Ltd	Kathmandu			15000			1		13000		nuwakot	Process Milk , Dahi, Paneer, Ghee
218	Puspa Dairy Udhog	Kathmandu			5000		1			3000		nuwakot	Process Milk , Dahi, Paneer, Ghee
219	Rajdhani Dairy Pvt. Ltd	Kathmandu			20000			1		12000		nuwakot	Process Milk , Dahi, Paneer, Ghee
220	DDC	Kathmandu	Dr Ishwori Neupaney	14428665	1500000				1	1500000	200000	54 Distric	Chhese ,ghee, paneer ,makhan, peda, lalmon, Rasbari
221	Adhunik dairy	kathmandu	Indra Bahadur Basnet	9841292521	8000		1			8000	8000	Chitwan	Ghee, paneer ,chhese dahi ,butter
222	Chamunda. Dudh Dairy	kathmandu	Sagar Bath dangal	9841070765	200	1				150	200	Krishak	Dahi paneer ,ghee,
223	Shrew Krishna dudha Bhandar	kathmandu	Nati ram Thapa	9841574954	200	1				150	200	Sankhu own farm	Dahi, Dudh ,Paneer Ghee
224	Bindabashini Dairy Industry	kathmandu			400	1				250		kavre	Milk, Dahi, paneer, Ghee
225	Tulasa Dairy Pvt. Ltd	kathmandu			10000		1			6000		kavre	Process Milk , Dahi, Paneer, Ghee
226	Ujjwal Dairy	kathmandu	Rambhakta Dahal	9851124249	1800		1			1800	1900	Kavre , nala	Dahi, dudh,
227	Abiral indrawati dudha dairy	kathmandu	Dipak limbu	9849267147	500	1				40	50	Kavre	Dahi, milk,
228	Neupaney new Dairy	kathmandu	Krishna prasad neupaney	9810096365	60	1				60	60	Kavre,	Dudh, dahi, ghee, butter
229	Mankamana Dairy	kathmandu	Prakash karakheta	9841351881	200	1				150	200	Kavre, panuti,	Dahi milk, paneer, butter,
230	Maniram Dairy	kathmandu	Laxmi giri	14823047	200	1				150	200	Kavre	Dahi dudh, paneer , ghee,
231	Shree sundaridal dudha bhandar	kathmandu	Rita pudasine	9803328508	200	1				200	250	Kavre, Himalayan dudha chesyan kendra,	Dahi, milk
232	Indrawati dudh dahi bhandar	kathmandu	Nwaraj dhakal	9851111868	200	1				150	200	Nagarcoat	Dahi, Milk, ghee, Mohi, Paneer
233	Dhumarahi Dairy	kathmandu	Prapad dahal	9851056677	300	1				250	300	kavre	Fresh milk bottle
234	Sangam Dairy	kathmandu			400	1				400		kavre	Milk, Dahi, paneer, Ghee
235	Suvani Dairy Industry	kathmandu			500	1				500		kavre	Milk, Dahi, paneer, Ghee
236	Shree Krishna Dugdha Bhandar	kathmandu			200	1				200		kavre	Milk, Dahi, paneer, Ghee
237	Gokarneshwor Dugdha Dairy	kathmandu			200	1				200		kavre	Milk, Dahi, paneer, Ghee
238	Jay shree krishna dairy	kavrepalanc hok	jay krishna timsina	11499030	20000			1		3000	5000	Deupur,pach khal,khopsi, Anaikotpala nchowok	Milk,courd,ghee,chesse ,paneer ,butter

