

# A Study on Growth and Performance of Dairy Sector in Nepal

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**Abstract**— Dairy sector has been a vector in providing dairy products to the urban population and pull the urban capital into the rural areas. Dairy industries have been successful in creating a strong network between the dairy farmers and the consumers and have been established as a bridge between the urban and rural trade across the country. The entire dairy chain is dependent upon milk production. At present, Nepal contributes approximately 0.247% of the world's total milk production. Nepal's milk output is estimated to be 2.05 million metric tons. The per capita availability of milk in Nepal is around 158.9 grams per day, which is far below than the value recommended by World Health Organization (WHO). The current milk production growth rate should be raised to 4 percent per annum so as to meet the WHO recommended minimum value of 250 gm per day per-capita milk consumption by the year 2025. The dairy sector in Nepal is the most important sub sector in Nepalese livestock production. Almost 28% of the national GDP comes from the agriculture and livestock sector. However, the share of dairy sector in agricultural GDP of Nepal is 8% of the national GDP. Beside contributing to the GDP, the agriculture sector also provides employment to the two-thirds of the country's population. The cooperative sector in Nepal has been in the emerging state and is playing an important role in socioeconomic development of millions of rural families.

**Keywords**— Dairy; GDP; Per Capita availability; Milk production; Livestock; Sustainability.

## I. INTRODUCTION

The organized dairy development activities in Nepal began only after 1952. The establishment of a Yak cheese factory in Langtang of Rasuwa district under the assistance of Food and Agriculture Organization (FAO) in 1953 is considered to be the pioneer activities in the dairy development of Nepal (FAO, 2010).

A large share in agricultural Gross Domestic Product comes from the Nepalese dairy sector. The co-operatives play an important role in agriculture and livestock sector, whose share in agricultural GDP of country has been 28 percent (NRB, 2018; Tiwari and Shingh, 2020). Dairy co-operatives help in establishing strong network and linkages in millions of rural households scattered across the country. Dairy co-operatives have helped immensely

to establish a strong network and linkages among the rural population all over the country. The co-operative sector in Nepal has been in the emerging state and is playing an important role in socio-economic development of the country. At present the dairy sector of our country is contributing 0.247% percent of the world's total milk production. Nepal's milk output is estimated to be 2.05 million metric tons (FAOSTAT, 2019). The per capita availability of milk has also increased to a level of about 158.9 gram per day (RAN, 2015). 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 (Neupane *et al.*, 2018). The population growth rate of Nepal is found to be 1.35 percent per annum. Under this assumption, the current

milk production should be raised by 4 percent so as to meet the WHO recommended minimum value of 250 gm per day per-capita milk consumption by the year 2025. In contrast, current milk production growth stands only at 3.09 percent per annum (Upadhyay, 2017).

Present paper focuses on growth and performance of dairy sector in Nepal and provides recommendations to meet future challenges. A major fraction of milk is found to be handled by the unorganized sector in Nepal. Sweet shops, hotels, restaurants and tea shops which manufactures short to medium shelf-life milk products and are not recognized by Nepalese Dairy Act comes under the unorganized sector. There is no doubt regarding the dairy co-operatives playing a vital role in alleviating rural poverty. The formal sector or organized sector shares 20% of the total annual milk produced in the country (NEPC, 2017). The result of the study indicates that product development, milk quality, infrastructure support, and global competition could be the future challenges of Nepalese dairy sector.

## **II. OBJECTIVES OF THE STUDY**

The objectives of this research are as followings:

1. To analyze the progress of dairy sector in Nepal.
2. To find out the limitations and opportunities of dairy sector in Nepal.
3. To examine the role of cooperatives in development of dairy sector and their challenges.
4. To propose the sustainable remedial measures for improving the overall performance of Nepalese dairy sector.

## **III. MATERIAL AND METHOD**

The present research paper is descriptive and is based on secondary data. The secondary data has been obtained from various sources such as, Ministry of Agriculture and Livestock Development (MoALD, Nepal), Ministry of Finance (MoF, Nepal) and various reports of Dairy development Cooperation (DDC), Food and Agricultural Organization (FAO), National Agricultural Research council (NARC) and National Dairy Development Board (NDDB). The basic statistical tools such as percentage, growth rate, variation etc. is used for the economic analysis. The similar methodology was adopted by

(Deshmukh, 2014) for analyzing the growth and performance of dairy sector in India.

## **IV. RESULT & DISCUSSION**

### **1.1. Status of Dairy Sector in the World**

The dairy sector of Nepal is emerging, and its share to the global milk production is very low i.e.0.247 percent of the global milk share. India has been established as the largest milk producer in the world, producing 176.27 MT of milk per year sharing 21.32% of global milk production, followed by USA (97.76 MT/year,11.82% of global milk production) and Pakistan (44.29 MT,5.35% of global milk production). The annual milk production of Nepal as per the report published by FAOSTAT (2019) is 2.05 MT. Nepal's share in global milk production is 0.247% in the year 2017.

