"Role of Middleperson in Enterprise Value Chain"

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Daayitwa Public Policy Fellow 2020

National Planning Commission

Acknowledgement

Foremost, I would like to express my sincere gratitude to Member of National Planning Commission, Nepal and my dissertation supervisor Dr. Dil Bahadur Gurung for the continuous support of my study and research, and for his patience, motivation, enthusiasm, and immense knowledge.

I would also wish to express my appreciation to Dr. Jeeban Amgain, my Research Mentor for his wonderful help in the whole research. His comments on every step of the research has been helpful for the completion of the research.

I also express my sincere thankfulness to Program Officer Ms. Sara Belbase, Program Intern Ms. Sonika Mahat and whole Daayitwa Team for their assistance in three months of the journey in the institution. I thank my fellow Fellows for encouraging and assisting me in my research works. I also thank the Nepal Leadership Academy (NLA) Team for the leadership course they have provided.

Importantly, I'd thank and appreciate all the respondents to the research works, without them my search would not have been complete. I'd like to thank my parents and the whole family for creating the environment conducive for me for the research work, and I express my thanks to the people with indirect contributions as well.

Abstract

Milk, Banana, Fish and Goat meat are among the most consumed agricultural products in Nepal's market. High number of farmers have been engaged in the farming of these products. But, the price of these products are very high in the market because of various reasons, and one of those reasons are the role of middleperson in the value chain. Thus, the chief objective of the research is to find the role of middleperson in enterprise value chain of the above products especially in the price, and ultimately give policy recommendations to reduce the negative effects of middleperson and enhance the services that middlemen provide.

To this purpose, the research has revisited the production situation of each product in Nepal and have explored the import and export of those products. The research has identified the stakeholders or actors involved in the value chain of different products. Similarly, a field survey has been done for the primary data collection through field visits and telephonic conversations with the stakeholders in the value chain. The research has highlighted the key findings at each level of the value chain, and analyzed the relationship between them, the cost of production and service, and amount of profit each actor in the value chain increases.

Moreover, a detailed SWOT analysis of the each actors involved in the value chain has been studies. Importantly, the research contains policy recommendations regarding the producers, middlemen, and consumers separately to decrease the negative effects of the middlemen and increase the service of the middlemen, also impacting the production of the producers.

Keywords: producers, consumers, middlepersons, data, production, cost, profit, value chain.

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Project Title	Role of Middle Person in Enterprise Value Chain
Daayitwa Fellow	Mr. Manish Jung Pulami
Project Supervisor	Dr. Dil Bahadur Gurung
Project Objectives	• Analyze Value Chain and Supply Chain in the Enterprise Value Chain of Fish, Goat, Milk and Banana in Nepal • Identify the middleperson in the Enterprise Value Chain of the given products • Find out the role of middlepersons in the value chain • Collect the data (price), added value (price) in each step of the value chain, and analyze the effects • Find out the importance of the middlepersons in the value chain of each given agricultural sector • Recommend policies to mitigate the negative effects of the middlepersons in the value chain and benefit the producers and consumers especially with other stakeholders in the chain
Research Methodology	**Desk Study** • The literatures/documents related to each sector of value chain study reports, and related problems, issues, experiences and other relevant documents were collected and reviewed. Especially the government's policy, programs, guideline, operating manuals (if any) about the value chain were collected and reviewed. Similarly, the survey tools prepared and used by government agencies and other agencies (if any) were also visited to gather the information. **Consultation with concern authorities** • Concern authorities in National Planning Commission, DDC, and other authorized agencies were met and discussed on various aspects of value chain. Need of the value chain study its gravity, objectives and experiences during its implementation in the field level were discussed. This process provided clear insight on the objectives and indicators of the assessment. **The study areas** • The study was carried out in the following major pocket of the provinces/districts: Bara, Chitwan, Dolakha, Jhapa, Kapilvastu, Kathmandu, Khotang, Lalitpur, Makwanpur, Morang, Parsa, Ramechhap, Rupandehi, and Sarlahi. **The study included different value chain actors.**

- These include: Government agencies, Producers, Consumers, Wholesalers, Retailers, Processors and Commission Agents.

Sampling and the Sample Size

- The study included at least 20 producers, 20 consumers and 20 middlemen for each agricultural product of research.

Data collection tools

- Based on the literature review, a structured and semi-structured questionnaires were prepared to address the objectives and scope of work as defined in the ToR. Semi structured tools such as interview and telephonic conversations were designed to conduct Key Informant's Interview (KII), and secondary information collection.

Field study

Field study was comprised of both the structured questionnaire based quantitative and semi structured tools including interview guide based qualitative survey approach.

- Household Survey: Household survey of both the farmers and consumers was conducted through face to face interview and telephonic conversation with them by using the approved structured questionnaire.
- Key Informant's Interview: Key Informants drawn from among the concerned stakeholders who are involved directly or indirectly in the project implementation process at various levels and considered knowledgeable about the project activities.
- Direct Observation: The research fellow during the course of data collection from the field also observed the field from the eye of marketing perspective.

Data Management and analysis

- Quantitative Data: All completed questionnaires were stored separately in a confidential place. Questions with open-ended responses were coded manually. A database was designed using SPSS and MS-Excel. The data were further converted to MS Word format for analysis and interpretation. The data were analyzed and presented both in the tabular and graphical forms.
- Qualitative Data: Qualitative data collected through KIIs with respondents were organized by key issues and themes and the answers to questions within the themes were grouped and summarized in data analysis frameworks.

	Progress update • The progress report of the study was prepared and submitted to supervisor and research mentor regularly during the whole study period. The status of the activities, problems and solution measures undertaken were shared with supervisor and research mentor to get work completed in time. **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 were triangulated for its validity before analysis. The report was prepared based on quantitative and qualitative data collected from primary and secondary sources. Besides analyzed tables, the report also includes graphs, diagrams, narrative analysis, and other inferential statements that sufficiently extrapolate the prevailing dairy value chain system. **Data quality assurance** The following measures were taken for the quality control of data collection: • Development of research tools that are clearly understood by both the researchers and the respondents, • Mandatory checking of completed questionnaires by the researcher and then by the supervisors for the completeness and accuracy of collected information before the researcher left for data collection, • Maintenance of research ethics during the entire process of the study, • Minimization of gender and linguistic barriers during the collection of data,

Project Sub-Title	Role of Middle Person in Enterprise Value Chain of Fish

1. Background Study and Situational Analysis

Fish farming is a fairly new activity in Nepal. Being rich in terms of water resources makes Nepal a country with potential fish farming. Out of nearly 12,500 ha of such area available in the country, approximately 1,225 ha are recently being used for fish farming (Budhathoki, 2018). There are 29,270 fish ponds in the country. The plain Terai alone shares 95% of total fish ponds and the area dedicated to fishery sector measures to more than 10,718 ha with the total fish production reaching 65,770 tons in the fiscal year 2073/74 (DOFD, 2017). Due to the presence of a plethora of freshwater habitat, there is potential for the different fisheries and aquaculture activities in Nepal. The Agriculture Development Strategy (2015–2030) has comprised fisheries as one of the most promising sub-sector in agriculture.

Present status of Fisheries and Aquaculture

Aquaculture has a relatively short history in Nepal. According to FAO country profile of Nepal, national production of fish was 500 Mt in 1950 AD which was entirely shared by capture fisheries. Aquaculture production was recorded only from 1966 with only 3 Mt of fish production. Later aquaculture production kept growing slowly and steadily because of growing aquaculture education and technological advancement. Capture fisheries show increasing trends in the beginning but remained constant at 21,500 Mt since 2007/08. Keeping this production level constant is a big challenge for all the aquaculture and fisheries workers. Production status of fiscal year 2013/14 shows that out of 64,900 Mt fish production, 33.21% shared by capture fisheries 68.79% comes from aquaculture. Per capita, fish availability is also in increasing trend. From 1981/82 to 2013/14, it has significantly increased from 330 g to 2385 g due to improved national production.

Fish production in Nepal is gradually increasing with a growth rate of 8-9% per year reaching 64,900 tons in year 2013/14, contributing 33.17% from capture fisheries and 66.83% from culture practices (Gurung S. , 2016) but this productivity lags far behind from neighboring countries. Over the past 20-25 years, there has been a significant increase in the production of fish. It was suggested that there was a 3-5 fold increment of the fisherman from 1980-2005 in Nepal and the annual per capita fish consumption have increased significantly from 0.33 kg per person per year in 1982 up to 2.07 kg per person per year in 2010 due to the shifting in the consumption pattern of Nepalese society (FAO, 2008; FAO, 2011). Asia has unidentified a hub of aquaculture development which produces over 80% of the global farmed fish (Bhujel, 2012). In Nepal, the increased aquatic activities have employed 504, 000 people and 741,000 people are benefitted in 2003/2004 (FAO, 2013).

2. Literature Review

Marketing is the management development of the manufacture chain from producer to final consumer (Kotler, 2000). Marketing recognizes, calculates and meets consumer demand with a profit for the company or organization (Chartered Institute of Marketing, 2009). Marketing is also defined as socio-economic activities that control the flow of ideas, goods or services chain from producer to consumers (Hillstrom & Hillstrom, 2002). Marketing also plans and projects the principles of pricing, promotion and distribution of goods, ideas and services in order to satisfy needs and wants of persons and organizations (Carter, 1997). Logistics is the science of planning and implementing the framework for the management of material, service, information and capital flows (Ghiani, Laporte, & Musmanno, 2004). Logistics also contains storage, transportation, and design of the supply chain. Transportation is a one of the main elements of logistics (Tseng, Yue, & and Taylor, 2005), since it is important to meet the requirements of the customers in a judicious manner. Physical facilities and infrastructure in all types of fish markets are far from satisfactory (FAO, 2001). Some of the problems in fish marketing include high perish aptitude and unwieldiness of material, high heterogeneity in size and weight amongst species, high cost of storage and transportation, no guarantee of quality and quantity of commodity, low demand elasticity and high price spread (Ravindranath, 2008).

Gupta (1984) and Srivastava (1985) had planned the marketing of fish and fishery products in India, wherein they had studied price variations among species across states and had recognized infrastructural bottlenecks in efficient marketing system. Rao (1983) had highlighted that an efficient fish marketing system could eliminate some of the dejected pockets of malnutrition by supplying fish at sensible prices to people living on subsistence level.

In general, outdated methods of fish processing (dry fish), and poor quality of products hinders the ways to enter into export market. Traditional processors are out of export market as they could not meet the Sanitary and Phyto-Sanitary measures and implications of Technical Barriers to Trade (TBT) (Ravindranath, 2008). Poor maintenance of quality standards deters the advancement of Vietnam Seafood Industry. Sun drying of fishes is a simple and the oldest known method of fish preservation where 11 fishes are dried under the sun. Drying method is considered as the least expensive method of fish preservation. In Bangladesh, traditional drying is often rudimentary and good hygiene is rarely practiced (Azam, 2002). Value chains are networks of labor and production processes where the result is a finished commodity (Hopkins and Wallenstein, 1986).

Value chains are controlled by firm leaders and chains contain of several nodes, each of which has a particular function in transforming an object from raw materials to an article of consumption. Marketing cost, the expenses experienced in performing dissimilar marketing functions by the traders and the selling price of the product determine the level of the net marketing margin of the trader. Long marketing passage are one of the reasons for increased marketing cost and bring inefficiency in marketing which results the loss in the consumers' welfare and producers'

share (Haque and Hassian et al., 1996). In long promoting channel, farmers get 45%-55% of the consumer price and the rest was absorbed by the traders present in the identified channels of marketing (Lofvall, 1998).

The fish producer and farmers and fish traders are the main actors of fish marketing system (Shah, 2005). The appropriate marketing substructure and profitability encourage the marketing agents for efficient flow of goods from the production sites to the market centers (Joshi and Tiwari, 1999). Non- native fish are announced around the world mostly for improving fisheries, sports, ornamental fish trade and bio-control of the mosquito. The aquarium trade has not come under the scanner of environmentalist, conservationists, ecologists, and policy makers as much as occupation in terrestrial endangered species. A widespread study on aquarium fishes had been done in context to Nepal specially related to Kathmandu, (Amatya & Gurung, 2005). Studies on the Resource, Biology and Ecology of fresh water of Kathmandu Valley with particular reference to fish production management, Market and Conservation had been done by Shrestha (1979). Some studies on different aspects of fish marketplaces, different kinds of fishes sold in village markets and Kathmandu markets had been described by Shrestha (1994) in "Fishes, fishing implements and methods of Nepal". Shrestha (2012) is working on the breeding project of Guppy, Sword Tail, Platy, Gold Fish, and Color Carp.

3. Trends of fish production in Nepal

After the initiation of commercial fish farming, production of carp is increasing almost continuously along with the total cultured area which is also expanding. The table below summarizes the trend of the cultured area and total production in Nepal since 2007/08.