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239	Anamol new dairy	kavrepalanc hok	Dag bahadur karki	9841381681	20000			1		3000	5000	kushadevi,D hungkhark,B hakundebesi ,Sunthan,Kh opasi,Chitwan	Milk ,ghee
240	Himalayan Dugdha Chishyan Kendra	kavrepalanc howk		9851018261	4000		1			4000		kavre	Milk, Dahi, paneer, Ghee
241	UHD dairy	kavrepalanc howk	uproar	6788999	123	1				233	233	uproar	Uytr
242	Idea Plus Dairy Pvt. Ltd	kavrepalanc howk			0							banepa	
243	Shreeram Dugdha Bhandar	lalitpur	Raj Kumar Dahal	9851008372	300	1				300		lalitpur	Milk, Dahi, paneer, Ghee
244	Shree Ram Dairy Farm	lalitpur	Rajesh Dahal	9851176096	200	1				200		lalitpur	Milk, Dahi, paneer, Ghee
245	New Gheemire Dairy	lalitpur	Rebati Pd. Gheemire	9849036405	300	1				300		lalitpur	Milk, Dahi, paneer, Ghee
246	Gaule dahi dudh dairy	lalitpur	Dhakal Prasad Gheemire		300	1				100		lalitpur	Milk, Dahi, paneer, Ghee
247	Dhapakhel dairy	lalitpur	Yak Pd. Gheemire		300	1				250		chapagaon	Milk, Dahi, paneer, Ghee
248	mahalaxmi dairy	lalitpur	Hudra Raj Timilsina	9851189626	200	1				150		lalitpur	Milk, Dahi, paneer, Ghee
249	sanepa dairy	lalitpur	Saroj Khanal	9843248416	200	1				200		tokabhairab	Milk, Dahi, paneer, Ghee
250	bhaisepati dairy	lalitpur	Deepak sanjel	9841672320	300	1				300		tikabhairab	Milk, Dahi, paneer, Ghee
251	satya dairy	lalitpur	sundar pandey	01-5522487	500	1				500		tikabhairab	Milk, Dahi, paneer, Ghee
252	Rajdhani dairy	lalitpur	Subash chaulagai	9851056019	50000			1		17000	24000	Kavre , bara ,	Dahi paneer butter ghee, khuwa,
253	Chamunda Dairy Farm	lalitpur			200	1				150		godavari	Milk, Dahi, paneer, Ghee
254	Himalayan Dairy	lalitpur	Raj Bhai khadki	9851021910	50000			1		44400	560000	Kavre, chitwan, makwanpur	Ghee! Butter! Paneer dahi! Milk,
255	Nepal Dairy	lalitpur	Dr laxaman sherchend	9841458760	15000			1		12000	15000	Chitwan	Ice cream ,paneer, dahi, ice Cream, lalmon ,
256	Nava pravat Dairy	lalitpur	Kamal Raj humagain	9851005204	20000			1		20000	20000	Lalitpur chitwan	Dudh dahi paneer butter
257	Himilayan Dairy Pvt. Ltd	lalitpur			30000			1		16000		kavre, chitwan	Process Milk , Dahi, Paneer, Ghee
258	Samyukta Dairy Pvt. Ltd.	lalitpur			20000			1		14000		kavre, chitwan	Process Milk , Dahi, Paneer, Ghee
259	Shiva Laxmi Dairy	lalitpur	Shyam Raj Timilsina	985125150	300	1				250	300	Harsidhi	Dahi, paneer, ghee ,kulfi,

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260	Kaleshwor Dairy center	lalitpur	Sudarshan gheemire	9851064997	500	1				400	500	Chapagon,	Dahi, paneer, Ghee, mohi,
261	Chaulagain dudha center	lalitpur	Shiva Prasad Chaulagain	9851234747	200	1				150	200	Chapagon	Dahi, Paneer, Ghee,
262	Easy Dairy	lalitpur	Amanda Aryal	9851071353	80	1				70	80	Harsidhi	Dahi, Paneer, Ghee, Mohi, Ice cream, kulfi,
263	Kamal dairy	lalitpur	kamal Khanal	9843268418	300	1				250	300	Khokana	Dahi, Dudh, Ghee, Paneer
264	Gayatri dairy udhog	makwanpur	Srijan koirala	9841527006	3000		1			3000	3000	150 farmers	Dahi,chhurpi,paneer
265	Pawan dairy	makwanpur	Pawan prasad bastola	9855057250	1500		1			1500	1500	200 farmers	Paneer,dahi
266	Gokul dukta udhog	makwanpur	Tirtha ram adhikari	9855068705	1800		1			800	1800	120 farmers	Iccream,dahi,paneer
267	Narayani milk udhog	makwanpur	Susma boss	9855022473	500	1				300	500	90 farmers	Dahi,icecream,baraf
268	Bhijan dairy	makwanpur	Surendra chandra adhikari	9855058068	3000		1			3000	3000	250 farmers	Dahi,paneer,
269	Hetauda Dairy Industries	makwanpur		9855009398	30000			1		30000		hetaunda	Milk, Dahi, paneer, Ghee
270	Gokul Dugdha Udhyog	makwanpur		9845382390	2000		1			1000		chaughoda	Milk, Dahi, paneer, Ghee
271	raghab dairy	makwanpur	3	9843123456	52	1				555	56	chaughoda	Ty
272	Hetauda Dairy I. Pvt. Ltd	makwanpur			30000			1		13000		manahari	Process Milk , Dahi, Paneer, Ghee
273	Suva Dairy	makwanpur		9855069947	1200		1			1000		manahari	Milk, Dahi, paneer, Ghee
274	Narayabi Milks	makwanpur		9855022473	4000		1			4000		manahari	Milk, Dahi, paneer, Ghee
275	Bajgain Dudh Dairy	morang			300	1				250		biratnager	Milk, Dahi, paneer, Ghee
276	Shivam Dairy Pvt. Ltd.	morang			10000		1			6000		biratnager	Process Milk , Dahi, Paneer, Ghee
277	Jaya Kishan Grosari Ghar	palpa	Tika ram kharal	9857060175	800	1				700		tansen	Milk, Dahi, paneer, Ghee
278	Bhairab Dairy	palpa			600	1				400		srinagar	Milk, Dahi, paneer, Ghee
279	Bandhu Dairy	palpa		9847043527	800	1				800		tansen	Milk, Dahi, paneer, Ghee
280	Gyanodaya Dairy Industry	palpa			500	1				400		sanopokkhara	Milk, Dahi, paneer, Ghee
281	Basyal dairy	palpa	Shiva pd. Basyal	9847043527	400	1				300	450	deurali	Ghee kufi yogurt kurauni
282	Jalpadevi dugdha utpadak sahakari Sasha limited	panchthar	Laxman bhattra	9819005894	500	1				300	400	Aandim	Taral dudha
283	Margdevi dugdha utpadak sahakari Sasha limited	panchthar	Premnorbu serpa	9852060970	1000	1				450	550	Aandim	Taral dudha