From table 1 it is clear that the global milk production is rising tremendously to meet the requirements of the growing population. The world milk production in the year 1975 was only 424.73 MT, which is almost half of the present global milk production (826.75MT). Table 1 also reveals a slight drop in the annual milk production of several countries like China, New Zealand, UK and France. The top ten countries of the world are contributing around 62 % of the world milk output till 2017.

The setup of modern dairy processing units with the application of scientifically advanced processing techniques and with several investments, innovations in all possible scale would make Nepal a major player in the world dairy market.

Table 1: Largest Milk producing countries in the world (FAOSTAT, 2019)

Rank in 2017 Country		Production (Million tons)					Share in percentage				
		1985	1995	2005	2015	2017	1985	1995	2005	2015	2017
1	India	44.02	65.37	95.62	155.69	176.27	8.58	12.10	14.75	19.43	21.32
2	USA	64.93	70.44	80.25	94.634	97.76	12.65	13.04	12.38	11.81	11.82
3	Pakistan	10.86	19.01	29.44	41.59	44.29	2.11	3.51	4.54	5.19	5.35
4	China	4.76	9.46	32.02	36.28	34.87	0.92	1.75	4.94	4.52	4.21
5	Brazil	12.57	17.13	25.53	34.86	33.74	2.45	3.17	3.94	4.35	4.08
6	Germany	33.63	28.63	28.48	32.71	32.69	6.55	5.30	4.39	4.08	3.95
7	Russian Federation	0.00	39.31	31.15	30.79	31.18	–	7.27	4.80	3.84	3.77
8	France	28.40	26.069	25.71	25.93	25.26	5.53	4.82	3.96	3.23	3.05
9	New Zealand	7.88	9.29	14.64	21.94	21.37	1.53	1.72	2.25	2.73	2.58
10	UK	16.02	14.84	14.47	15.32	15.26	3.12	2.74	2.23	1.91	1.84
Nepal's share to global milk production											
	Nepal	0.81	1.01	1.35	1.86	2.05	0.15	0.18	0.20	0.23	0.24
	World	512.98	540.07	648.22	801.13	826.75	100	100	100	100	100

## 1.2. Dairy Sector Scenario in Nepal

As the dairying sector in Nepal is in the developing stage, its position in terms of per capita availability is one of the lowest. The per capita availability of milk was about 132.88 gm per day in 1985 which has declined to 129.30 gm per day in 1995. However, the present level of per capita availability is 158.9 gm which is much lower than the recommended value of WHO (250gms) and even less than 220 gm recommended by the Nutritional Advisory Committee of the Indian Council of Medical Research (ICMR). The current milk production of Nepal as per the report of Food and Agricultural Organization in the year 2017 is 2.05 MT.

As per the statistical information collected from Nepalese Agriculture- 2014/15, MoAD, total milk production in Nepal was 1724823 MT out of which 1153838MT is from buffalo and 468913 MT from cow. The total buffalo population was estimated to be 5133139 and that of cattle population was 557669. Likewise, the total milking cattle were 1025947 and milking buffaloes were 135164 and

they produced 1167154 milk. Out of the total livestock population, only 13% of the cattle and 26% of the buffaloes are of improved breeds (NARC, 2016). Jersey, Holstein, Brown-Swiss, Ayrshire and Sahiwal and their cross-bred cows were the breeds of cows, whereas the buffaloes included local, improved such as Murrah and their crosses. Buffalo milk shares about 65% of the total milk production in Nepal (MoAD, 2016).

The decentralized system of governance in Nepal shifted from the development region to the province system in the year 2015. The data tabulated below in the table shows various milch animal population in different provinces of Nepal. Province no.1 holds the maximum cattle population whereas the maximum buffalo population is found in province no.5. Province no.2 doesn't hold any yak whereas the maximum yak and sheep population is hold by province no.6. Likewise, province no.1 holds the first position on the goat and pig population. The total cattle population as per the report of livestock statistics of Nepal, 2017 is 6430397.

Table 2: Population of animals in various provinces of Nepal (Livestock statistics of Nepal, 2017)

Province	Cattle	Buffalo	Yak/Chauri	Sheep	Goat	Pig
Province 1	1601707	455638	13007	48365	2277659	458723
Province 2	697881	424711	-	12118	1306800	27839
Province 3	832320	588984	11354	39836	2484855	84763
Province 4	476367	526689	10664	67954	1283467	81939
Province 5	1040251	675601	11	134320	1835436	134424
Province 6	717636	170314	13083	223272	994927	27471
Province 7	1064235	332452	746	87019	1041986	55038
Total	6430397	3174389	48865	612884	11225130	870197

Table 3: Animal Population Trend over different years in Nepal

(Livestock Statistics of Nepal, 2016)