Table 1. Production trends of fish in Nepal

Year	Pond's No.	Pond's Area	Water Surface Area (Ha)	Total Fish Production (Mt.)	Yield Kg/Ha
2007/08	23,884	10,362	6,735	24,295	3,607
2008/09	23,790	10,308	6,700	23,780	3,549
2009/10	24,418	10,615	6,900	24,869	3,604
2010/11	26,036	11,195	7,277	26,941	3,702
2011/12	29,270	10,718	7,939	29,999	3,779
2012/13	32,270	12,338	8,020	31,221	3,893
2013/14	34,400	13,231	8,600	37,427	4,352
2014/15	36,666	14,154	9,200	41,481	4,576
2015/16	39,308	15,283	9,934	48,543	4,887
2016/17	44,725	17,532	11,396	55,842	4,900

Source: Ministry of Agriculture and Development (2007-2017)

Table 2. The trend of Imports and Exports of Fish and crustaceans, Mollusca and other aquatic invertebrates

Year	Imports (Rs.'000)	Exports (Rs.'000)	Trade surplus/Deficit (Rs.''000)
2011/12	520,176	637.670	-5,19,538.33
2012/13	670,275.041	3,114.866	-667,160.175
2013/14	1,081,439.561	5,304.982	-1,076,134.579
2014/15	1,153,079.085	590.5	-1,152,488.585
2015/16	822,856	931	-821,925
2016/17	1,043,395	1,385	-1,042,010

Source: Ministry of Agriculture and Development (2007-2017)

Domestic production and market

According to the Ministry of Agricultural Development, in 2013/14, fish is cultured in 62 districts of Nepal which occupy 11,396.40 ha of water surface area and produces 55,842,360 Kg and yields 4900 Kg/Ha. Development region-wise, the central region has the highest share of 46.32% followed by eastern region, western region, mid-west region and far-west region contributing a share of 28.32%, 15%, 7% and 2.46% respectively (MOAD, 2073/74).

Table 3. Productive area covered by fish

No.	Region	Districts	Total	Major Districts	Production share (%)
1	Eastern	Taplejung, Illam, Jhapa, Sankhuwashava, Solukhumbu, Panchthar, Terhathum, Dhankuta, Bhojpur, Udayapur, Morang, Sunsari, Saptari, Siraha	13	Sunsari, Jhapa, Morang, Saptari, Siraha	28.32

2	Central	Dolakha, Rasuwa, Sindhupalchok, Sindhuli, Ramechhap, Kavre, Bhaktapur, Lalitpur, Kathmandu, Nuwakot, Dhading, Makwanpur, Dhanusa, Mahottari, Sarlahi, Rautahat, Bara, Parsa, Chitwan	19	Sarlahi, Bara, Parsa, Dhanusa, Chitwan, Mahottari	46.32
3	Western	Manang, Mustang, Gorkha, Lamjung, Parbat, Shyanja, Palpa, Maygdi, Gulmi, Nawalparasi, Rupandehi, Kapilvastu	16	Rupandehi, Kapilvastu, Nawalparasi	15
4	Mid-west	Humla, Dang, Rukum, Rolpa, Banke, Pyuthan, Salyan, Bardiya, Dailekh, Surkhet	10	Dang, Banke, Bardiya	7
5	Far-west	Dadeldhura, Kailali, Kanchanpur	3	Kanchanpur, Kailali	2.46

Source: (MOAD, 2073/74)

Fish Market and Trade

Fish traders at all levels from producers to collectors/local middlemen to suppliers and wholesalers to retailers and vendors have developed and operate through organized marketing networks. There are two groups of fish traders involved in fish marketing in Nepal: those from India and Nepal. Compared to their Nepalese traders, the Indian traders are well established and organized in terms of manpower, resources and working capability. Fish imported from India and fish produced in Nepal is traded in the fish market in Nepal. The fish from India is more consistent in size and supply, whereas the fish from Nepal is superior in quality and freshness. These are some of the factors which determine the fish prices in the market.

4. Supply Chain mechanism of Fish Production in Nepal

Fish marketing channel has not been systematic in Nepal. Commonly, fisherman and small scale fish producers sell their fish directly to the consumers. Medium and large scale fish farmers use different channels to sell their fish. They sell some of their fish directly to the consumers in local markets, or through agent or contractors to the middleman or wholesalers. A study conducted by

Shrestha (1999) has shown that 28% of the fish are consumed or given away by farmers, 30% are sold directly to the consumers and 42% are purchased by wholesalers from contractors and distributed to retailers in major urban centers.

Table 4: Actors in the Fish Value Chain

Stakeholders/ Actors	Description
Wholesaler/ Processor	• Fish collect form local traders and sale to retailor out of district. • Import fish form India
Wholesaler	• Fish collect form local traders and sale to retailor out of district. • Live fish trade
Local Traders	• Collect fish form ponds or fishermen and sale to market. • Sale to wholesaler • Export fish in nearest market of India
Fishermen	• Basically fishermen provide service in harvesting of fish to farmers. • Majority of fishermen involve in fish trading and plying role of local traders. • Few fishermen are involved in exporting fish to nearest market of India specially who live near the Indo-Nepal border.
Farmer	• Majority of farmers have been producing fish but few farmers are involving in trading too.
Government Agencies	• GA producing quality of fingerlings and sales to farmers. Recommendations of improved breed. • Provide Lab facility, technical services, capacity development training to farmers and conduct research for quality improvement of farming technologies. • Demonstration at cluster level.
Hatchery/ Nursery	• Hatchery producer fingerlings and supply to direct farmers. • Provide few supports in capacity development of fingerlings receiver farmers. • All private hatcheries are involved in fish production and trading too.
Fish fingerlings transporter	• They supply fingerlings to farmers with close coordination of hatchery or nursery • Fish fingerlings transporters provide counselling about farming and also share market information to producers.

Feed Industries	• They produce feed for fish and distribute it to farmer through agro-vets, • Demonstrate fish farming in cluster level
Technology Suppliers	• They supply net, packaging carets, Lab equipment's and fish farming & trading related other tools to producers and traders
Agro-vet	• Agro-vets have been supplying to farmers several inputs like feed, Urea, D.A.P & Lime • They also compacted to producer on uses of inputs

Source: (Karki, 2018)

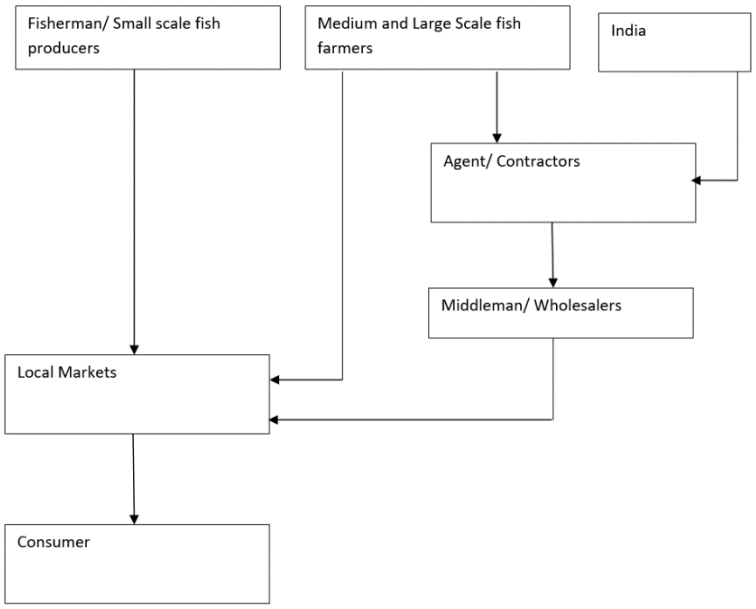


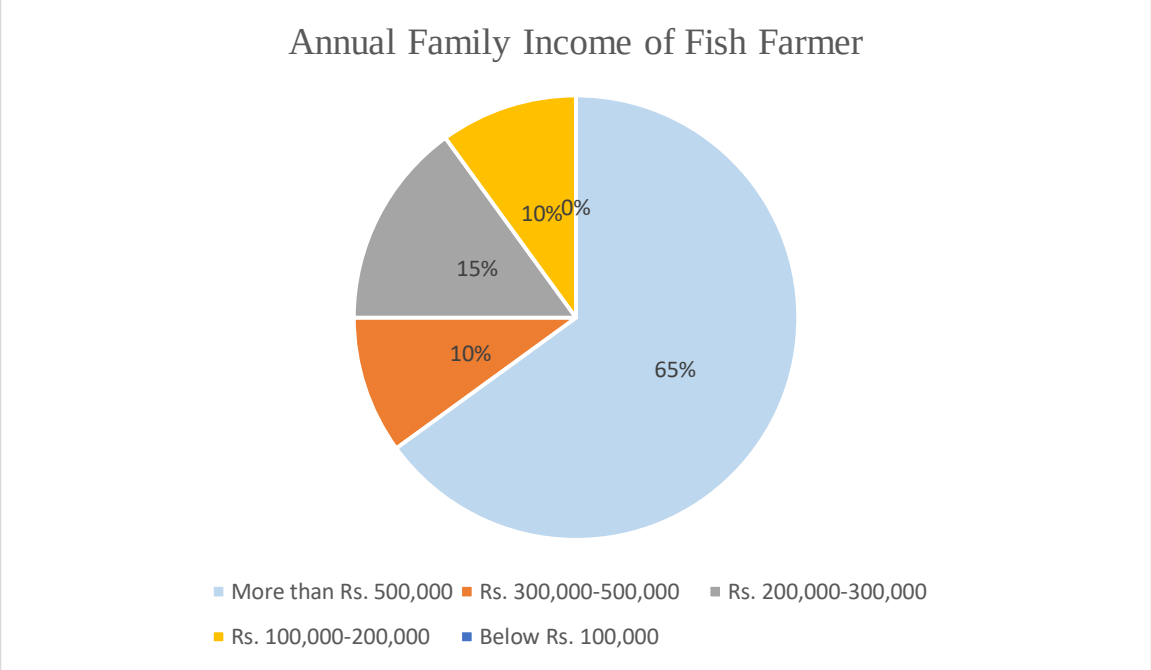
Fig 1: Supply Chain of Fish in Nepal

5. Data Analysis

Major Findings for Producers

- Majority of the *Rohu* fish farmers have less than 3 hectare of pond area which signifies the small size of the pond in the fish farming practice. The lower number of farmers having small ponds signifies that fish farming has not yet become a commercial practice.
- The farmers farm about Rs. 11138.18 of *Rohu* fingerlings per hectare area of pond.
- The average total cost for each farmer per year is about Rs. 84975.25 per hectare of pond.
- The total production of *Rohu* fish per hectare is 638.59 Kg per hectare.
- The average rate of selling for the *Rohu* fish for farmer is Rs. 255.5 per Kg.

- Hence, the total average earning of the *Rohu* fish farmer is Rs. 163,159.745 per hectare. Thus, there is a positive aspect of the fish farming where the farmers are earning profits. This signifies that the fish farming system has brought positive changes.
- The majority of the fish farmers' family income has increased after opting the fish farming profession.



- Among the total production of the *Rohu* fish 95.03% of the total production is sold. 31% of the total production is sold to the collector, whereas 38% are sold to the wholesalers, 25.5% is sold to the retailers, 2.75% is sold to the processors and the remaining is sold directly to the consumers. Hence, the role of middlepersons in the fish value chain is seemed very effective. The fish produced normally doesn't get directly to the consumers, but rather passes through the chain of "Producers-Collectors-Wholesalers-Retailers-Consumers".

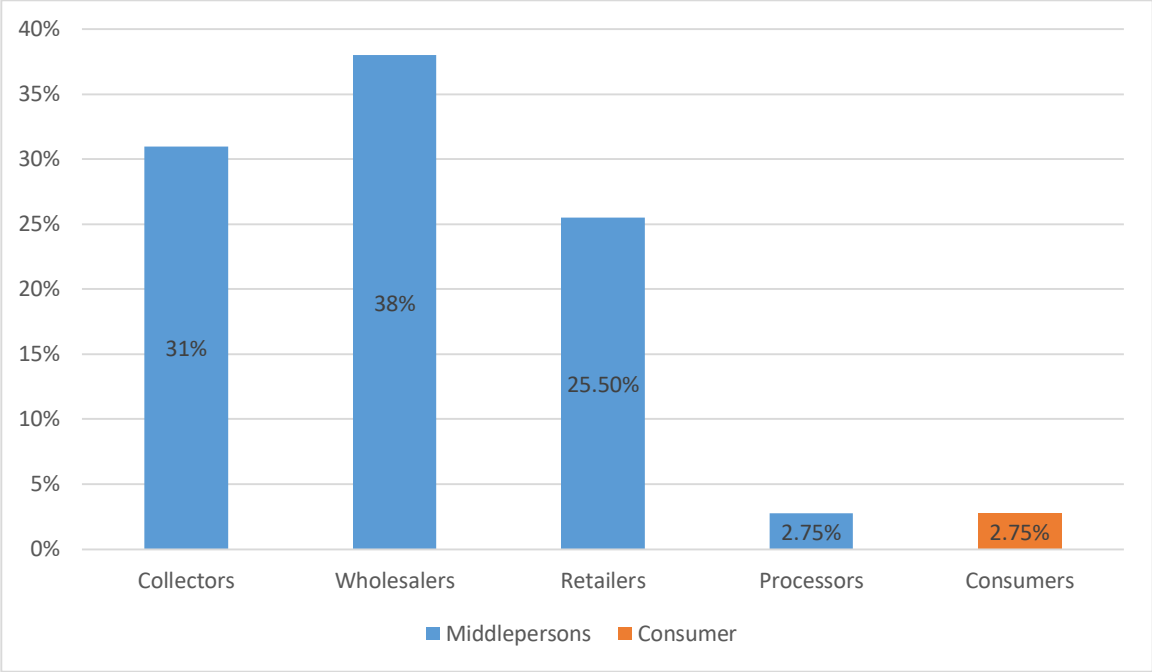
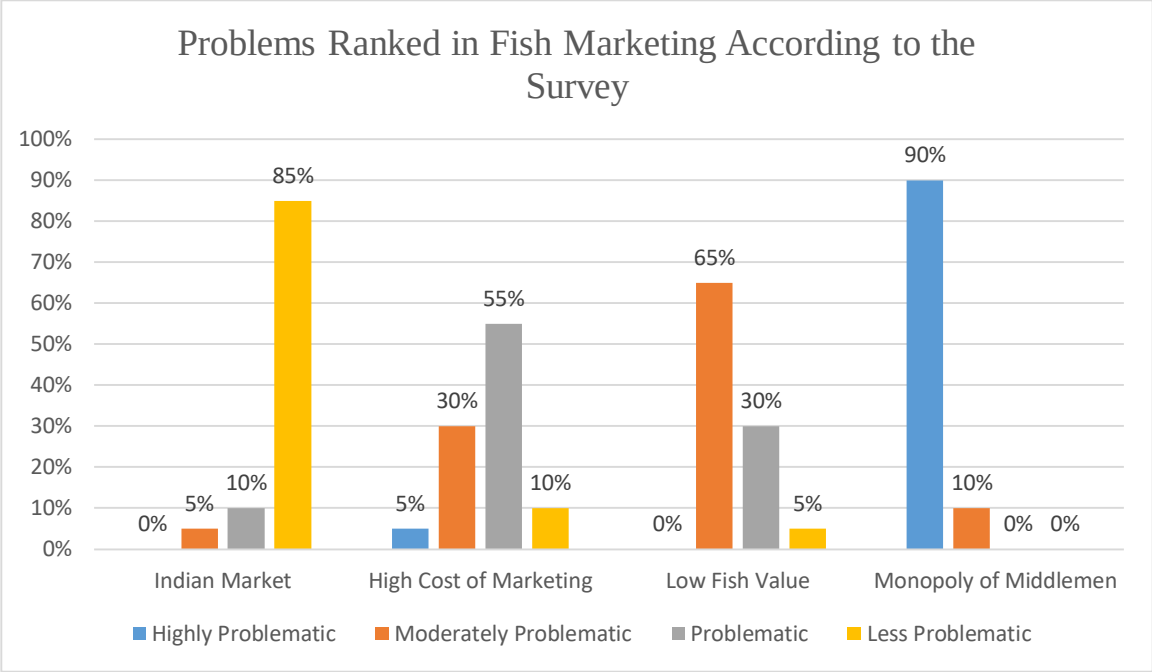