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284	Sukrabare dugdha utpadak sahakari Shasta limited	panchthar	Ghamand paudel	9842255387	1000	1				700	800	Sukrabare	Taral dudha
285	Sagarmatha dugdha utpadak sahakari Shasta limited	panchthar	Gumansing karki	9842305703	300	1				150	200	Phakchamara	Taral dudha
286	Krishna Balram Dairy	parsa			300	1				300		chapkaiya	Milk, Dahi, paneer, Ghee
287	Shiva Dairy	parsa			300	1				300		parwanipur	Milk, Dahi, paneer, Ghee
288	Siraha Daiory Center	parsa			500	1				400		parwanipur	Milk, Dahi, paneer, Ghee
289	Jayamatha Pathivara Dugdha Bikash Industry	rupandehi			600	1				500		jogikuti	Milk, Dahi, paneer, Ghee
290	Suva Laxmi Dairy	rupandehi-rupandehi			500	1				500		jogikuti	Milk, Dahi, paneer, Ghee
291	Panchmrit Dairy	rupandehi			300	1				300		semalar	Milk, Dahi, paneer, Ghee
292	Siddhababa Dairy	rupandehi		9847096784	1200		1			800		semalar	Milk, Dahi, paneer, Ghee
293	Lumbini Dairy Milks	rupandehi	bikram risal	9857025335	1200		1			400		mangalapur	Milk, Dahi, paneer, Ghee
294	Gayetri Dairy Industry	rupandehi	kul prasad neupane	9857026489	800	1				500		butwal	Milk, Dahi, paneer, Ghee
295	Siddhababa Dairy Industry	rupandehi	krishna bhattacharai	9847046784	500	1				300		siddhababa	Milk, Dahi, paneer, Ghee
296	Malika Dairy Center	rupandehi			500	1				500		semalar	Milk, Dahi, paneer, Ghee
297	Pandab Dairy	rupandehi			500	1				400		gadi	Milk, Dahi, paneer, Ghee
298	Pabitra Dairy	rupandehi	megh raj bhandari	9857025489	1200		1			1200		siddhababa	Milk, Dahi, paneer, Ghee
299	Shiva Ganga Dairy	rupandehi	hira k.c	9857020134	6000		1			4000		butwal	Milk, Dahi, paneer, Ghee
300	Shiva ganga dairy	rupandehi	Hira k.c	9857020134	5000		1			1500	2000	9 farmers	Ice cream, paneer, ghee, butter yogurt
301	Pabitra dairy	rupandehi	Meghraj bhandari	9857025489	5000		1			3500	4500	5 farmers	Paneer ghee yogurt sweets
302	Suvlaximi dairy	rupandehi	Ram krishna poudel	9857026868	2000		1			1200	1500	Farmers	Ghee paneer yogurt milk
303	Paroha dairy	rupandehi	Shiva bhusal	9857030362	1000	1				600	800	3 farmers	Milk yogurt paneer ice cream
304	Lumbini dairy	rupandehi	Bikram rijal	9857025335	1000	1				400	800	4 farmers	Milk yogurt kulfi
305	Gayatri dairy udyog	rupandehi	Kul pd. Neupane	9857026489	500	1				250	250	3 farmers from semlar	Buttet yogurt paneer
306	Siddha baba dairy	rupandehi	Bhuwan neupane	9847330220	800	1				400	400	3 farmers fromjogikuti	Pustakari paneer yogurt milk
307	Malika dairy center	rupandehi	Gopal pandey	984143326	500	1				200	300	mangalapur	Milk yogurt sweets