Year	Total Animal	Total Milking Animal	% of Milking Animal
2005/06	11207802	1988140	17.74
2006/07	11411092	2033166	17.82
2007/08	11587221	2073711	17.90
2008/09	11855684	2144371	18.09
2009/10	12036244	2207450	18.34
2010/11	12219700	2265766	18.54
2011/12	12378083	2330000	18.82
2012/13	11515895	2395387	19.14
2013/14	12422528	2370350	19.08
2014/15	12409480	2371111	19.11
2015/16	12471617	2381519	19.10
2016/17	12525485	2539041	20.27

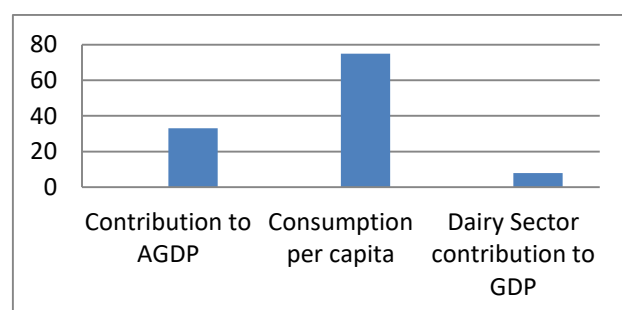
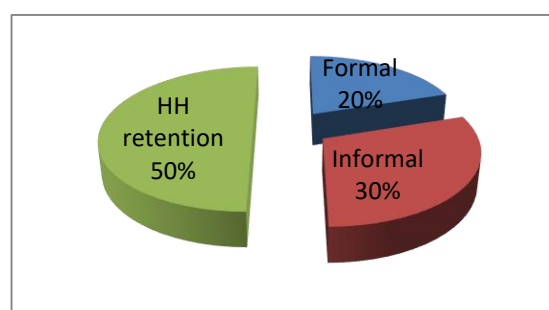


Fig 1: Nepal Dairy sector at a glance.



HH Retention: Household Retention  
Fig 2: Distribution of Milk (COMP-NDDB, 2017)

From the bar graph mentioned above it is clear that, Nepal is an importer of milk and milk products to fulfill the present needs of its population. Milk, cream powder, butter, butteroil, cream liquid and cheese are the major products that are imported to Nepal. Dairy sector contributed nearly 33 percent of the AGDP (Agricultural Gross Domestic Product) and 8 percent of total GDP. The buffalo population in Nepal bears a considerably shorter lactation period of 242days, whereas the cows of Nepal has an average lactation period of 286 days which is sound.

### 1.3. Ration and its effect on milk production in Nepal

Balanced Ration is the quantity of feed that provides the necessary nutrients required for proper growth, development, gestation and lactation of animals. In

Nepal, crop residues, straw of wheat and rice, stovers of maize, leaves of trees and other green fodders cultivated by farmers are the prime sources of feed for animals. Beside these, maize is used as concentrate followed by brans of rice and wheat, oilseed cakes of soybean, mustard, sunflower and other byproducts of legumes. These concentrates used are not sufficiently produced in Nepal. Thus, they are imported from India and other countries. Grains of legumes are substantial source of protein. Osti et. al, (2013) found that milk production was less (8 kg/d/head) prior to bypass protein (BP) feeding, while higher during BP feeding (10.0 kg/animal/day) was provided. The feed supply of Nepal is not sufficient to meet the demand of dairy animals. There is shortfall of 38% in crude protein, 42% in metabolizable energy and 33% in dry matter (Osti,2020).

Table 4: Crop residues and by-products available (%) in Nepal (MoAD,2013)

Crops	Main Product	Residues	Oil Meals	Oil Cakes	Bran/Husk
Rice	14.99	9.27	-	-	-
Maize	66.56	82.30	-	97.71	76.28
Millet	1.018	1.68	-	-	-
Wheat	5.75	3.55	-	-	6.57
Barley	0.113	0.07	-	-	17.15
Buckwheat	0.033	0.021	-	-	-
Oilseeds	0.596	0.143	99.95	0.76	-
Sugarcane	9.75	1.01	-	-	-
Cotton	0.005	0.000069	0.05	0.000732	-
Pulses	1.19	1.96	-	1.53	-
Total	100	100	100	100	100