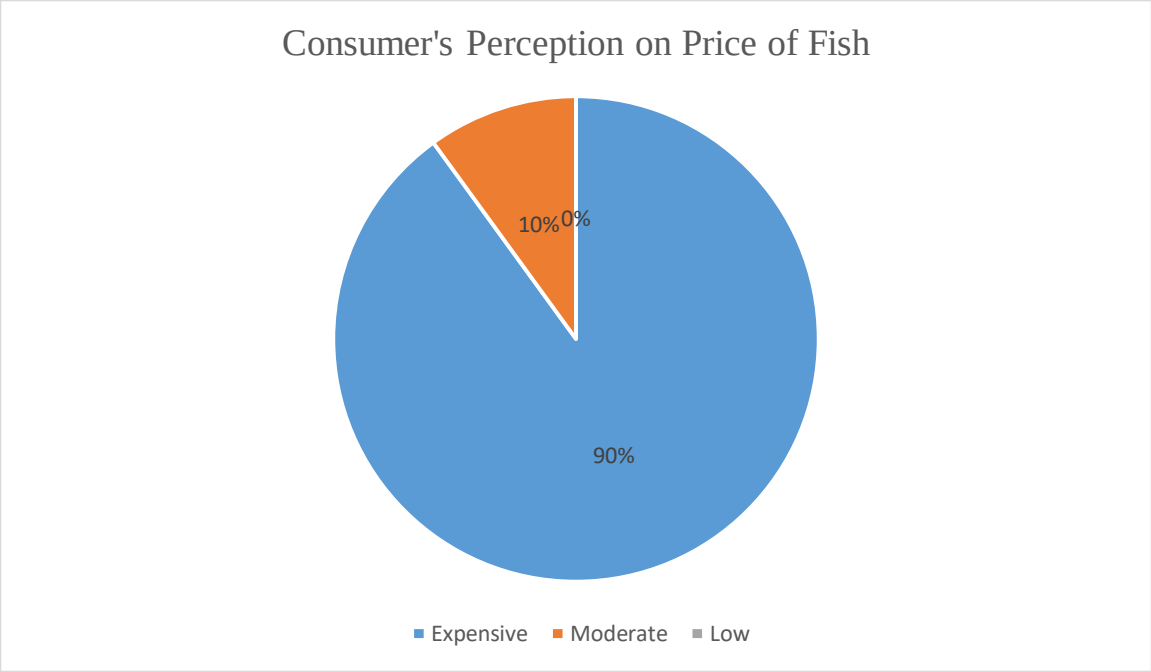
Fig 3: Average Amount of Fish Sold to the different Actors in the Value Chain by Producers

- 80% of the farmers haven't got help from anywhere or any organizations.
- Most of the respondents have identified that lack of quality feedings is the main problem in the fish farming, similarly the water scarcity in the winter and flooding in summer is ranked second. And technical challenges, disease and lack of capital are responded to be the third, fourth and fifth problems respectively.
- High number of fish farmers responded that monopoly of the middlemen is the main problem in the value chain. Some other problems in the market are due to the Indian market, lack of low price, and high cost of marketing.



Major findings of the consumers

- Most of the households in Kathmandu consume fish. Among different types of fish, *Rohu* is one of the highly consumed fish in the market.
- In average, the fish is consumed about 2 times a month by each household and the amount of fish consumed depended upon the choice of the consumer and the number of members in the family.
- Almost every household in the Kathmandu purchased *Rohu*, through the Retailer.
- *Freshness* (to be precise, in the present days- *live fish*) has been the utmost choice of the consumer in Kathmandu.
- The average price of *Rohu* in Kathmandu is Rs. 377.25 per Kg.
- 90% of the consumer think that the price of the fish is moderate and the remaining 10% of the people think that it is expensive.

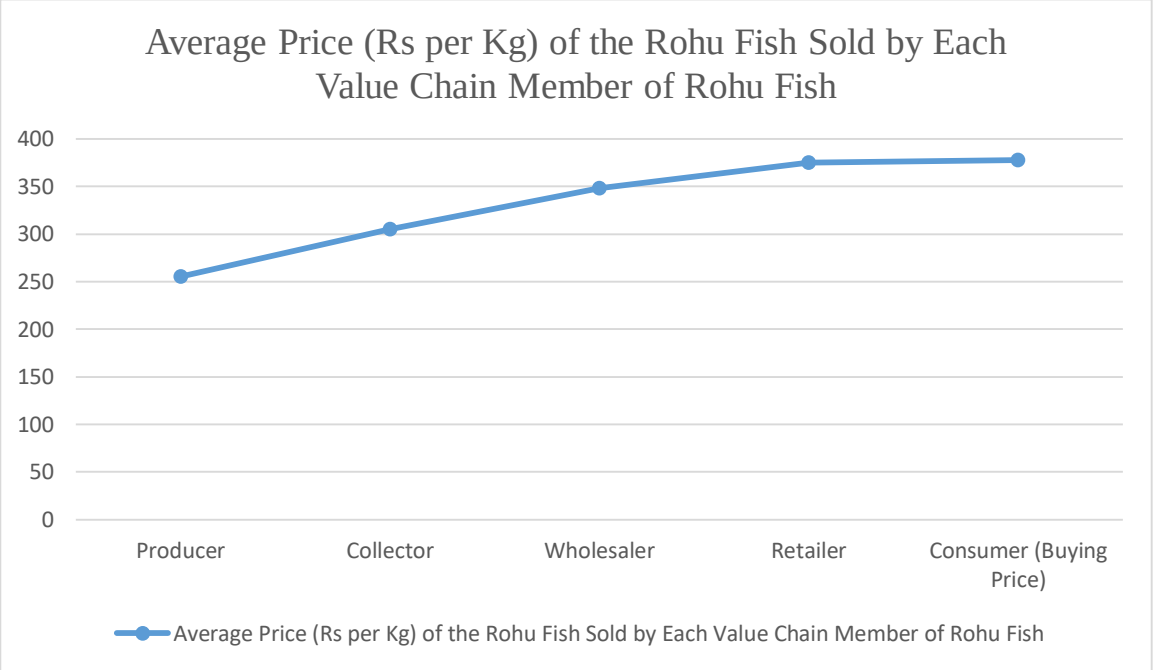


- Consumer while buying fish in the market consider the lack of cleanliness in the retail market to be the main problem, also the lack of availability of the fresh fish is one of the major problems to the consumers. In addition, low quality fish is one of the problems faced by the consumers in the market.

Major findings of the middlepersons

- There are two types of middlemen in Nepal; one who supply the fish from Nepal and other is from the Indian market.
- The fish from India is more consistent in size and supply compared to Nepal, which has fish superior in quality and freshness.
- The middlepersons in the fish value chain are collectors, wholesalers and the retailers, and some minor middlemen are fishermen and the vendors who sell fish in cycle or by walking.
- According to the survey, 32-35% of the price is added by the middlemen in the value chain of *Rohu* fish. In average each middlemen add 11.66% of value to the price of fish.
- Fish marketing channel in Nepal has not been yet systematized.
- The processors in Nepal are very less in number, so that the fish is less purchased by the processors in order to create different types of fish products.
- The most of the middlemen add value to the fish regarding the transportation cost than compared to the other factors such as cost of the ice box or book keeping facilities.
- The high 90% of the fish are transferred to another stakeholder through trucks and mini-trucks in an ice box for the preservation.

- The middlemen who transport fish from India suffer problem regarding the customs. And due to lack of storage and technical advantages, the delay in the customs degrades the quality of the fish products.
- The majority of middlemen have identified the major factor to be demand in the market, and other problems to be the quality maintenance of the fish, Indian market, and high cost of marketing.
- Most of the retailers in the Kathmandu valley lack the storage facilities and the ponds to keep the fish fresh and live as per the choice of the consumers.
- While transporting the fish, the lack of proper facilities such as electricity, temperature maintenance and others make the fish loose the freshness and quality.



6. SWOT Analysis

The SWOT analysis is qualitative findings of the study. Role and SWOT of the major value chain actors are as follows:

Fish farmers' role is to supply the high quality fish in the market. Their major strength is that it is owner operated business and the farmers have good knowledge and experience. Their weakness is the lack of proper trainings and financial facilities to the farmers. The opportunities for the fish farmers is the huge gap between the demand of the fish and production in the market in Nepal, whereas the threats are the increasing volume of fish from the Indian market and lack of coherent policies.

Collectors' role in the value chain of the fish is to collect the quality and fresh fish from the farmers. The strength for them is the transportation facilities and knowledge they have about the farming. The weakness is that they do not have adequate technical supplies to maintain the quality and

freshness of the product. The opportunities of the collectors is the growing demand of fish in the market, and the threat for them is that the wholesalers now directly connect with the farmers for the fish.

Wholesalers' role is to buy the quality fish in bulk and mass selling to the consumers and retail shops in Kathmandu. The strength of wholesalers is the lack of inability of the retailers to buy the fish in bulk, and their major weakness is the access to finance in the marketing. The opportunities for them is that the growing fish demand in the markets of Kathmandu. The major threat to them is the lack of proper infrastructure for the storage and ponds for the live fish.

Retailers' role in the fish value chain is to supply the fish to the consumers in adequate amount near the consumer. The strength of the retailers is that the fish retailers are different than the common retailers of other fishes. The weakness of the retailers are lack of proper storage and ponds for live fish. The opportunities are growing demand for fish in the market, whereas the threats are the low amount of consumption though the demand is high. And another is to maintain the quality and freshness of the fish.

Fishermen's role in the fish value chain is to supply the fish to the market from the rivers, not from their owned farms. They also face the same strength, weakness, opportunities and weaknesses as that of the fish farmers. Moreover, their ability to catch fish are affected by the natural conditions and climate change.

Project Sub-Title	Role of Middleperson in Enterprise Value Chain of Goat

1. Background and Situation Analysis

Goat farming in Nepal is popular among rural farmers because of low investment requirements. About 49.8 % of households (2.79 million of the 5.6 million) rear goats, with average holdings of 3.3/household (Central Bureau of Statistics, 2012). It is mostly carried in the traditional model of either in a stall feeding system or grazing system. According to Heifer International Nepal (2012), Nepal has goat population of around 9.19 million with an annual growth of just above 2%. Based on the data obtained from the Government of Nepal, 2017 there is an increasing trend of major livestock; however, the goat population is increasing much rapidly as compared to other livestock.

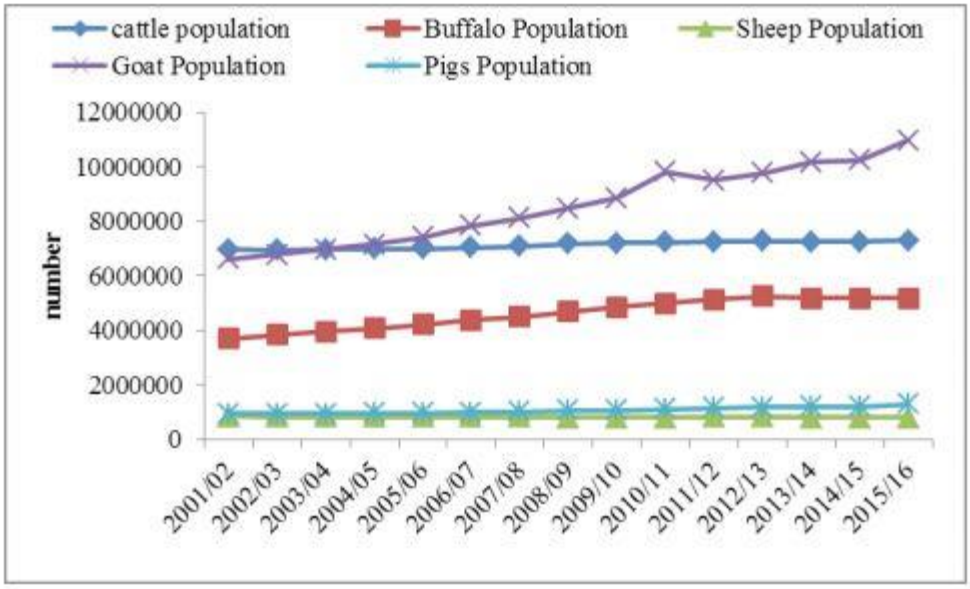


Figure 1: Population distribution of major livestock in Nepal from year 2001/02 to 2015/16

The average weight of an adult goat in Nepal is 25 to 30 Kg which is very low as compared to the improved breeds.