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308	Pandav dairy	rupandehi	Dadhi neupane	9857033558	200	1				150	150	bansgadi	Yogurt ghee paneer
309	Manakamana dairy	rupandehi	Tilak ram kharal	9847398842	1200		1			600	800	bansgadi	Milk ghee yogurt khuwa kulfi sweets
310	Siddhartha dairy	rupandehi	Krishna bhattarai	9847046784	500	1				300	450	khaireni	Milk yogurt paneer
311	kisan dairy	rupandehi	Tika khanal	9857060175	1200		1			1000	1200	khaireni	Paneer milk yoghurt churpi
312	Shree nagar dairy	rupandehi	Romakanta neupane	9857060825	1000	1				400	800	khaireni	Paneer yogurt
313	Ramechhap dudh sankalan bikri tatha chissyan kendra	ramechhap	Kishor poudel	9841529936	500	1				650	750	Madi muhan aanpkobot	Dahi , Khuwa, Ghee,Lassi, Paneer, Sweets.
314	Chiranjibi dairy	ranmechhap	Bhanu shrestha	9754203416	2500		1			950	1100	Tilpung,khimiti,kathajor, malwajor,Bhatauli,kunauli	Mili,courd,mohi,lasi,ghee,khuwa,peda
315	Chiranjibi dairy udhyog	ramechhap	Vanuvakta shrestha	9854203464	1000	1				950	1150	Manthali Mugitar Valojar Khimti	Dahi, khuwa, Ghee,Chhurpi,Lassi, Peda, Pustakari
316	Patel Brothers and Dairy Firm	saptari			1600		1			1000			Milk, Dahi, paneer, Ghee
317	Laxmi dairy	saptari	ramesh poudel	9842820247	3000		1			700	1100	Esthaniye Bazar	Ghee dahi mahi paneer adi
318	Muskan dairy	saptari	nagendra prasad	9846750995	2000		1			600	900	Bara phattepur gadhimai	Ghee dahi mahi paner
319	sindhu dairy	sindhupalchowk	pratap poudel	9841321256	200	1				200	200	chautara	Dahi mahi ghee paneer
320	chautara dairi	sindhupalchowk	hari sapkota	9843298121	200	1				200	200	chautara	Dahi mahi ghee paneer
321	Milan dairy	sarlahi	krishna yadhav	9852821900	2000		1			1200	1500	Sarlahi bara simara sarlahi	Dahi mahi ghee paneer
322	Koseli dairy	sindhuli	Bimala kafle	9844226910	200	1				200	200	marin ,bhadrakali,jalkanya,khanyakharka,tinpati,sindhulimadi	Peda,churpi,kurauni,ghee,dahi,mohi,paneer, pustakari
323	pashupati dairy	sindhuli	suman yadhav	9815883394	2000		1			700	1000	local Bazar	Dahi pani ice cream ghee paneer
324	Laxmi dudha deri	siraha	sri ram yadav	9811716344	1000	1				700	1000	Esthani bazar	Dudha dahi paneer ghee
325	Sagarmatha Dairy Industry	siraha			300	1				250		dhangadi	Milk, Dahi, paneer, Ghee

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326	Himal Dairy Industry	siraha			200	1				200		dhangadi	Milk, Dahi, paneer, Ghee
327	Mahabir Dairy	siraha			300	1				300		siraha	Milk, Dahi, paneer, Ghee
328	Milko Industries	siraha		9851078570	4000		1			4000		siraha	Milk, Dahi, paneer, Ghee
329	Ma Bhabani Dairy	siraha			1000	1				1000		satapura	Milk, Dahi, paneer, Ghee
330	Shree Krishna Bibek Dairy	siraha			600	1				400		beliya	Milk, Dahi, paneer, Ghee
331	Manakamana dairy	siraha	kumar timsina	9841580106	1000	1				800	1200	Banepa,pach akhal,dhulik hel	Milk ,courd,mohi,ghee,
332	Kamdhenu dairy	siraha	Pralahad timsina	9841282500	600	1				400	500	nayabasti	Milk,courd,ghee
333	krishna dairy	sunsari	Nb	9841454283	250	1				200	250	chatara	Ghee,
334	Kamdhenu dugdha utpadak sahakari sastha limited	sunsari	Tikaparsad ojha	9852046005	50000			1		35000	45000	Sunsari,dhankuta,morang,terathum,ilam,jhapa,panchathar.	Jhol dudha,dahi,paneer,kh uwa,cheej,mohi.
335	Dharan deri food product pra.li.	sunsari	Kamales shrestha	9852854236	6000		1			3000	4000	Dhahran, itahari,dhankuta	Dudha,paneer,dahi
336	Itahari dugdha utpadak sahakari sahakari sastha limited	sunsari	Dhurba prasad koirala	9842500328	2000		1			1200	1500	Sundarharai cha,itahri	Kachcha dudha
337	Prakaspur dugdha utpadak sahakari sastha limited	sunsari	Humarjan basnet	9842065496	1000	1				600	800	Prakaspur	Kachcha dudha
338	Lalpur dugdha utpadak sahakari sastha limited	sunsari	Megha Kumar thapa	9842438842	2000		1			1000	1200	Lalpur	Kachcha dudha
339	Pragati dugdha utpadak sahakari sastha limited	sunsari	Ran prasad regmi	9842111624	1000	1				500	700	Mahendranagar	Kachcha dudha
340	Madhuprakash dugdha utpadak sahakari sastha limited	sunsari	Dilli prasad bastola	9842263092	2000		1			600	1000	Madhuban	Kachcha dudha
341	Chatara dugdha utpadak sahakari sastha limited	sunsari	Baburam khatri	9852055205	2000		1			1200	1500	Chatara	Kachcha dudha
342	Chhathar dugdha utpadak sahakari Sasha limited	sunsari	Buddiman khulal	9852049754	6000		1			2200	3500	Chhathar,laliguransh	Kachcha dudha
343	Aandim dughdha sahakari Sasha limited	sunsari	Dek prasad niraula	9842279301	500	1				300	400	Aandim	Taral dudha
344	Karei Khola MPC	surkhet	Netra Lal Sharma	9848191787	1000	1				900		dhararathpu	Milk, Dahi, paneer,