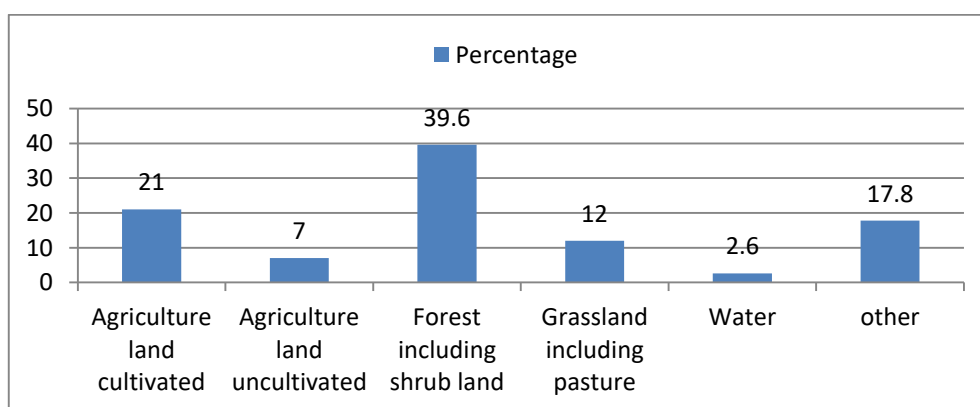


Fig 3: Land Use Statistics in Nepal

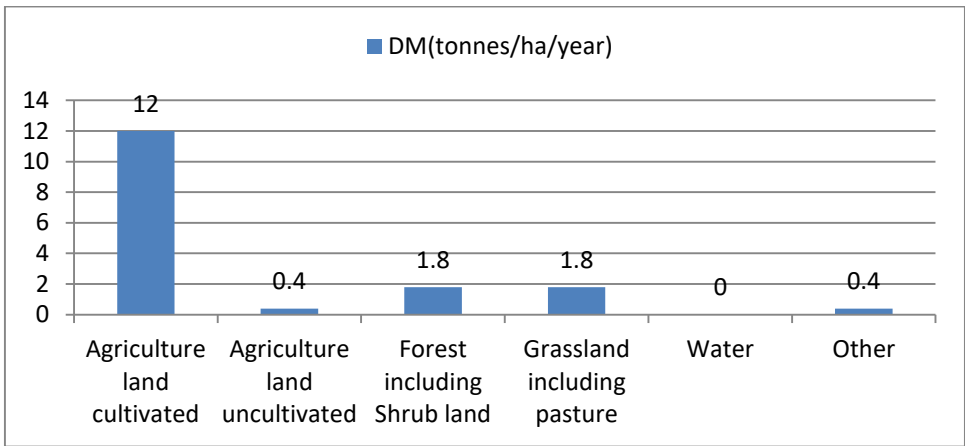


Fig.4: DM (Dry Matter) in tonnes/ha/year in different land use pattern

When we see prior to 100years then it is found that people used to feed only roughages to their animals and later use of concentrates increased the yield of milk and then the concept of total mixed ration (TMR) was popular and it is found that animals supplemented with TMR were found to be free from nutritionally related off feed, milk fat depression and indigestion problems (Schingoethe, 2017) .Total mixed rations are commonly being fed to dairy animals in other countries but still people in Nepal are compelled to feed roughages to their animals due to poor quality, lesser availability and higher prices of the concentrates (De Vries and Kaylegian, 2018).

1.4. Pattern of Flow of Raw milk

The latest milk production of Nepal as per the data obtained in the year 2017 was 2.05 MMT (FAOSTAT, 2019). Out of the total milk production, only 20% of the total milk was utilized by the formal sector (NEPC, 2017).

The milk is produced by the dairy farmers and the surplus milk is distributed either via formal and informal trading methods. The formal sector in Nepal comprises of the MPCS (Milk Producers Cooperative Society), MCC (Milk Chilling Centers), Milk processing plants and dairy cooperatives. The flow of milk in the formal sector

passes from the MPCS to the MCC and finally to the milk processing plants. The milk producer’s cooperative society is the organization comprising of the dairy farmers and functions to collect the raw milk at village and grassroot level. The milk collected from the MPCS is transported to the milk chilling centers where they are chilled and temporarily stored. From the MCC the milk is then transferred to the milk processing plants in the large tankers which are facilitated with adequate refrigeration requirements. Similarly, a small volume of milk directly passes from MPCs to Cow milk cheese factories and from farmers to the Yak cheese factories (FAO, 2010).

Tracking the milk passing through various channels either formal or informal is not an easy task in Nepal due to the lack of advances in the traceability system. The milk in Nepal is mainly supplied to the informal sectors which accounts for approximately 80% of the total annual milk production. In the informal sector, the milk is mostly handled by the individual households, tea shops and the sweet meat shops. The vector for the informal milk trading in Nepal is mostly individual farmers and the milk contractors. This pattern of flow of raw milk in Nepal can be illustrated via a chart shown below.