2. Literature Review

Based on the data obtained from Government of Nepal, 2017 there is increasing development of key livestock; however, goat population is increasing much rapidly as compared to other livestock. The average weight of an adult goat in Nepal is 25 to 30 Kg which is very low as compared to the improved breeds. Conferring to Devkota, Ravniyar, Kolachhapati, & Timsina (2000), the poor presentation of livestock might be due to in-breeding and/or negative selection. In addition to this absence of proper management in feeding and disease control the farmers are not able to gain

optimal revenue from this sector. Kharel & Pradhan (1988), report the low nutritional status and poor husbandry rehearses for the livestock.

Additionally, there is lack of specific research and trained manpower in this sector. In many rural areas there is not even the availability of improved castration method and the castration is painful for goats (Jaisi, et al., 2016). The farmers get inputs like salt, veterinary medicines and seed of fodder and forages from private firms and agro-vet providers while the district level government offices offer technical services along with essential inputs (Poudel D. , 2016). Inspite of high demand and initiation of Nepal Government to upsurge the self-dependency through various policies to inspire the farmers and providing grants and support to the farmers, the farmers are not yet attracted for profitable cultivation in this sector which indicate the possibility of technical problem regarding goat farming.

According to (Jaisi, et al., 2016), there is lack of veterinarian and technician to identify the disease and other technical problem. There is lack of skill and coordination between government officials and technicians is very weak. The incidence of epidemics is often found in these areas. The technical and veterinary service is yet to be extended to the rural areas. Many times people have to depend upon consultation of the unauthorized specialists and have to bear loss of the part of their goat herd. The mortality rate of newborn kids is seen to be high in these areas and many times the mature goat also dies. Such occurrences have led many farmers to give up goat farming. Policymakers, researchers and development authorities need to contemplate and implement the goat production technology (NSGU, 2016).

3. Demand and Supply of Goat

Based on data by Government of Nepal (2017), it can be stated that although the population of each of the livestock type is seen to be increasing with time, the increment in goat population is distinct. This shows the growing demand for goat. The annual growth rate of goat in Nepal is 4% which is healthier as compared to other livestock. A concern that cannot be overseen is that although the growth is increasing in number it is not sufficient due to low productivity of animals, mainly due to poor husbandry practices by farmers, the genetic inferiority of local breeds, and the poor condition of animal health (Agriculture Development Strategy, 2014). The percentage of improved livestock accounts for only 6.1% in goats which is much lower than poultry (54.2%), swine (34.2%), buffalo (25.9%) and cattle (13%) (Ministry of Agricultural Development, 2012). Furthermore, even though the goat population has increased with time, the domestic supply is not sufficient to meet the increasing demand. Nepal annually spends more than US$ 40 million to meet the increasing demand for animal products and most of the product is from India (Ministry of Agricultural Development, 2015). Thus it is one of the remarkable factors to increase the trade deficit. Government records reveal that the import figure for 2005/06 was 274,814 live goats which rose to 475,853 in 2010-11 (DLS, 2011). The current total supply of goat meat in Nepal is 61,375 MT with the domestic production contributing 52,809 MT (86%) and import 8,566 MT. Based on their crude through income elasticity, the demand for goat meat is around 70,307 MT which creates

a gap of 8,932 MT which requires additional 565,300 goats annually (Heifer International Nepal, 2012).

4. The marketing part of Goats

A study made by Heifer International reveals a lack of organized goat market in Nepal except for some weekly scheduled markets in the Narayani-east sector. The farmers are selling the products mostly based on individual contact. The number of goats gathered in such weekly markets is not sufficient enough to achieve the economies of scale and thus cannot attract the large traders and importers. They report that about 3.34 million of the national flock of 9.19 million goats are annually disposed of for meat purposes among which 75 per cent is consumed in the village and remaining 25 per cent is sent to the formal market. Farmers generally sell their goats to the traders or local butchers (Poudel D. , 2016). Mostly the traders buy from farmers and sell to the retailers, hotels, restaurants and party venues. Farmers do not have easy access to market information on price and probable market extension. Furthermore, the limited number of collection centers lack proper conditions leading to weight-loss up to 20% while handling or transporting them to the distant market. A typical smallholder farmer earns NPR 15,000 – 20,000 annually from selling their goats (NLSS, 2012)

The western hills of Nepal farmers are dependent on middlemen to sell their products or have to search for interested people who are ready to slaughter the goat and sell in the village (Nepali, et al., 2007). There is no assuring market. Department of Livestock Service felt that live animal markets have to be strengthened so that farmers can get a reasonable price, and the market never feels a shortage of animals for quality meat production. Since Smallholders play important role in the production system, they need to be linked into the national production and market grid for the sustainability of market supply (Gurung, et al., 2011, p. 336)

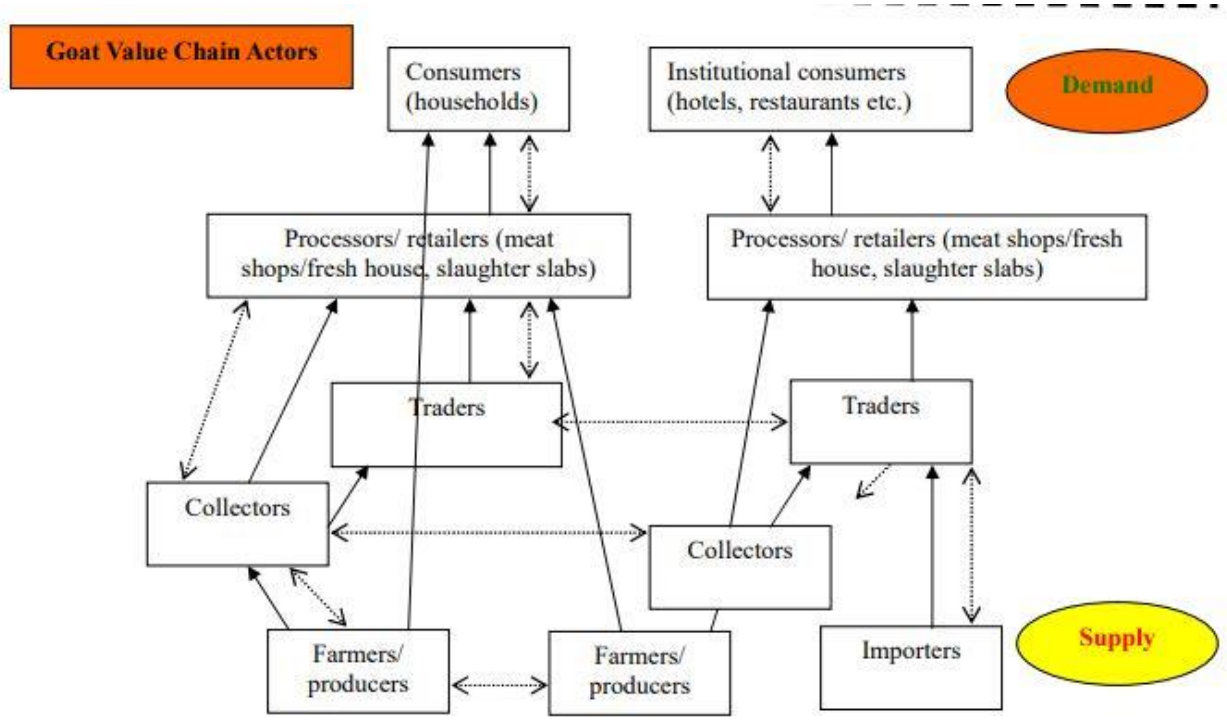


Fig 8: Value Chain for Goat

5. Supply Chain Mechanism of Goat in Nepal

The goat supply chain engages various actors that include service providers, input suppliers, goat producers, traders, meat processors and retailers and consumers. When these actors are consciously interlinked and treated justifiably, the entire goat supply chain can be enhanced. Additionally, there are abundant organizations which deliver support and services to the value/supply chain actors and assist in the development and enhancement. The value/supply chain actors involved in study area in both domestic and import processes can broadly be categorized in four groups based on period, coverage of the area, nature of the service and objective of the participation (public sectors-institution, NGO's, CBO's, projects, vet services, private sector), which have shared the risks and opportunities along with linkages.

Table 5: Actors and their description on Relationship in Goat Value Chain

Actors	Type and Descriptions on Relationship
Input suppliers and farmers	Service provision on a payment basis exists in all districts and farmers are ready to pay service providers for the service they receive. However, transactions on credit have interrupted service frequency and quality. Extension service by service providers with intent to expand business is not yet established. In many areas, farmers still do not have access to veterinary health services. Supply of drug and vaccine and forage and fodder seed / sapling is still not adequate

Farmers and collectors	Lack of trust, inconsistency, repeated visits for excessive bargaining, and even mishandling of animals with intent to pose internal injury are farmers' concerns. No preferences for a long-term relationship appeared. Instantaneous benefits remained the intent from both parties in the deals. Collectors generally refuse to buy on a per unit live weight basis
Collectors and Traders	Each collector has a preference to a trader for repeated business deals. Traders provide some float cash to collectors in advance and this is the strongest factor for this relationship and trust. However, as turnover is quite high among collectors, complaints of default in payment were also reported from both actors.
Traders and Meat entrepreneurs	Importers and traders have a trading place in end markets; therefore, a kind of sustainable business deal occurs in these places. Traders can make a good guess of how many animals to deliver in the next consignment. No defaulter or grievances appear.
Meat entrepreneurs and institutional consumers	These entrepreneurs play the role of meat processors and also as a local collectors depending upon the situation and nearness to *haatbazar*. They procure, slaughter and sell goat meat to households or institutional consumers.
Meat retailers and consumers	Adulteration and quality issues faced by consumers are the major gaps.

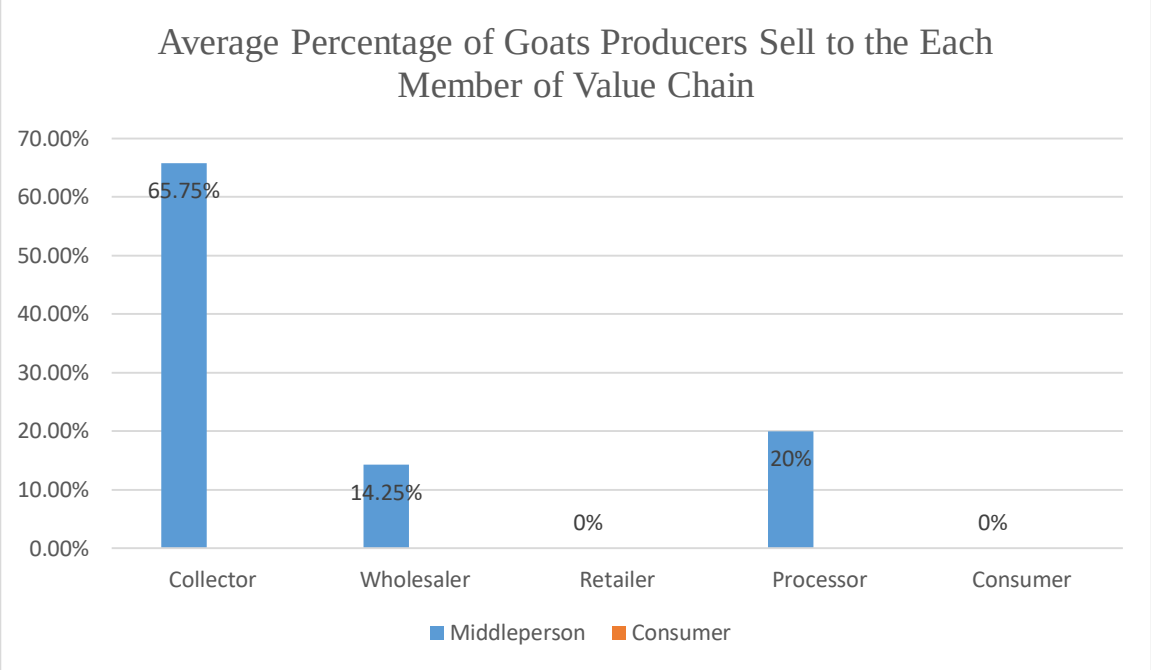
Source: Heifer International Nepal, 2012 and Biruwa Advisors Pvt. Ltd.

6. Data Analysis

Major findings for Producers

- In the survey, 45% of the farmers used the grazing system of farming, whereas 40% of the farmers used semi-intensive methods and the remaining used intensive method of goat farming.
- 85% of the farmers have taken trainings from government agencies and different NGOs and INGOs.
- The average farm land is less than 7.83 ropanis with average 47 goats per farm. This signifies that most of the farms are of small scale and more could be done to commercialize the farming process.
- Among the farmers, Boer Cross, Local goats and Beetal are the most domesticated variety of goat. And, almost all the goat kids are bought locally among the farmers.
- For mating purpose, most of the farmers have a buck of their own and some mate the goats among the farmers themselves.
- The average cost of production of a goat is Rs. 12,150.00 per year, which may differ according to the breed of goat and way of farming system. According to this, the average cost of goat production per Kg is Rs. 336.31.