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345	New Namuna Dairy Industry	surkhet	dinesh prasad acharya		400	1				300		r chinchhu	Ghee, ice cream Milk, Dahi, paneer, Ghee
346	New Laxmi Dairy	surkhet	saroswoti thapa		300	1				200		chinchhu	Milk, Dahi, paneer, Ghee
347	New Gauri Dairy	surkhet	mohan prasad jaisi		200	1				170		deurali	Milk, Dahi, paneer, Ghee
348	Hamro Dairy	surkhet	krishna pd acharya		500	1				450		latikoili	Milk, Dahi, paneer, Ghee
349	Tiru Dairy	surkhet	jaya lal dhakal		300	1				270		deurali	Milk, Dahi, paneer, Ghee
350	Anish Dairy	surkhet	hemanta pandey		200	1				190		chinchu	Milk, Dahi, paneer, Ghee
351	Srijana Dairy	surkhet	dipendra prasad tiwari		100	1				100		dasarathpur	Milk, Dahi, paneer, Ghee
352	Nabin Dairy	surkhet	Moti pd chapagai		500	1				430		bangesimal	Milk, Dahi, paneer, Ghee
353	Seetal Dairy	surkhet	prem bdr srish		400	1				390		bangesimal	Milk, Dahi, paneer, Ghee
354	Bauddha Gramin Dairy	surkhet	pradeep bc		300	1				270		babiyachour	Milk, Dahi, paneer, Ghee
355	Bhiumika Dairy	surkhet	tilak prasad kandel		200	1				190		babiyachour	Milk, Dahi, paneer, Ghee
356	Nisan Dairy	surkhet	lekhnath risal	9852061955	600	1				500		deurali	Milk, Dahi, paneer, Ghee
357	shiva shakti dairy	tanahu	hari	9841544667	1500		1			1244	1500	dumsi	Mithai
358	tanahu dairy	tanahu	dhjhsh	9867888999	300	1				4000	5000	sewar	cheese paneer iigeu
359	DMPCU	tanahu	amar kuwar	9856060636	5000		1			5000		damauli	Process Milk , Dahi, Paneer, Ghee
360	Myanlung dugdha utpadak sahakari Shasta limited	terhathum	Santosh subba	9842050928	1000	1				600	800	Myanlung	fluid milk
361	Nabjivan dugdha utpadak sahakari Sasha limited	terhathum	Pahaman timsina	9842255180	1000	1				400	600	myaglung	fluid milk
362	Pathivara dugdha utpadak sahakari Shasta limited	terhathum	Kamal khadka	9852054844	1500		1			800	1000	Phulek	fluid milk
363	Sayapatri dugdha utpadak sahakari Shasta limited	terhathum	Kebal guring	9862048190	1000	1				500	600	Basantapur	fluid milk
364	Sarbajanik dugdha utpadak sahakari Shasta limited	terhathum	Prem gautam	9842328768	1000	1				700	800	Phulekh	fluid milk
365	Singhthapa dugdha utpadak sahakari Shasta limited	terhathum	Surya bahadur thapa	9842090613	1000	1				300	400	Dangapa	fluid milk
366	Tinjure dugdha utpadak sahakari Sasha limited	terhathum	Prem prasad bhattra	9852060515	1000	1				700	800	Lasune	fluid milk

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367	Tutedeurali dugdha utpadak sahakari Sasha limited	terhathum	Chairing serpa	9842266030	500	1				300	400	Tute	fluid milk
368	Mountmakalu dugdha utpadak sahakari Sasha limited	terhathum	Kamal thapa	9842154125	1000	1				500	600	Basantpur	fluid milk
369	Musankhel dugdha utpadak sahakari Sasha limited	terhathum	Keblram dahal	9842418011	2000		1			800	1000	Musankhel	fluid milk
370	Kanchanjangha dugdha utpadak sahakari Sasha limited	terhathum	Dammar thapa	9842352690	500	1				400	500	Phulekh	fluid milk
371	Jalkannya dugdha utpadak sahakari Sasha limited	terhathum	Nagendra basnet	9842144404	8000		1			500	600	Dangapa	fluid milk
372	Okhre dugdha utpadak sahakari Sasha limited	terhathum	Khagendra prasad dhakal	9852061826	500	1				300	400	Okhre	fluid milk
373	Sinhadevi dugdha utpadak sahakari Shasta limited	terhathum	Narayan khadka	9862030463	500	1				300	400	Sidap	fluid milk
374	Jalkanya pasupalan krisi sahakari Shasta limited	terhathum	Dammar bhattra	9842366230	500	1				300	400	Hamarjung	fluid milk
375	Panchamrit pasupalan sahakari Shasta limited	terhathum	Ghanshyam dhakal	9852515200	1000	1				700	800	Sudap	fluid milk
376	Machhendra pasupaln krisi sahakari sangha limited	terhathum	Kaji subba	9842109985	1000	1				700	800	Sudap	fluid milk
377	Sihadevi pasupaln krisi sahakari Sasha limited	terhathum	Surya karki	9852053672	500	1				300	400	Phakchamar a	fluid milk
378	Chhipuwa bahuudessiya sahakari sastha lemited	terhathum	Nanda bahadur thapa	9842598775	1000	1				500	600	Chhipuwa	fluid milk
379	Taklung krisi sahakari sastha limited	terhathum	Dolen rai	9852060205	500	1				300	400	Okhre	fluid milk
380	purbeli dairy	terhathum	Depan limbu	9852060208	500	1				300	400	Okhre	fluid milk