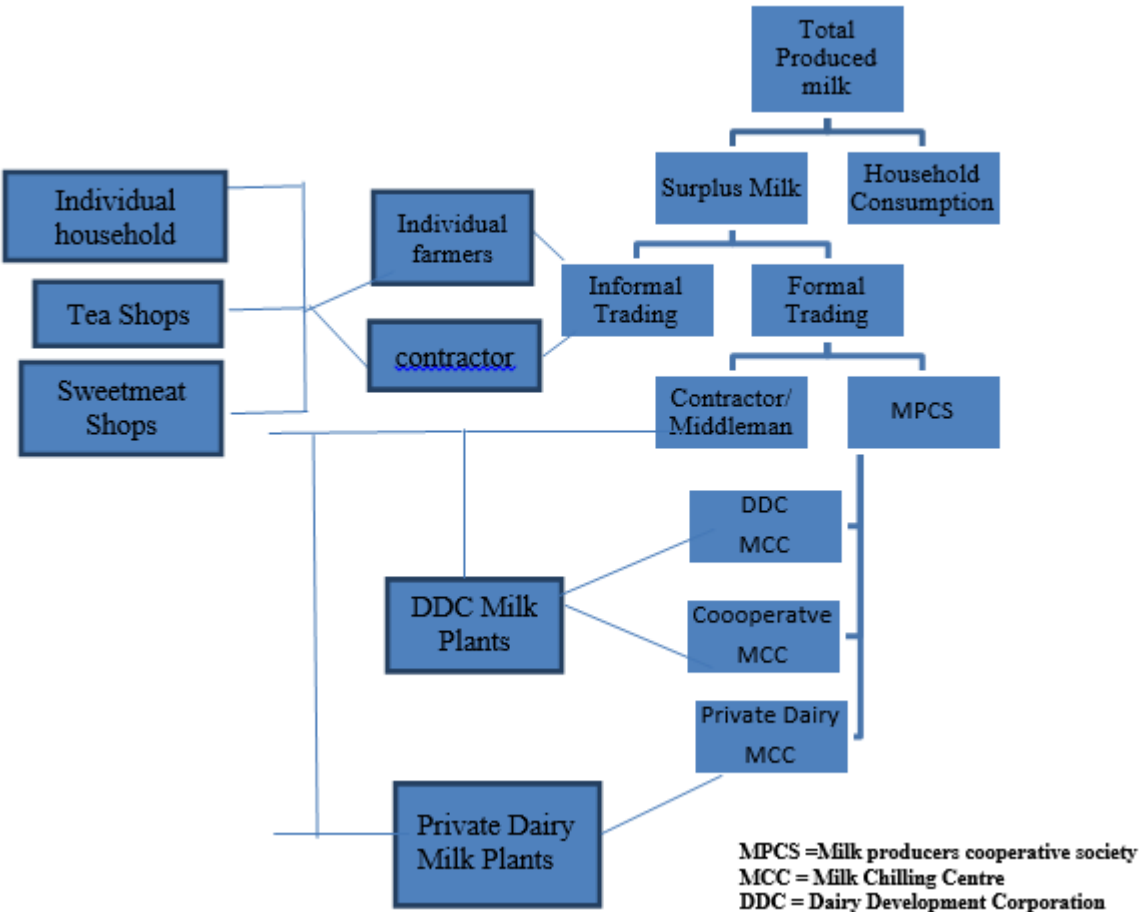


Fig 5: Flow patterns of milk in Nepal (FAO,2010)

**1.5. Milk Production and Per Capita Availability Projection**

According to the data taken from FAOSTAT, (2019) and (Nepal Population, 2020), the annual milk production and the human population in the year 2017 were 2.05 MMT and 27632681 respectively. The per capita availability was calculated by dividing the total milk production with the human population and was expressed in grams per

day. The per capita availability was found to be 203.49 gm per day in the year 2017 which was far less than the recommended value of WHO (250 gm). It has been estimated that the annual milk production growth rate of Nepal is 3.09% (Upadhyay, 2017) and the population growth rate is 1.35% per annum (Nepal Population, 2020).



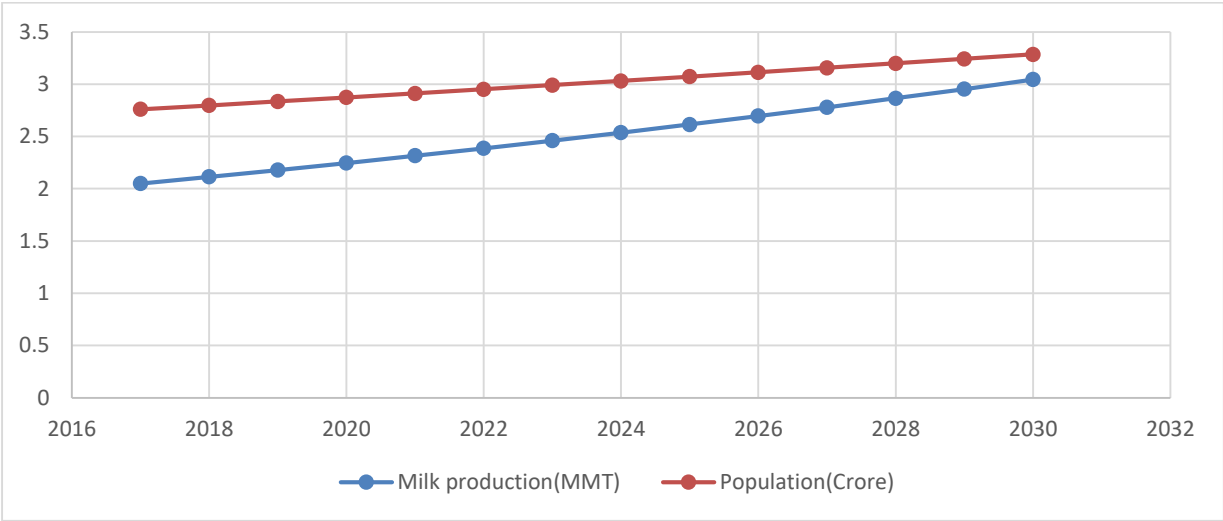


Fig 6: Projection on Annual Growth Rate Required to meet Milk Consumption Recommended By FAO/WHO By 2030.