- The average selling rate of goat per Kg is Rs. 708.75, which makes the average profit percentage for each goat 51.61%.
- Most respondents have responded that the family income has increased which makes the goat farming a suitable commercial activity for an individual or family.
- 65.75% of the farmers sell their goats at the farm gate to the collectors, while 14.25% of the farmer sell their goat to the wholesalers, and remaining 20% of the farmer sell their goats to the processors directly.



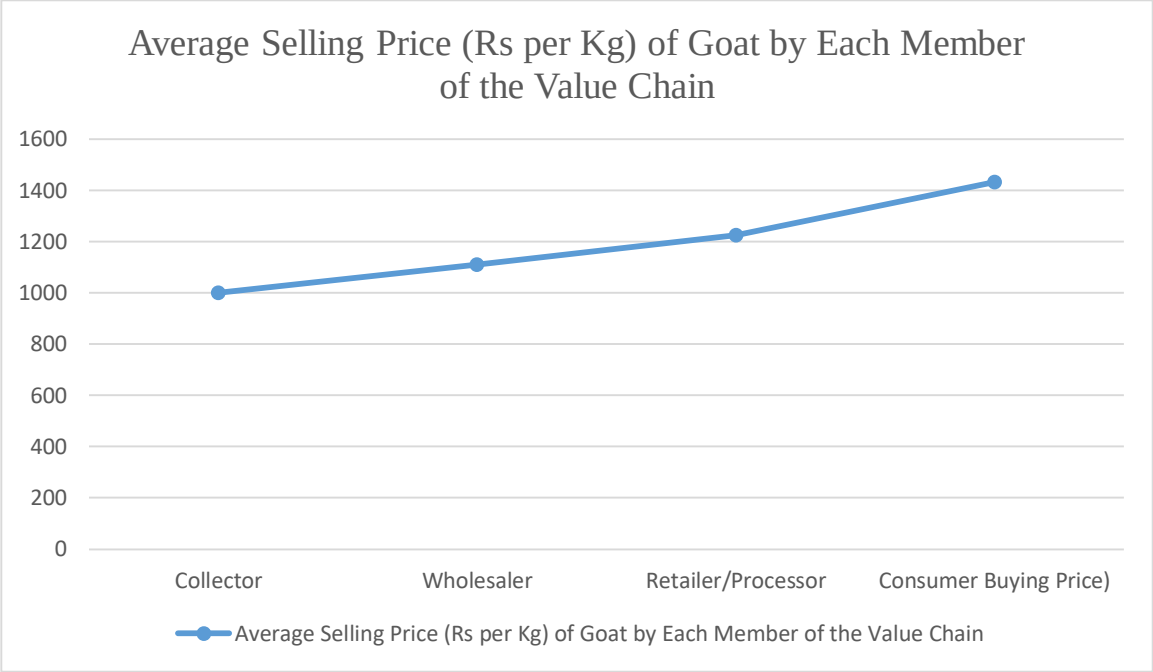
- 85% of the farmer have received support from the government agencies and other NGOs and INGOs.

Major findings for Consumers

- Almost all the consumers buy the goat meat from the retailers cum processors.
- The average buying rate for the consumers is Rs. 1432.5 per Kg in Kathmandu, which is responded as expensive by almost all the consumers.
- 60% of the consumers consider the freshness of the meat while buying the goat meat whereas the remaining consumers consider the price. Among the consumers, a small amount of respondents mentioned about the meat they want as priority while buying the goat meat.
- 85% of the consumers find the problem of getting the fresh goat meat as the foremost problem. And the lack of cleanliness and availability of low quality meat are ranked second and third problems respectively.
- In average, the goat meat is consumed about 3 times a month by each household and the amount of goat meat consumed depended upon the choice of the consumer and the number of members in the family.

Major findings for Middlepersons

- The middlemen in the goat value chain include collectors, commission agents, wholesalers, retailers cum processors.
- The average price of the goat meat per kg is double than that of the average selling cost of the goat meat that consumers buy. This is equal to 102.11% rise in the price by the middlemen in the goat value chain between the producers and consumers.
- The average profit percentage that each middlemen make in the value chain is 24.10%, among which the large-scale retailers um processors which buy most of the meat directly with farmers or collectors making themselves the profit of 46.6%.
- The average purchasing rate of the middlemen is Rs. 830 and average selling price is Rs. 1136.25.
- Almost all of the respondents have responded the increasing trend of goat business in Nepal, especially in Kathmandu.
- The method of transportation of goat from one stakeholder to another is through the trucks or the mini-trucks.
- Except the large-scale processors, most of the middlepersons don't have any trainings related to goat farming and processing.
- For the criteria to determine the price, the respondents have listed- demand the market, Indian market, qualities, and varieties of goat from top to bottom respectively.
- 85% of the middlemen have access to finance, among which cooperatives' loans are common among them.
- While asking about what should be the role of government in the value chain, the respondents ranked "Collect goat from the farmers", "provide transport and storage facilities", "fix the price", "develop farming technology", and " Training on processing and value addition activities" were ranked top to bottom respectively.



7. ***SWOT Analysis***

The SWOT analysis is qualitative findings of the study. Role and SWOT of the major value chain actors are as follows:

Farmers' role in the goat value chain is to produce a healthy goat in a large number as possible. The strength of the farmer is that, they know the local knowledge of the goat farming and most of them have been equipped with modern technology and trainings. The weakness is that, they do not have any processing trainings and have accessibility to the market for their goat. The opportunity is the huge gap between the demand and supply of the goat. The threats to the goat farming is the disease by which the goats die and the low profit than that of the production.

Collectors' role in the value chain is to collect the goat from the farmers from the different districts of Nepal and India, and supply to the respective districts with high demand. The strength of the collector is that they have a good connection with the farmers and have transportation facilities. Their weakness if the lack of properly equipped vehicle to transit the goat in a scientific way. The opportunities for them is that there is a huge market demand and a gap between producers and consumers. Threats for the collectors are the retailers, processors and wholesalers who are equipped with transportation facilities and capable of collecting the goat themselves.

Commission Agents' are the people mostly in the rural and underdeveloped part of the Nepal from where they collect the goats from the farmers who do not have access to the market and skill for marketing and sell the goats to the collectors or other stakeholders.

Wholesalers' role in the goat value chain is to buy the goat at large number according to the demand of the consumers. The strength of the wholesalers is that they know the market of that

place especially the demand and the marketing strategy of the Kathmandu. The weakness of the wholesalers is that the goats from the producers and from India do not come at the specified time. The opportunities for them is the increasing demand of Kathmandu's consumer and increasing quality life of the people. The threats for them is the direct contact of the retailers and processors with the collectors or the farmers.

Processors' role is to process the goat meat into different varieties of consumable meat products. The strength of the processor is the reach to the technologically advanced machines to process the meat of the goat. The weakness of the processor is the limited flexibility in pricing and high transport cost. The opportunities is the high demand of the goat meat and varieties of goat mean products in the market of Kathmandu. The threats of the processors are competitors that can supply the same or high quality of goat meat to the consumers and changes in regulation that can impact businesses.

Retailers cum processors' role is to provide the goat meat to the consumers directly. The strength of the retailers is the know-how of the market of a particular place of Kathmandu. The weakness is that they can't provide the fresh meat to the consumers because of the set-up pattern of the consumers in the Kathmandu. The opportunities for the retailers is the high demand of the meat in the market of Kathmandu. The threats are the growing number of retailer shops in the same place because of the competition.

Project Sub- Title	Role of Middle Person in Enterprise Value Chain of Milk

1. Background and Situation Analysis

Milk production in Nepal is still carried out under the traditional production system, in the mixed farming system, with small non-commercial holdings. A persistent problem the dairy industry faces is poor milk quality. This is associated with a lack of farmer awareness with regards to hygienic milk production which causes loss of income along the milk chain. Due to the lack of a comprehensive policy that provides standards to be complied with during milk production, the quality of milk in Nepal has remained a big issue. The basic reasons are attributable primarily to the lack of hygiene and inadequate sanitation at the production level, since major milk producers are small, marginal and poor, living at the subsistence level.

2. Literature Review

Dairy farming is one of the most apposite and practical sector, which is the foremost component of farming system in Nepal and contributes 31% of agricultural production (CBS, 2001). Among various sub-sectors of the livestock, the maximum contribution (78%) comes from dairy farming. The dairy animals in Nepal are basically constituted of cattle and buffalo. More unambiguously, 30% of dairy production comes from cow and 48% from buffalo (CBS, 2004). Dairy farming aids farmers such as, vital bases of cash income, sources of family nutrients, sources of manure for agricultural land. The total milk production of Nepal got to 1312.14 thousand metric ton of milk every year, out of which 926.85 thousand metric ton was shared by buffalo milk (MoAS, 2007). This amount of milk is inadequate for domestic consumption. Hence, Nepal imports milk in the form of powder milk, mostly from India, Australia and Bangladesh. It was projected that the whole import of powder milk in 2001 was 696, 978 ton (Dairy Development Corporation, 2004). The compositional quality, the hygienic quality, the health of the cow and the level of contaminants present can all have an impact on the yield and quality, and hence financial return from products made from milk (Harding, 1999).

Marketing of fresh milk were carried out by the private as well as governmental sectors. Producers, collecting and chilling centers, processing plants, dealers, booths, retail shop and consumers were the main actors of dairy market in the study area. Cooperative collection and chilling center have been involved in collection of fresh milk based on the fat and SNF contains. After collecting the milk from producers, chilling and collection centers sell the milk directly to consumer or to the processing plants. Milk reaches consumers through dealers and booths established by processing plant. In addition, an informal channel also exists between booths and retail shop. Retail shops buy packets from booths and supply to the ultimate consumers. Sometimes producers directly sell the milk to the consumers, but it was in very less amount (Dairy Development Corporation, 2004). This might be due to the fact that, most of the farmers in the study area were raising animals. The collection centers associated with DDC were getting higher amount of commission (Rs. 1.58/liter) compared to private dairy (Rs. 1.48/liter). Greater

commission provided by DDC to collection centers might be due to higher per unit price of fat (1.62) and SNF (1.12). The cooperative chilling center associates with private dairy provide one rupee extra to producers as a bonus whereas governmental collection center provide only 0.5 rupee as a bonus. It was because the collection centers have to bear transportation charge up to the governmental chilling centers. In all season, producers were getting same price of milk. The DDC and private processing plants provide same amount of commission (Rs.1 per liter) to the retailer. The most common marketing channel was the producer - chilling/collection center - processing plants - booths - consumer. Processing plant distributed milk once a day, early in the morning to booths. In selected area, some retail shop buy milk packets from booths and store in refrigerator for sale throughout the day by charging some extra rupee (up to 1.5 per liter) on the price fixed by processing plants depending on consumers' willingness to pay (Dairy Development Corporation, 2004).

3. Milk Production in Nepal

Table 6: Milk Production in Nepal

Date	Value (in Tons)	Change
2007	1,465,093	
2008	1,507,467	2.89%
2009	1,566,926	3.94%
2010	1,620,491	3.42%
2011	1,679,133	3.62%
2012	1,745,639	3.96%
2013	1,804,389	3.37%
2014	1,835,135	1.70%
2015	1,860,515	1.38%
2016	1,995,793	7.27%
2017	2,054,214	2.93%
2018	2,239,031	9.00%

Source: Food and Agriculture Organization.

Nepal still faces a shortage of 400,000 tons of milk annually, thanks to low milk production against ever-increasing national demand. As per the World Health Organization (WHO) standard, a person requires about 91 liters milk a year while Nepal's per capita milk production is only 72 liters. Only around 17% milk of the total production arrives in the market through formal channels, 33-34 per cent milk is supplied in the local market through informal channels, mostly through local vendors to the local restaurants and hotels. Farmers in some areas, where there is no market for milk, are consuming about 50 per cent of the milk they produce. Due to unequal production of milk throughout the year, Nepal needs around 4,000 tons of powdered milk to fulfil the national demand for milk. However, the government has imposed a ban on the import of powder milk for the last year to promote domestic milk production. Thence, Nepal imports milk from Patna from 2019 of about 20,000-30,000 liters per day.

Altogether 1,872 dairy cooperatives collect milk from 63 districts, and around 500 dairy industries of small, medium and large scales are now in operation across the country. Likewise, around 5,000 dairies are operating as a cottage industry in the country. The total investment in the dairy industries stands at Rs. 16-17 billion. About 400,000 households have engaged in rearing cows and buffaloes, he said, adding that 10,000 workers are getting employment in the dairy sector.

4. Milk Supply Mechanism in Nepal

The stake of processed milk marketing of DDC compared to that of private sector has dropped. Private dairies are supplying somewhat more processed milk than the DDC and the stake gap can be expected to widen in favor of private dairies in the future.

5. Milk Collection

The milks are collected from the farms or the individuals through the private dairy associations and state-owned Dairy Development Corporation (DDC). About 1,000,000 liters of milk is collected in a day normally. Two times a day collection is most prevalent system in most of the collection centers in Terai but only morning collection is prevalent in the hilly region.