Annex: 2 DDC Chilling Centers

Kathmandu Milk Supply Scheme

SN	Chilling Center Name	Address	No of MPCs	Capacity of the center (Lis)	Avg milk collection (Lits)
1	Tika Bhairab	Lalitpur	4	6000	2500
2	Balefi	Sindhupalchowk	12	4000	3000
3	Ranitar	Kabre	13	6000	3500
4	Jogitar	Kabre	9	3000	1500
5	Sipaghat	Kabre	9	7000	2000
6	Mahadevbesi	Dhading	22	3000	2000
7	Melamchi	Sindhupalchowk	10	5000	2500
8	Bahunepati	Sindhupalchowk	15	5000	2000
9	Sangachowk	Sindhupalchowk	8	3000	1500
10	Sankhu	Kathmandu	12	7000	4000
11	Charaudi	Dhading	9	3000	250
12	Banepa	Kabre	15	10000	8500
13	Panauti	Kabre	19	11000	4500
14	Panchkhal	Kabre	14	11000	7000
15	Bhaktapur	Bhaktapur	9	8000	9000
16	Bharatpur	Chitwan	9	4000	1200
17	Jyamire	Chitwan	6	11000	3600
18	Chanauli	Chitwan	48	11000	7000
19	Sharadanagar	Chitwan	4	3000	1800
20	Meghauri	Chitwan	10	3000	1400
21	Madi	Chitwan	5	2000	1600
	Total		262	126000	70350

Biratnagar Milk Supply Scheme

SN	Chilling Center Name	Address	No of MPCs	Capacity of the center (Lis)	Avg milk collection (Lits)
1	Fikkal	Fikkal Ilam	24	6000	3250
2	Teenghare	Teenghare, Ilam	17	6000	5335
3	Laxmipur	Laxmipur, Ilam	18	2000	2325
4	Kutidanda	Kutidanda, Ilam	10	2000	2320
5	Biplayete	Biplayete, Ilam	21	6000	4050
6	Hile	Hile, Dhankuta	12	3000	5870
7	Chitre	Chitre, Terhathum	16	3000	3200
8	Puwakhola	Puwakhola, Ilam	15	6000	3525

9	Deurali	Deurali, Panchthar	3	2000	1190
10	Shantidanda	Shantidanda, Ilam	10	4000	3255
	Total		146	40000	34320

Hetauda Milk Supply Scheme

SN	Chilling Center Name	Address	No of MPCs	Capacity of the center (Lis)	Avg milk collection (Lits)
1	Chandrapur	Chandrapur, Rautahat	17	4200	5000
2	Garudha	Garudha, Rautahat	32	6000	800
3	Barhathawa	Barhatwa, Sarlahi	22	6000	850
4	Nawalpur	Netragunj, Sarlahi	12	6000	1100
5	Haraiya	Kabilasi, Sarlahi	7	1000	22
6	Barbariya	Basbariya, Sarlahi	15	2000	130
7	Simraungadh	Simraungadh, Bara	5	2000	21
8	Shantapur	Shantapur, Rautahat	7	2000	0
9	Manuwa	Manuwa, Bara	2	2000	0
10	Makwanpur Area	Hetauda Makwanpur	22	2000	4000
	Total		141	33200	11923

Lumbini Milk Supply Scheme

SN	Chilling Center Name	Address	No of MPCs	Capacity of the center (Lis)	Avg milk collection (Lits)
1	Pragatinagar	Pragatinagar, Nawalparasi	5	2000	350
2	Basa	Basa, Nawalparasi	9	2000	1700
3	Sunwal	Sunwal, Nawalparasi	13	5000	1550
4	Manigram	Manigram, Rupandehi	19	3000	2300
5	Aamuwa	Amuwa, Rupandehi	3	1000	1100
6	Lumbini	Lumbini, Rupandehi	5	3000	50
7	Chnadruta	Chandruta, Kapilbastu	4	4000	550
8	Butwal Factory	Butwal Factory, Rupandehi	21	16000	4600
9	Devdaha	Devdaha, Nawalparasi			
10	Cooperative	Cooperative, Nawalparasi			

	Total		79	36000	12200
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Janakpur Milk Supply Scheme

SN	Chilling Center Name	Address	No of MPCs	Capacity of the center (Lis)	Avg milk collection (Lits)
1	Gausala	Gausala, Mahottari	13	3000	350
2	Gurans	Guras, Udayapur	12	2000	370
0	Khurkot	Khurkot, Sindhuli	0	0	
3	Dharibaram	Sarlahi	1	1000	35
0	Bhiman	Sindhuli	0		
0	Parwanipur	Sarlahi	0	0	
3	Factory				
	Total		26	6000	755

Nepalgunj Milk Supply Scheme

SN	Chilling Center Name	Address	No of MPCs	Capacity of the center (Lis)	Avg milk collection (Lits)
1	Factory	Firi, Kohalpur	19	10000	2000
2	Sanoshree	Sanoshree, Bardiya	12	3000	1000
3	Chhinchhu	Chhinchu, Surkhet	14	5000	700
4	Lamahi	Lamahi, Dang	10	3000	600
5	Bhurigaon	Bhurigaon, Bardiya	1	1000	700
	Total		56	22000	5000

Dhangadi Milk Supply Scheme (total collection: 4500, sales: 2500 lits, other to Kohalpur)