The projected value of milk production was calculated by considering 3.09% annual growth rate i.e. current rate and the total milk production for the year 2017-2030 were extrapolated. Likewise, the human population for the various years were estimated by considering 1.35% annual growth rate and the population for the year 2017-2030 were extrapolated. The population and the milk production for the year 2030 was estimated to be 3.28

crores and 3.044 MMT respectively. The value of the per capita availability determined on the year 2030 is 253.89 gm per person per day which is just above the recommended value provided by WHO (250gms). Thus, with the same growth rate in milk production (3.09% per annum) and population (1.35% per annum), the recommended value of milk availability would be achieved by 2030.

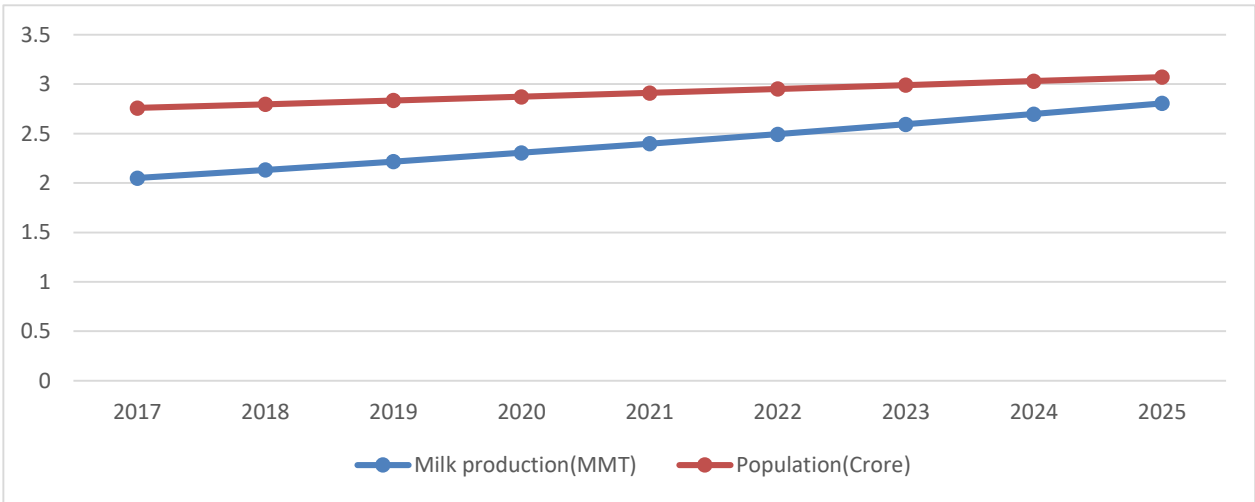


Fig.7: Projection on Annual Growth Rate Required to meet Milk Consumption Recommended By FAO/WHO By 2025

Figure 7 represents the projection on annual growth rate required to meet the milk consumption recommended by FAO/WHO by 2025. In order to attain the recommended value of per capita availability by 2025, the current milk production growth rate has to be increased to 4% per annum assuming the static population growth rate i.e.

1.35% per annum. The total milk production in the year 2025 at 4% annual growth rate would be 2.80 MMT while the population at that period of time would be 3.07 crores.

Hence, the value of per capita availability estimated by



dividing the total milk production by total population is 250.16 gm per person per day which is just above the recommended value of WHO (250gms).

### **1.6. Limitation and Opportunities of Dairy sector in Nepal**

According to the World Bank collection of development indicators, the rural to urban population ratio of Nepal is approximately 8:2 i.e approximately 80% of the Nepalese reside in the rural sector. A major fraction of rural population of Nepal seem to be engaged in agriculture and livestock rearing which makes the rural sector a major milk producer in the nation. But because of the lesser availability of the assured market, the producers do not have an incentive to invest in good breeding stock, feeds, or veterinary medicine and services. Lack of these inputs affect the productivity which eventually reduces profit (Sharma and Banskota, 2002). Moreover, the dense population, lower milk production and availability causes the demand escalation of milk and milk products in the urban region. Similarly, because of the low purchasing power of the consumers, the effective demand for milk at local levels is also low. Hence, it is necessary to transport milk to major urban areas for marketing. At the same time the price the cooperatives pay to farmers does not match growing feed prices (Shrestha, 2000). Nepal has tremendous potential for increasing dairy livestock production and productivity. Buffalos in Nepal are also slaughtered for the production of meat and meat-based food products. Buffalo meat accounts for 54% of the total meat produced in the country (MoAD, 2016). Milk market in formal sector or organised sector contributes about 20% of the total annual milk produced in the country (NEPC, 2017). The bovine population of 9604786 produces 2.05 million tonnes of milk annually (per capita availability of milk is 158.9 gms per day), whose contribution is yet below the recommended value of WHO (i.e. 250gms per day). The production and productivity of cattle in Nepal is very low with 519.56 litre per lactation as compared to world average 2038kg per lactation, which requires a lot of improvement (Thompson and Sabikhi, 2012).