Fat, and Solid not Fat (SNF) are tested for the imbursement to the producers. Fortnightly payment for the milk is common in practice. Milk collected in these collection centers are transported to the nearest chilling centers by using any transportation means. Care is taken not to delay the transportation of milk to avoid spoilage. Preservatives are generally not added at this point but in the hot season in Terai region, sodium bicarbonate is added as milk preservative.

6. Milk Supply Chain

The collected milk is transported to processing plant and subjected to pasteurization, filling in suitable containers (poly packs) and stored at 4-5 degree Celsius for whole night till delivered to retailers/booth man in the next morning. The processed milk thus is made available to the consumers from these retailers/ booth man located in various points of the city. There is a provision of fixed amount (depending on volume of sell) of commission for the retailers/booth man. The system is prevalent both in DDC and other private or cooperative dairies. In some places, middlemen are involved in collection of milk from the producers and directly sell to the consumer (door to door delivery) and hotel/ restaurants in the city centers without any further processing. There is chance of water adulteration in this system, however, the consumer price is also determined by the amount of adulterated water in the milk.

7. Data Analysis

Major Findings for producers

- Majority of the milk producer farmers have 5-10 cows signifying that the small farm size is dominant in the dairy animal keeping practice. The lower number of milk producer

farmers having more cows signifies that the dairy cow farming has not yet become a commercial practice.

- About 85% of the milk producers have milking animals.
- Among the cow milk producers, 86.56% of farm owners have exotic breed of cow, whereas the remaining have local breed of cow.
- The cow milk producer farmers have both the local and improved animal shed to keep their dairy animals and most of the milk producer farmers construct animal shed by using the materials available in their local market, own house and village markets.
- Milk producer farmers used both the artificial insemination and natural breeding to inseminate their cows. Compared to natural breeding, significant number of farmers were found using AI.
- A vast majority of the milk producer farmers using artificial insemination received semen from the veterinary.
- The cow milk producer farmers used straw, green forage, concentrates and grains for feeding. More than three-fourth of the farmers (78.01%) used straw and green forage grown by purchasing and the remaining about 22% of them used by growing in their own land.
- Most of the cow milk producing farmers used government and/or private experts for veterinary care services (to treatment of their animals). In total, about 80% of the cow milk producer farmers used the services provided by these technicians.
- 77% of the cow milk producers in the Kathmandu valley sell the milk directly to the consumers. Rest are distributed to the diary shops or to the collectors.
- The cow milk producers have witnessed various changes in the dairy production system. Among these the prominent are increased household income, increased number of cows and increased ratio of dairy animals and milk producing animals. This signifies that the dairy production system has brought positive changes.
- High amount of the producers do not have any support or credit facilities and also trainings related to the cow farming.
- According to overwhelming cow milk producers (94.50%), their level of income has improved.
- Regarding the changes observed by the cow milk producers in milk processing activities, most of them have expressed that the number of milk processors has increased, processors have diversified the products along with quality improvement. However, some of the milk producers were also of the view that the processors think only about their own benefit.

Major Findings for consumers

- About 1.33 liters of cow milk is consumed by the individual household per day, which is about Rs. 49,273.18 amount of milk per year.
- Almost all of the consumers (96.27%) have expressed that they purchase cow milk and milk products for consumption.

- A vast majority of the consumers (89.60 %) expressed that milk and milk products are available as and when required. This signifies that the consumers have easy and accessible market of the milk and milk products.
- As per about three-fourth of the consumers (74.4%), presently market of the milk and milk products has improved compared to 5 years back. However, about a quarter of the consumers (22.4%) did not accept that the market has improved. A small number of the consumers opined that the market has even deteriorated. On the whole, this indicates that market of the milk and milk products has improved as compared to past but there is need for further improvement.

Major Findings for Middleperson

- In between the producer and consumer, middlepersons such as collector, MPCs, chilling center, and moreover the sellers- wholesale, and retailers add maximum value to the milk and milk products.
- The middlemen are active in the rural area of Nepal, where the producers don't have direct reach to the consumers.
- Some of the places lack MPCs to raise a collective voice of the producers, where the milk collectors play an important role in collecting the milk in low prices.
- The collectors and other middlemen in the cow milk value chain have claimed about the high transportation cost required to collect milk and bring it to the processors and chilling centers.
- Also, those collectors lack a well-equipped vehicle to collect the quality milk and maintain the quality of the milk during the transportation of the milk.
- Middle-persons are the major factor of economics of value addition to the milk.
- The high rent of the shops have been claimed as the major factors in increment of the value of milk.
- In Kathmandu due to several factors, the middlepersons are less responsible for the value addition for the producers in the Kathmandu.

8. SWOT Analysis

The SWOT analysis is qualitative findings of the study. Role and SWOT of the major value chain actors are as follows:

Farmer's role is to operate cow farm with high productive milk producing cows and produce hygienic and clean milk. Their major strength is good knowledge and experience in dairy animal farming but their major weakness is lack of knowledge on new technology for more production. Their major opportunities are tremendous demand for milk (increased consumers) and expansion of dairy processing industries and product diversification. Their large threats include determination of milk price determined by others and natural calamities.

Major roles of the ***milk producers' cooperatives*** are collection of milk from the member and non-member farmers and raise the voices of farmers for their benefit. Their important strengths are well established milk collection and testing facility and they are well organized. Their major weaknesses are poor quality milk from the farmers and poor management skill. Their main opportunities are high demand for raw milk, emergence of new dairy industries and prioritized sector of the government. The threats they face are unfair competition due to so many MPCs/collection center within the same vicinity.

The ***milk chilling centers'*** role is to receive milk from the MPCs, test and immediately chill it. They also facilitate MPCs for quality milk production and supply. Their major strengths are they have well established chilling, quality testing and CIP facility in some instances. Their major weaknesses are lack of knowledge on maintenance of equipment and machinery and difficult to manage spare parts. Their major opportunities are expansion of commercial dairy farming and dairy processing industries and demand for chilled milk from the milk processors. Their main threat is poor supply infrastructure and road network.

The ***milk processors'*** role is collection and processing of hygienic and clean milk, packaging and marketing of dairy products. Their major strengths are they have well established milk processing facility to produce quality milk and dairy products, and good network for milk collection and transportation. Their major weaknesses are non-development of adequate cold chain facility, lack of technically robust manpower, and lack of knowledge and skill in market development and marketing. Their main opportunities include increased demand for processed dairy products, tremendous import of dairy products, and diversification in the dairy business. Their main threats are irregularity in the electricity supply, poor road network and unfriendly government tax system.

Main role of ***milk and milk products sellers*** is to provide quality milk and milk products to the consumers. Their major strengths are they have established own consumers, change in food habit among the consumers and increased demand for dairy products. Their main weaknesses are difficult to maintain cold chain, lack of transportation facility, and unfair competition. Their main opportunities are market expansion and health conscious consumers, competition in milk production and processing, and increased demand for milk and milk products. Their major threats are low supply of milk in lean season, irregularity in electricity and poor road network.

Major roles of the ***feed manufacturer and suppliers*** are to provide quality feed in comparatively low price, collection of raw materials and feed formulation/preparation and support in commercialization of dairy farming. Their major strengths are high demand of quality feed, and awareness among the farmers to provide quality feed for high production. Their main weaknesses are high transportation cost, no cash payment upon the delivery, expensive raw materials and raw materials not available in the country, and lack of competent technical and marketing manpower. Their main opportunities include expansion of commercial dairy farms, increase market network, and improvement in the income of the dairy farmers. Their main threats are geographical remoteness, and poor road network.

The main role of the ***financial institutions*** is to provide livestock credit/insurance services. Their main strengths are expansion of commercial dairy farming and dairy processing, and increased awareness on the dairy animal insurance among the farmers. Their major weaknesses are tedious process to receive livestock credit and dairy animal insurance, non-availability of experience, veterinarian/livestock experts and weak monitoring. Their major opportunities are government priority in dairy sector development, large farming community with ample dairy animals, grooming milk processing industries, commercialization of dairy sector and government policy to subsidies in the insurance premium and loan. Their main threats are outbreak of communicable diseases, reluctance to pay the installment and wrong information on collateral.

The major roles of ***suppliers of dairy equipment/materials*** are management and supply of dairy related utensils and equipment, and to provide support in storage and transportation/ cold chain maintenance. Their major strengths are increased milk production and collection, increased use of modern machinery and equipment, increased awareness on the quality of milk and milk products. Their main weaknesses are non-availability of the required quality and quantity of the utensils/ equipment, unreliable electricity, and lack of technically sound manpower. Their main opportunities are availability of support and subsidy in dairy equipment/utensils/machine, and increased farm mechanization/factory upgrading practice. The main threats are non-complying government policy and practices, and geographical remoteness and poor road access.

The major role of the ***AI and veterinary service providers*** are to provide onsite veterinary care and AI services and counseling services on dairy farming. Their main strengths are experience in working at xv local level, knowledge on the number and type of dairy animals in the farmers' premises, and experience and goodwill in AI and veterinary services. Their main weaknesses are difficulty to motivate the farmers from traditional to commercial, lack of time due to excessive demand, lack of new technology (no training), and lack of semen and veterinary medicine, and youth's preference to foreign employment. Their major opportunities are increased income of the dairy farmers, increased consciousness among the farmers on animal health, and lack of liquid nitrogen. Their main threats are inconsistent power supply, poor rood network, and non-recognition by the government.

Agro-vets' main roles are supply of the veterinary medicine, vaccine and compound feed, provide AI services, import and dissemination of proven advanced technology, supply of seed and sapling of forage/ fodder, and counseling services to the dairy farmers. Their major strengths are capacity on veterinary and AI services at the local level, management of the compound feed, TMR and feed raw materials, increased number of improved animal breeds, increased purchasing power of the dairy farmers, and gradual commercialization of dairy farming. Their main weaknesses are unavailability of required quality and quantity of medicine, vaccine, semen and other inputs, lack of veterinary and livestock technicians, poor road network/no all-weather roads, lack of awareness among the farmers on their need of inputs (medicine, semen, seeds etc.), lack of green forage/fodder seeds and saplings, and prevalence of traditional dairy farming system. Their major opportunities include overwhelming interest among the youth in dairy sector, government priority

to dairy farming, expansion of milk collection and processing, livestock insurance, and increasing awareness on the animal health care. Their major threats are geographical remoteness and difficult to manage the required inputs in time, occurrence of contagious diseases, and irregularity in electricity supply.

Project Sub- Title	The Role of Middle Person in Enterprise Value Chain of Banana

1. Background and Situation Analysis

In Nepal, banana is being grown since time immemorial for home consumption. Before recent years, Nepalese subsistence farmers grew their banana crops in the kitchen garden and homestead land (Ahamad, 2008, pp. 128-130). It ranks the fifth in the area and third in production among fruit crops grown in Nepal (ADS, 1996/1997). Banana being a prioritized high-value agricultural product and a major fruit in Nepal in terms of the potential growing area, production and domestic consumption, is currently grown in 68 districts with a total productive area of 14311 hectares and production of 234319 tones and productivity 13.2 tons per hectare. Nepal imports 27878 tons of banana annually from India to meet the domestic demand, particularly in urban and peri-urban areas (TEPC, 2016)

Chitwan is the largest producer of bananas after Saptari, Jhapa, Morang and Rupandehi districts. The cultivation of banana initiated in Chitwan in 1940 (Shrestha P. , 1994). According to Banana Farms Promotion and Development Center, Chitwan district is the leading banana producing district earning NRs 150 million before 2010/11. Banana production in the district increased by a whopping 566 per cent over the past decade (Ghimire Y. , 2016).

2. Literature Review

Banana is a high-value agricultural product and a major fruit in Nepal in terms of the latent growing area, production, and domestic consumption. It is at present grown in 68 of Nepal's 75 districts, and the total productive area of banana farms in 2012/2013 was 11,864 hectare, with a total production of about 182,005 tons (Shrestha, Sapkota, Regmi, & Dhungana, 2018). The project 'Spatial Modelling of Climate Change Impacts on Two Major Cash Crops in Nepal' executed by HELVETAS Swiss Inter-cooperation in association with the Centre for Mountain Ecosystem Studies at the Kunming Institute of Botany and sponsored by ICIMOD under its SERVIR-Himalaya Initiative, developed a model that projected the impacts of bioclimatic conditions on the banana crop (ICIMOD, 2016).

Dr. Robert Zomer, Senior Landscape Ecologist at World Agroforestry Centre (ICRAF) and GIS backstop of this project mentioned that climate change was a slowly impending disaster that has hit most structures and systems in the future and the agricultural system is no exception. He further added that there will be notable change within environmental zones, which are equivalent to agro-ecological zones. Prevailing strata has deteriorated while new strata will invade the landscape, and such variations in the environmental stratification will change the suitable production zone for agricultural crops (E. & M., 2011).

3. Banana Production in Nepal

In 2018, bananas production for Nepal was 254,403 tons. Bananas production of Nepal increased from 45,600 tons in 1999 to 254,403 tons in 2018 growing at an average annual rate of 10.22%.

Table 7: Banana Production in Nepal

Date	Value (in tons)	Change
2007	53,257	
2008	76,792	44.19%
2009	88,849	15.70%
2010	91,042	2.47%
2011	121,742	33.72%
2012	168,484	38.39%
2013	182,000	8.02%
2014	208,245	14.42%
2015	234,320	12.52%
2016	236,195	0.80%
2017	247,622	4.84%
2018	254,403	2.74%

Source: Food and Agriculture Organization

4. Banana Import in Nepal

The imports of bananas in Nepal increased from the US $0 in 1968 to US$ 3,641,000 in 2017 growing at an average annual rate of 62.70%. The imports are especially from India.