SN	Chilling Center Name	Address	No of MPCs/farms	Capacity of the center (Lis)	Avg milk collection (Lits)
	Factory	Kailali			
	Rajipur	Kailali			
	Lamki, Tikapur	Kailalli			
	Suda, Daiji Farm	Kanchanpur			
	Suklaphant Milk Producer Committee	Kanchanpur			
	Lalpur, Sarbajaya	Kailali			
	Dhaiji, Punarbas	Kanchanpur			
1	Belori, Mahendranagar	Kanchanpur	16	3000	1500

	Total		16	3000	1500
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Milk Supply Scheme Lainchour

SN	Chilling Center Name	Address	No of MPCs	Capacity of the center (Lis)	Avg milk collection (Lits)
1	Nagarkot	Nagarkot, Bhaktapur	2	2000	
2	Bhimpokhari		8	1000	734
3	Chipabhanjyang		6	800	384
4	Pashupatinagar	Pashupatinagar, Ilam	5	3000	497
5	Bhakundebehi		0	500	128
6	Nayabazar	Ilam bazar	10	2500	1135
7	Maipokhari	Maipokhari, Ilam	2	800	371
8	Ranke	Ranke, Panchthar	3	800	411
9	Chukhabeshi		5	1000	406
10	Gopetar	Gopetar, Panchthar	5	400	143
11	Rakse	Rakse, Ilam	2	1000	643
Yak Cheese Production Center (Operate only for 4 months)					
12	Gosaikunda	Rasuwa		1000	816
13	Dhunche	Rasuwa		500	728
14	Langtang Chees factory	Rasuwa		500	22
15	Gatlang	Rasuwa		1000	853
16	Chordum	Dolkha		1000	487
17	Thordung	Dolkha		1000	643
18	Chankhu	Solikhumbu		1000	351
19	Pikai			500	115
	Total		48	20300	8867

Annex: 3 Survey tools

Tool 1: Key Informant’s Interview (Checklist) (With Dairy managers, NDA, DIA authorities)

Name: _____ **Institution:** _____ **Position:** _____

Place: _____ **Date:** _____

1. Do you have any information on number of dairies in district/ U/R municipality?

If yes, how many:

Processing more than 50,000 liters/day	
Processing 10,000-50,000 liters/day	
Processing 1000-10,000 liters per day	
Processing less than 1000 liters/day	

2 Is there any difference in milk processing in lean and flush season? If yes, what is the difference between the season?

3 From where the milk processors collect the milk (please name the places)- milk collection centers, MPC, U/R municipality village etc.

4 What dairy products they produced? Please name the dairy products and approximate quantity of production per day.

5 Where the processing industries sale their products. Name the places by dairy products.

6 How the processing industries distribute/sale the dairy products (e.g. whole sale, retail, franchise, door steps etc)

7 How is the availability of dairy products in the market? is available all the time or is limited time only?

8 What is the quality of dairy products available in the market? Are you satisfied with the quality? If no what should be done to improve the quality?

9 In an average how, many staffs are working in those industries (by scale of processing capacity)

10 How many hours the dairy processing industries operating in a day?

11 What is the turnover of working staff in the industries?

12. Do you think dairy industries contributing in social development of this area?

13. Do you have any suggestion with regards to establishment and operation of dairy industries?

Tool: 2 Focus Group Discussion (FGD) Guideline (With cooperative members if the sample is cooperative owned processing industry)

District: Place: Date: Venue

SN	Name	Institution	Position	Remarks
1				
2				
3				
4				
5				
6				
7				
8				
9				

1. Do you have any information on number of dairies in district/ U/R municipality?

If yes, how many:

2 Is there any difference in milk processing milk in lean and flush season? If yes, what is the difference between the season?

3 From where the milk processors collect the milk (please name the places)- milk collection centers, MPC, U/R municipality village etc.

4 What dairy products they produced? Please name the dairy products and approximate quantity of production per day.

5 Where the processing industries sale their products. Name the places by dairy products.

6 How the processing industries distribute/sale the dairy products (e.g. whole sale, retail, franchise, door steps etc)

7 How is the availability of dairy products in the market? is available all the time or is limited time only?

8 What is the quality of dairy products available in the market? Are you satisfied with the quality? If no what should be done to improve the quality?

9 In an average how, many staffs are working in those industries (by scale of processing capacity)

10 How many hours the dairy processing industries operating in a day?

11 What is the turnover of working staff in the industries?

12. Do you think dairy industries contributing in social development of this area?

13. Do you have any suggestion with regards to establishment and operation of dairy industries?

Tool: 4 Details of the Dairy Processing Industries

Name of the industry		Place of registration			Date of registration		PAN #				
Address: U/R Municipality:.....	Ward #		Tole		Contact #	Landline		Mobile			
Email:	Website:				Responsible person			Mobile			
GPS Coordinates (Longitude)		Latitude		Total processing capacity (Lits/day)			Currently processing (Lits/day)				
Seasonal operation of factory against the installed capacity (2073/74)											
Installed capacity (Lits/day)	Average real operation (Lits/day)										
	Baisakh	Jestha	Asar	Shrawan	Bhadra	Kartik	Magsir	Push	Magh	Fagun	Chait
Milk collection											
Base year											
Milk processing											
Base year											
Total hour of operation											