Hence, there is need of great improvement in the dairying and animal husbandry systems in Nepal. There is huge variation in productive and reproductive performance of cattle in Nepal. To make dairy sectors more commercial there is need and opportunities to increase productive and reproductive performance of cattle which can be achieved by cross breeding and hybridization (Paneru *et*

*al.*, 2015).

All over the country, the cattle and buffalo population are evenly distributed. It creates opportunity for the farmers to generate benefits from longer duration of lactation in cattle and high fat content of buffalo milk, both the factors leading to sound income. Huge population density in urban areas has created a significant demand for milk and dairy products which is impacting the milk market to grow and flourish (FAO, 2010). The increasing number of dairy plant schemes under DDC and strong channel of dairy cooperatives from the grassroot level to the central level has strengthened the dairy industry and provided a supportive environment to the dairy farmers. The influencing activities of NGOs like providing technical support, veterinary care service and involvement of private dairy sector has become sensational support and hope to the small-scale milk producer (Sharma and Banskota, 2002).

Despite the opportunities mentioned above, there are several other constraints relating to dairy sector development in Nepal. The depletion of animal feeding base resulted due to the deterioration of the forest areas for the various purposes like timber and fuel wood has affected the dairy sector adversely (Pande, 1997). The unavailability of green fodder and quality feed adversely affects animal productivity. Moreover, poverty and illiteracy among the livestock raisers severely hits their ability to respond to the new opportunities and cope with the dynamic situation. Illiteracy complicates the extension learning process as they require more face to face communication. Above all, the uncommonness of the heifer rearing practice and lack of cost-effective heifer rearing technology has resulted in the critical shortage of the productive dairy animals (Sharma and Banskota, 2002). Upadhyaya *et.al.* (2000) studied the scenario of the dairy cooperatives in Nepal and concluded that the dairy cooperatives do not buy milk from their regular suppliers during the flush seasons. Those days of the week, when the private and public dairies do not buy milk from the dairy farmers are termed as “milk holidays.” The main reason behind the milk holidays could be the lesser demand of milk and milk products among the consumers and lack of milk storages capacities in the processing plants. With an aim to compensate a possible milk holiday, Nepal is going to export 30000 litres of milk to India. Due to low domestic demand during the flush period exporting milk is an effective measure to avoid the problem. Production cost

of milk in Nepal in comparison to India is naturally higher as Nepal is dominated by non-commercial farmers. Milk production drops by almost 30% during lean season (April-August) which becomes insufficient to fulfill the market demand as milk consumption is going high. The deficit in milk production can be well combated by promoting powder milk as an alternative source of milk production as well as good support from government in building farmers capacity and introducing better dairying technologies. Also, low milk price is one of the major limitations in Nepal followed by lack of proper government milk policy and inadequate milk processing industries (Timsina and Regmi, 2009).

### **1.7. Dairy Co-operatives and their challenges**

The establishment of dairy cooperatives in Nepal was the result of the implementation of the first five-year plan in the year 1956-61. The first dairy cooperative was formed at Tusal village of Kavre district. Though the dairy cooperative activities got initiated in the early 60s' their effective activities were observed only after December 1981, when DDC initiated the milk producers-oriented program by participating the farmers to form their own Milk Producer Association (MPAs). The MPAs thus formed were not provided with the legal status and they functioned for milk trade and support to milk production. Later on, MPAs were transformed into Milk Producers cooperative society (MCPS) in February 1989 to make them function autonomously. The MPCs are governed by cooperative Act 1992. The functions of these MPCs is to gather milk from the dairy farmers, test its quality, transport it for selling to the nearest milk processing plants, receive payment for the milk and distribute the payment to the individual milk supplier farmer. The dairy cooperatives in Nepal functions in 3-tier system (FAO,2010).

The first tier is MPCs primary level cooperatives, second level is District Milk Producers Cooperative Unions (DMPCUs) of different MPCs as District bodies. Their main theme is to deliver programs designed to support the increased production and processing of milk and milk products and also to contribute to the financial and social upliftment of the rural milk producers. The third tier is Central Dairy Cooperative Association Limited Nepal (CDCAN). CDCAN is registered as their central-level cooperative organization established in 1993, mainly focuses on increasing economic benefits to the milk producers and making the country self-reliant in clean and high-quality milk and milk related products. Moreover, it also implements policy advocacy activities at the central level to represent the interest of member organizations (Upadhyay et.al., 2001).