Table 8: Banana Import in Nepal

Date	Value (1000 US$)	Change
2006	356.00	
2007	459.00	28.93%
2008	787.00	71.46%
2009	58.00	-92.63%
2010	207.00	256.90%
2011	508.00	145.41%
2012	628.00	23.62%
2013	723.00	15.13%
2014	1,916.00	165.01%
2015	2,017.00	5.27%
2016	4,252.00	110.31%

2017	3.641.00	-14.17%

Source: Food and Agriculture Organization

5. Middle-men in the Banana Enterprise Value/Supply Chain

Fig 11: Actors in Banana Value Chain in Nepal

The banana producers and local collectors are the main people involved in marketing. Mainly buying, assembling, transportation etc. are done by the collectors, while producers involved in selling activities only (Ghimire, Koirala, Devkota, & Basnet, 2019). Traders (Collector, wholesaler, and retailer) play the most important role in the marketing and distribution of the produce. During the course of study of the marketing problems as responded by the traders were the lack of storage facility, lack of processing facility, lack of suitable packaging materials, lack of sufficient amount of produce and Nepal's seasonal supply and demand. Among all these problems seasonal supply emerged as the major marketing problem for the traders.

6. Data Analysis

Major findings of producers

- The average production land for banana in Nepal is 2.33 hectares. The lower number of banana farmers having less land of production signifies that banana farming has not yet been commercialized in Nepal. But the growing number of banana farmers in the market shows the positive trends towards the farming system.
- According to the Ministry of Agriculture, the current average productivity is 13.2 tons per hectare, with maximum yields reaching up to 20 tons per hectare.

- More than 90% of the farmers prefer cultivating Malbok variety of banana, whereas some have cultivated Grand Nain variety of banana.
- Almost all the banana farmers buy banana see or saplings from the Government Agency, but some farmer also buy banana seed and saplings from India.
- The average cost for banana production per hectare is:

Particulars	Cost (NRs)	Share %
Planting materials (suckers)	45,398.99	9.95
Manure (FYM)	48,569.02	10.65
Fertilizer (Urea, DAP, SOP)	59,117.63	12.96
Micro-nutrients	9,289.485	2.03
Pesticides	37,778.99	8.28
Labor	69,851.99	15.32
Machine	68,941.49	15.12
Marketing/ Transport	7,174.463	1.57
Rent/ Contract of Land	97,313.02	21.34
Others	12,422.77	2.72
Total	**455,857.8**	100

- The average selling rate of one unit of banana for the producers at the gate is Rs. 3.09.
- The average return of commercial banana cultivation was found to be NRs. 555,324.14 per hectare with average profit of 197,853.23 per hectare.

Description	Minimum	Maximum	Average
Return	342,000	765,000	555,324.20
Cost	252,500	462,750	455,857.80
Profit	22,500	302,250	197,853.23

- High amount of the producers do not have any support or credit facilities and also trainings related to the banana farming.
- According to overwhelming banana producers (94.50%), their level of income has improved.
- 61% of the total produced banana is sold by the producers to the collectors, 22.25% to the wholesalers, 9.25% to the retailers, and 7.25% to the processors and remaining to the consumers of the total production. Thus, 90% of the produced bananas are transferred through the middleperson in the value chain of banana.

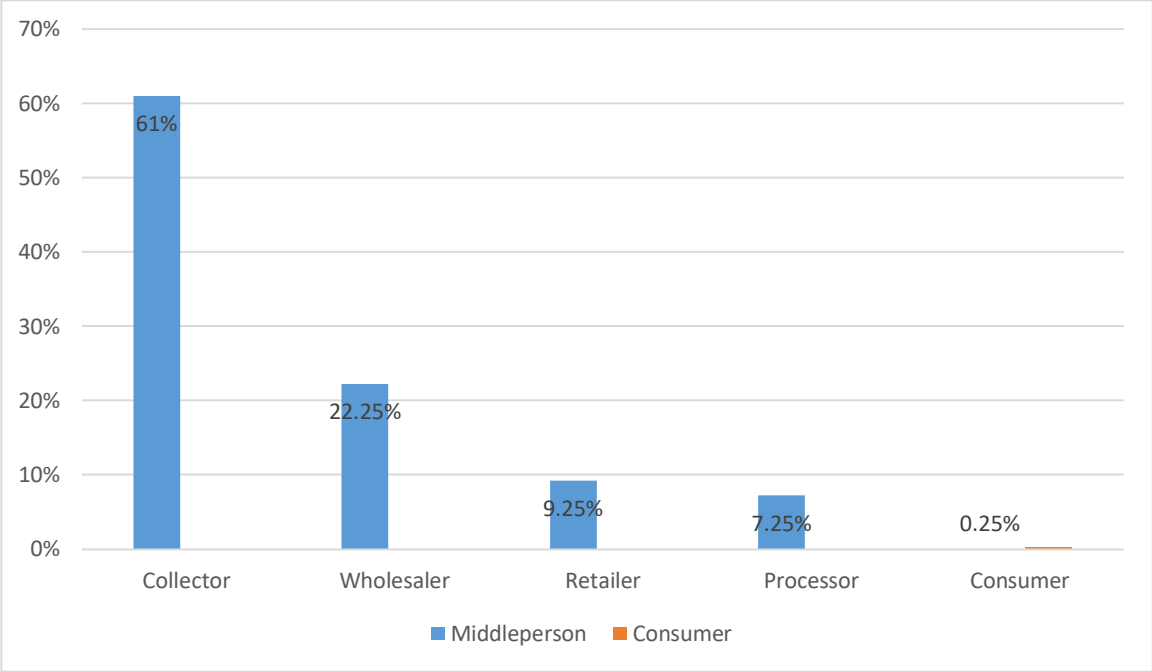
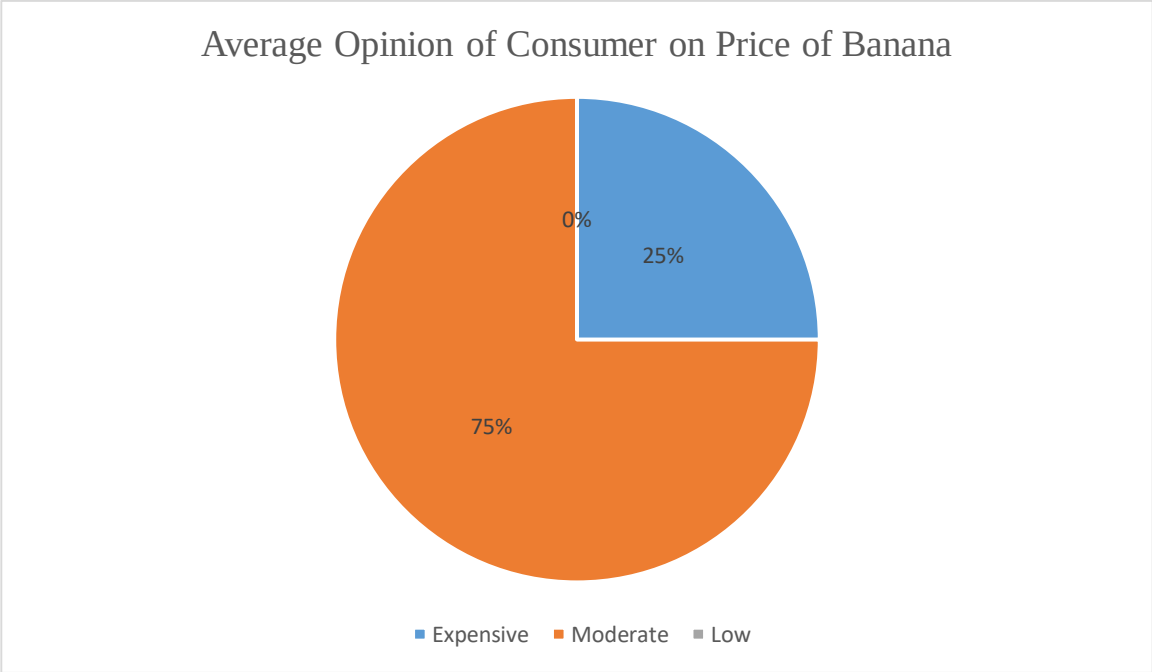


Fig 12: Average Production of Banana Sold to Each member of Value Chain

Major findings for Consumers

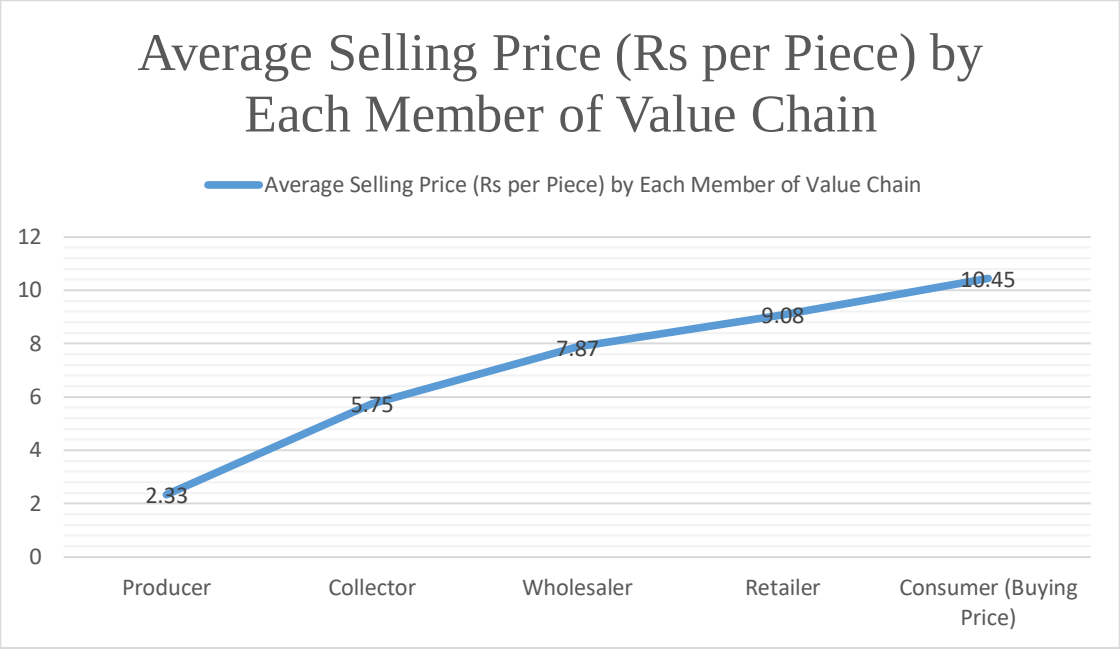
- The average buying cost for one dozen of banana for the consumer is Rs. 104.5 (Rs. 8.70 per piece).
- 75% of the consumer think that the price of banana is moderate and the remaining have the opinion that the price is expensive.



- 90% of the consumer opt for the freshness of the banana rather than the size and the type of the banana.
- The low quality of banana in the market is the main problems highlighted by the consumers in the market where as the freshness and the lack of cleanliness of the shop are less of the consumers' concern.
- Almost all of the consumers in Kathmandu buy the banana from the retailer shop (fruit shop), only few of them prefer to buy banana from the wholesaler.

Major findings for middlepersons

- Many middlepersons responded, especially collectors and wholesalers, that there is less production of the banana in Nepal and most of the banana comes from the Indian market.
- The price between the banana produced in Nepal and India is same but what makes the middlepersons to supply banana from India is the availability of banana in the Indian market according to the demand in the Nepalese market.
- The middlepersons identified the actors in the chain of the banana production in Nepal to be Producer-Collectors-Wholesalers-Retailers-Consumers.
- The average buying cost for the middlepersons in the banana value chain is Rs. 695 per 100 banana (which is equals to Rs 6.95 per unit of banana).
- In average 64% more value is added to the banana by the middlepersons in the chain while reaching to the consumers, which is very high regarding their cost of transportation and other expenses on preservatives.
- Almost all of the middlepersons in the banana value chain haven't received any trainings.
- More than two-third of the respondents have responded that is increasing, and they have told that they transfer banana in a big truck or a mini-truck.
- Maximum number of people have responded that the banana market in Nepal is highly dependent on the Indian market, and have ranked demand in the market and cost of marketing as second and third respectively.
- The poor quality of banana remains the major problem in the marketing.
- Also the number of processors in the banana value chain is very low so that less banana is purchased by the processors to add value to the banana by making it different items like chips and flour.
- Introducing the storage facilities and technology in the banana farming are the major expectations of the middlepersons in from the government.



7. SWOT Analysis

The SWOT analysis is qualitative findings of the study. Role and SWOT of the major value chain actors are as follows:

Farmers' role to produce a high quality banana in a large quantity sufficient to meet the demands of the market. Their strength is the amount of knowledge and experience in the banana cultivation. Their weakness is the lack of tissue culture technology to grow a high quality and fast growing banana. Their opportunities are the high amount of banana demand in the Nepalese market and the threats include the Indian banana in the market which diminishes the Nepalese bananas in the market.

Collectors' role in the value chain is to collect the bananas from the farmer and transport the products to the wholesalers, retailers or processors. Their strength is the good relations with the banana producers and the other stakeholders in the chain. Their major weakness is the lack of quality transport and storage facilities to transport the banana. The opportunities for them include the high demand of banana in the Nepalese market. The main threats for them is the diminishing role of the collectors because of the availability of the transportation and storage facilities of the wholesalers and retailers.

Wholesalers' role in the banana value chain is to buy the banana in a huge quantity to meet the demand of a particular place. Their strength is the low distribution cost, established market in Kathmandu and understanding of the consumer demands. The weaknesses include lack of the storage facilities of high amount of banana, and the import of low quality bananas. The opportunities are the high demand of banana in the market, and high consumer spending on the banana than any other fruits. The threats for them include tax and regulatory structures.