Base year											
Price of raw milk (Rs/lits)											
Base year											
Milk collection areas (from where milk is collected)	U/R Municip ality	Name of collection centre									
Dairy products production	Lean season	Price (NRs)	Flush Season	Price (NRs)	Sales	Lean season	Flush Season	Base year Flush Season	Base year Flush Season		
Fluid milk (Lits)											
Dahi/yoghurt (Lits)											
Paneer (Kg)											
Butter (Kg)											
Ghee (Kg)											
Cheese (Kg)											
Chhurpi (kg)											

SMP (Kg)											
Sweets (kg)											
Ice-cream (Lits)											
Other products (list)											
	Places										
Distribution channel and ultimate markets											
Own sales counter (Nos)											
Wholesale (Nos)											
Retail (Nos)											
Franchise (Nos)											
Others											
At what time dairy products reach to the market		Availability of dairy	All the time		Morning only		If all the time				

		products					how maintain cold chain	
Quality issues (Nutrient and microbial) of the dairy products from the industries								
Fat								
SNF								
COB								
Bacterial quality (MBRT wherever possible)								
TPC (if lab facility available)								
Bacterial quality of raw milk (MBRT)- if available								
Financial efficiency of the industry (CB Ratio, IRR, Payback Period, Breakeven Point, Annual Turnover)- Audit report can be collected								
Cost	Area (Ropani)	Cost (NRs)	Interest rate (%)	Loan (NRs)	Equity (NRs)			
Land and land development								
Factory and office building								
Godown, latrine								
Electrification								
Water boring, contingency								

Plant, Equipment & Machinery (including crates and trays)			
Raw Milk Reception Section			
Refrigeration / Chilling section			
Processing Section			
Rage and packaging section			
Steam Section			
Butter and ghee section			
Yoghurt, Ice cream and Paneer Section			
Laboratory equipment			
Crate, Crate Washer, Deep freeze,			
CIP system complete			
Custom and freight cost			
Erection and Commission			
Furniture & Fixtures			
office equipment			
Vehicles (Milk and Milk Product Transport Vehicles, milk tanker)			
Pre-operating Expenses (Feasibility Study, Project design, management, consultation & supervision, Traveling			

expenses, Postal/communication Expenses, Advertisement & publicity, License & registration, Rentals, Miscellaneous)			
A. FIXED COST:			
Depreciation, - As per audit report			
Building and civil works			
Machinery/equipment			
Office equipment			
Furniture			
Vehicle			
Others (if any)			
Amortization,			
Insurance (a. @. on Fixed Asset Investment)- As per audit report			
Building and civil works			
Machinery/equipment			
Office equipment			
Furniture			
Vehicle			
Others (if any)			

Office Overheads				
a. Postage, telephone, fax etc,				
b. Stationery & printing,				
c. Audit fee and others				
d. Publicity & promotion				
e. Traveling Expenses				
f. Others (if any)				
Fixed Electricity Charges (On installed Capacity of 150 KW @ KW)				
Indirect Labor	<u>Rate (Rs)</u>	Monthly qty	Total/ (Monthly)	
Manager				
Officers				
Accountant/Storekeeper				
Assistants				
Peons, guards				
Perk (if any)				
VARIABLE COST:				
Material Inputs	<u>Rate (Rs)</u>	Monthly qty	Total/ (Monthly)	
a. Raw Milk,				
b. Auxiliary Materials (Sugar, Skimmed Milk Powder, lactic acid, essence, ice-cream flavor etc) @ of raw milk				

c. Packaging Material (fluid milk, dahi, paneer, ghee.....),				
d. Chemicals & Glassware,				
e. Miscellaneous				
Utilities -Processing Cost				
Diesel @ /lit , Lubricants @% of Diesel				
Water and Electricity @ /lit etc).				
3. Repair & Maintenance				
a. Building & Civil Works @				
b. Plant & Machinery @				
c. Vehicles @				
d. Furniture & Fixtures @				
Map human resources and evaluate labor use efficiency in the industries				
4. Direct Labor				
Production Manager				
Foreman				
Skilled labor				
Semi-skilled labor				
Perks %				

Management aspect of dairy industries											
Personnel management status-	number of staffs	Permanent		Temporary		Appointment letter yes, no		Office time (hr)		Minimum salary (Rs/month)	
	Annual leave (days)			Other leave (day)		Perks (if any)					
Financial management	Software used (if any)-name			Book entry system		Internal audit system (yes, no)		Annual external audit (yes, no)		Annual turnover Rs (Fy 2063/64)	
	Profit and loss (as per audit report)-2063/064										
Marketing management	Marketing strategy (if any)-yes, no		Strategies undertaken for market promotion			Social responsibility bear (yes, no) if yes what??			Promotional activities (Yes, no) if yeas what??		
	Extension service (yes, no) if yes what??		Others:								
Human resource management	Training to manpower (yes, no), if yes what??			Position upgrading system (yes, no)		Personal Development Plan (yes, no)		Staff recruitment process			
Problems faced by the industries											
Solutions measures to be undertaken											

THE END