The milk processing plants functions for the processing of raw milk and manufacturing the value-added products from the milk. They are the key elements of the formal sector of milk distribution. They help in maintaining a regular standard and balance of milk distribution throughout the region. They are the bridge via which the rural milk and resources and urban capital can be interlinked. The dairy sector in Nepal is characterized by scattered, small scale, unorganized milk animal holders; inadequate and inappropriate animal feeding and health care; low productivity; an inadequate basic infrastructure for provision of production inputs and services. Moreover, lack of an assured year-round remunerative producer price for milk, inadequate basic infrastructure for collection, transportation, processing and marketing of milk is another aspect of the Nepalese dairy sector. Low productivity of the milch animals is a serious constraint to the dairy development in Nepal (GOEC Nepal, 2012).

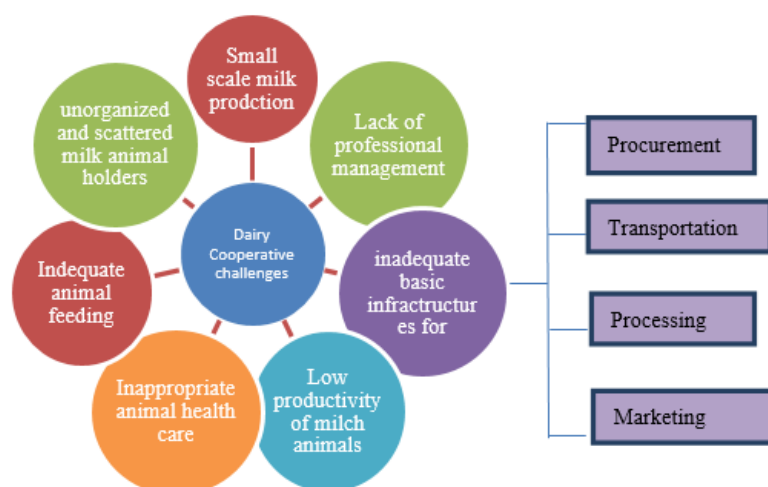


Fig. 8: Challenges faced by the Dairy Co-operatives

### 1.8. Sustainable remedial measures and suggestions

To overcome the challenges faced by dairy cooperatives and to strengthen the entire dairy sector, the principles of sustainable development is to be taken in account. For upgrading dairying to a larger scale, firstly the farmer's dairy capacity and needs should be improved. Farmers need to improve the quality standards of milk, which would require a strategy to motivate them that dairy is a profitable business other than an optional business. (KUBK-ISFP, 2015).

The combination of proper provision of animal breed, nutrition, health care, processing and marketing is key for bringing success in dairy sectors. Awareness program should be initiated to provide knowledge about animal science and sanitation (Santra, 2018). Moreover, the government should direct, coordinate and regulate the activities of institutions and organizations involved in dairy sector to create and provide favorable environment for small scale dairy farmers (Pant, 2017).

There is an utmost need for the disease control mechanisms to be developed as epidemics of FMD, black quarter, HS and other adversely animal health, which eventually reduces milk production and effects the entire dairy sector. Special and aseptic transportation utensils should be assessed by the producers for the safer handling and delivery for the products thereby minimizing the risks of food contamination and spoilage. In this way, consumers can get milk from their choice. Incentives for better quality milk could be suggested around the collection centres on competitive basis.

Further, transparent pricing system for respective cattle and buffalo milk could be encouraged and adequate pricing should be offered based on the fat and SNF content. This might eventually reduce the mal adulteration practices.

Application of block chain technology should be introduced and promoted for ensuring efficient traceability and food security (Shingh et. al, 2020). Adequate trainings should be offered to the farmers regarding the advanced technologies and systematic cattle rearing for generating efficient and active man powers in the dairy sector. The income and price elasticity of consumers should also be considered in the long run for a better pricing system (KUBK-ISFP, 2015)

The total mixed ration can be used to feed the animals in order to get higher milk production. This is in line with the findings of (Schingoethe, 2017). The proper provision of animal breeds, nutrition, health care, processing, marketing along with awareness program is key for bringing success in dairy sectors. This suggestion is in line with (Santra, 2018).

## V. CONCLUSION

The present study results revealed that the daily milk production in Nepal had been found in small scale and suffering from many obstacles. The per capita availability of milk in Nepal (158.9 grams per day) is far below than the value recommended by WHO (250 grams per day). The intermittent supply of milk via the formal channels causes the dairy cooperatives to function

inefficiently which adversely affect the country's GDP. Dairy sector contributed nearly 33 percent of the AGDP and 9 percent of total GDP. The dairy sector of Nepal is emerging, and its share to the global milk production is very low (0.247 percent of the global milk share). By implementing the solutions and remedies discussed in the paper and via active people's participation, Nepal can be a major player of the dairy sectors in the days to come.

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