Retailers' role in the market is to identify the most economical source for obtaining the banana from the suppliers and passing on the advantages to the consumer. The strength of the retailers are the knowledge of the market very well, and can adapt to the need of the consumers in Kathmandu. The opportunities for the retailers are increasing demand of banana in Kathmandu than other fruits, and the retailers don't have to waste the banana. The threats for the banana retailers in the Kathmandu are the big super markets and the e-commerce.

Local vendors' role in the banana value chain is to supply the banana to the consumers, especially to the homes of the consumers. Their strength is the proper knowledge of the consumers' choice and demands, whereas the weaknesses include the lack of transport facilities. The opportunities are again the increasing demand of the banana market in Kathmandu household and the treats are the price competition with the retailers and the increasing number of supermarkets and e-commerce.

Policy Recommendations to Decrease the Effect of Middleperson in Value/Price Addition and Increase the Service of the Middleperson in the Enterprise Value Chain

In the previous chapters, the thorough analysis of the impact of the middlemen in the entries value chain of fish, banana, milk and goat were analyzed. To curb the role of high value addition in the products by the middlemen and enhancement of the services of middlemen in the value chain. The following recommendations have been summarized to the each actors in the value chain in general. They are:

Producers:

- Priority should be given for soft loan rather than the subsidy/grant with extensive extension service integrating research. Increase access and availability of subsidized loan and insurance,
- Training on full package of practice on fish, banana, milk and goat farming including breeding, feeding, care management, disease prevention and control, goods manufacturing, marketing and marketing management with extensive follow-up and consultancy services to the farmers.
- Develop animal resource center for cow and goat farming, extend the AI services with quality sexed semen, forage and fodder resource center and assure steady milk and meat production throughout the year,
- For the fish fingerlings as well, a center for quality fingerlings should be established in order to have a healthy and fresh fishes,
- For the Banana farming, the tissue culture centers are most important to grow a hybrid breed of banana for fast and big production,
- Motivate youths in farming with honor providing training on business plan, farm record including full package of practice for farming and expansion of shed, pond, and land improvement and housing program,
- Establish fish, milk, banana and goat collection centers at strategic location along the road corridor and create an environment with increased access and availability of inputs and services and uninterrupted market.
- Assign milk shed areas/ pockets for specific dairy and meat processors and regulate them with strong code of conduct where the concern processing industry will provide training and extension activities with market guarantee of the milk and meat,
- Provision of forage seed, sapling, feed raw materials in subsidized rate.

- Establish mechanism of assessing number, type, total production, cost of production and profit margin to the farmers. Link the system with computer software between every local governments and federal government with uninterrupted server to collect information in central data bank.
- Fixed the price in close consultation with farmers and pricing formula should be developed for fixing the price based on the composition and quality allocating points.
- Provision of good road network, electricity facility, cold chain, digital system to measure the quality of fish, goat, banana and milk,
- Management of proving recently pass out dairy graduates to serve in major pocket areas,
- Transform farmer to entrepreneur and farming as enterprise organizing observation tour and exchanged visit, workshop, training etc. and commercialize farming.

Middlepersons:

- Regular supply of infrastructural necessities such as vehicles, storage places and all-weather roads with support/subsidy/loan to the middlepersons are necessary.
- Strengthen the institutional capacity of the cooperatives augmenting cooperative member education, cooperative execution, business plan preparation, financial management and product diversification
- Scientific pricing system should be introduced with extensive training and advocacy on marketing, collection and selling purpose.
- Establish chilling facility at strategic location- road corridor, provide chilling facility for milk productions
- Transport machineries such as big trucks, small vans and cold storage vehicles should be given in subsidized loan.
- Equip the cooperatives with up to date laboratory and computer software to calculate the price.
- Provide fresh and refresher training on operation and maintenance of equipment required for transport and storage of the products.
- The processors in the value chain seem to be very low in number. So, the processing trainings of the goat meant, banana, fish and especially be given to the processors for the quality and varied products.
- Training to the technical and managerial staff on good manufacturing practices, marketing management.

Consumers:

- Educate the consumers regarding the quality of the products certified by the Government of Nepal.
- Provide consumers with the updated prices of the products if possible every day, if not then the price update should be given every week,
- Encourage the consumers on consumption of the agricultural products of Nepal.

Government:

- Marketing management, increase number of livestock service, uniformity in prices, expansion of forage mission and AI mission
- Functional coordination and linkage with different and relevant agencies and additional support and subsidy
- Provision of soft loan, emphasis on hygiene and sanitation in dairy farming, increased required number of human resources
- Training and exposure visit to the field level extension workers
- One ward one technician campaign and action accordingly
- Link the agriculture and forest university with the farming and manage to recruit recently pass out graduates to serve farmers' pocket areas
- One industry one pocket area should be implemented
- Provide adequate quantity of high productive sexed semen or tissue cultured to the farmers in subsidized rate
- Establish database of farms, farm record managing separate server and link with local government entrepreneur management system
- System of concentrating farmers only in production rather to marketing should be developed
- Provide effective and functional training to the cooperative general members, executive body and staff
- Provide business development training to the cooperative executive committee and staff members
- Training on milk product diversification, marketing, market development and consumer care

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Annex I

Questionnaire for Data Collection for Fish Value Chain

Questionnaire for Producers

1. **General information**:

1.1 **Name of the Respondent**: ……

1.2 **Sex**: a) Male b) Female

1.3 **Address**: ……

1.4 **Age**: …….

1.5 **Educational status**:

a) Illiterate b) Literate c) Below SLC d) SLC e) Intermediate f) Bachelor g) Master

1.6 **Annual family income**:

a) Less than Rs 100,000 b) NRs 100,000-200,000 c) NRs 200,000-300,000 d) More than NRs. 300,000

1.7 **Occupation**: ……

1.8 **How many years of experience do you have in fish farming?** ……

1.9 **Do you have any training related to fish farming?**

a) Yes b) No

If Yes, Mention Duration ……. From where …….

1.10 **Do you live in this village/town as a full time resident?**

a) Yes ( ), No ( ), b) If yes, how long? …….

2. **Fish Pond information**:

Own	Leased In	Total (area)

3. **Which breed of fish do you farm?** ……

4. **From where do you buy Fish fingerlings?**

a) Cooperatives b) Gov. organization c) Agro/vet d) others (specify)

5. **Inputs supply**

S.N.	Type of inputs	Quantity	Rate	Total Price
1	Fish Fingerlings			
2	Habitat Management			
3	Fish Food			
4	Nutrients/ medicines			
5	Total			

6. **How much do you produce last year? And mention the average selling Price of fish** ……..

Production	Household Consumption	Sold	Rate	Amount

7. **Where do you sell your produce? Please, specify district and location**

   District …….. Location ……

8. **What is the % of farming is purchased by the collector, wholesaler, retailer, processor and consumer?**

Collector (%)	Wholesaler (%)	Retailer (%)	Processor (%)	Consumer (%)

9. **Have you received any support/ help from any organization?**

   i. Yes

   ii. No

   If yes, please mention the name of the organization and what sorts of help did you receive?

- What is the status of Producer-collector-trader relationship in local market hub?
- What can be done to increase the linkage and coordination between fish producer and market?
- How do you manage money and investment in your business?
- How do you transport the product? What are the problems and opportunity in transportation means?

- Do you get any training related to fish farming and marketing? If Yes, What sort of training?
- Intervention/activities to promote fish farming and marketing

Questionnaire for Middleperson

Name of the firm …….

Age: ……

Gender: (a) Male (b) Female

Education:

a) Illiterate b) Literate c) Below SLC d) SLC e) Intermediate f) Bachelor g) Master

Years of experience:

Types of trader: Supplier/ Collector ( ) Wholesaler ( ) Retailer ( )

1. Who are your major suppliers?
2. What are the major districts or collection centers you are getting products from?
3. Who are input suppliers (like ice box) for your business?
4. Who are your buyers and where are they located?
5. What are the services required (transportation, storage, laborers, advisory, and book keeping)?
6. What are the channels of marketing?
7.

Please tell about your fish marketing					
Who do you buy fish from? (1= small farmers, 2= large farmers, 3= collector, 5=Road side traders, 4= local collector agent,	Where do you collect fish? (1= from farm gate, 2= from market, 3= from primary collectors, 4= wholesalers,	Whom do you sell your fish? 1=Wholesaler, 2=Processor, 3=Retailer, 4=Consumer, 5=collection center, others)	Purchase price range of fish (NPR/kg)	Sales price range of fish (NPR/kg)	Please tell about the quantity of fish you sold last years? (kg)

5=others (specify)	5= others specify)				

8.

1. How business trend in fish is changing over the last 5 years?(1= increasing 2= decreasing 3= same)	2.
Please explain the trend. (eg. Why is your business increasing/same /decreasing)	

9. **Where did you buy fish last year?**					
District	Seller	Amount	Price	Methods of payment	Agreement(1=Yes, 0=No)
Methods of payment:1= cash on delivery, 2= on credit, 3=Advance payment, 4= others (specify)					

- How do you transport the product? What are the problems and opportunity of means of transportation?

(a) Vehicles (b) Cold Storage Vehicle (c) labor (d) other

- Have you received any training related to fish farming, processing and marketing?

(a) Yes (b) No

10. **What criteria do you use in determining price of fish? Rank (1=major 4=minor)**				
Quality (grades)	Demand in market	Varieties	Indian market	Others (specify)

11. How do you manage money and Investment for your business?

Do you have access to finance? (1=Yes, 2=No) **If Yes,**	
Source of loan (1=Bank 2=Finance company 3=Groups/Cooperatives 4=Local money lenders 5=others (specify)	

12. **Problems you face in marketing of fish? Rank**				
Poor quality products	Poor quantity products	No processing facilities	No storage facilities	others (specify)

13. **What may be the roles of government to improve the marketing of fish? (rank (1-5) them with scores)**				
Fix the price of cardamom	Transportation and storage facilities	Training on processing and value addition activities	Develop farming technology	Promote organic farming

- How many collectors/traders are present in this local market hub? Do you have any association among them?
- Relationship status among collectors, wholesalers and traders.
- Consumers/costumers opinion about quality, price and volume of selling product
- Do you have any quality standards provision for fish trading? If yes what types and how?

- What can be done to increase the linkage and coordination between fish producers, collectors & other traders?
- What can be the value addition activities?
- Intervention/activities to promote fish farming and marketing

14. SWOT Analysis

1. What are the strength, weakness, opportunities and threats in your fish market? **Please specify it**	
Strength	**Weakness**
Opportunities	**Threats**

Questionnaire for consumer

1) Name of the consumer: …….

2) Age of the consumer ……

3) Gender: 1) Male 2) Female

4) Address: VDC/Municipality ……. Ward.no …….

5) From where do you buy the fish?

i) Wholesaler market

ii) Retail market

iii) Farmer

iv) Fisherman

v) Others

6) What do you consider while **purchasing the fish**?

i) Price

ii) Freshness

iii) Size

7) Wh**at price do you pay for the fish**?

8) What is you**r opinion about the price of fish**?

i) Expensive

ii) Moderate

iii) Cheap

9) What type of problems do you encounter in the market?

S.N.	Types of problem	Ranking			
		Very High	High	Medium	Low
1	Higher Price				
2	Lack of cleanliness				
3	Low quality fish				
4	Diseased fish				
5	Lack of availability of fresh fish				
6	Others				

Thank you for your cooperation

Annex II

Questionnaire for Data Collection for Banana Value Chain

Questionnaire for Producers

10. General information:

10.1 **Name of the Respondent**: ……

10.2 **Sex**: a) Male b) Female

10.3 **Address**: ……

10.4 **Age**: ……

1.5 **Educational status**:

a) Illiterate b) Literate c) Below SLC d) SLC e) Intermediate f) Bachelor g) Master

1.6 **Annual family income**:

a) Less than Rs 100,000 b) NRs 100,000-200,000 c) NRs 200,000-30000 d) More than NRs. 300,000

1.8 **Occupation**: ……

1.8 **How many years of experience do you have in banana cultivation?** ……

1.9 **Do you have any training related to banana cultivation?**

b) Yes b) No

If Yes, Mention Duration ……. From where …….

11. Land information:

Own	Leased In	Total cultivation Area (area)

IF, leased how much do you pay for the rent of one (Katha) in a year/monthly basis?

S.N.	Lease duration (Year)	Lease amount (Rs. Area/year)

12. Which variety do you grow most? ……

13. From where do you procure/buy seed?

b) Cooperatives b) Gov. organization c) Agro/vet d) others (specify)

14. Inputs supply

S.N.	Type of inputs	Quantity	Rate	Total Price
1	Manure			
2	Chemical Fertilizer			
3	Plant protection measures			
4	Tillage a) Human labor cost b) Tractor/Machinery cost			
5	Irrigation			
6	Weeding (cost)			
11	Total			

15. How much do you harvest last year? And mention the average selling Price of banana

……..

Production	Household Consumption	Sold	Rate	Amount

16. Where do you sell your produce? Please, specify district and location

District …….. Location ……

17. What is the % of production is purchased by the collector, wholesaler, retailer, processor and consumer?

Collector (%)	Wholesaler (%)	Retailer (%)	Processor (%)	Consumer (%)

18. Have you received any support/ help from any organization?

iii. Yes

iv. No

If yes, please mention the name of the organization and what sorts of help did you receive?

- What is the status of Producer-collector-trader relationship in local market hub?
- What can be done to increase the linkage and coordination between banana producer and market?
- How do you manage money and investment in your business?
- How do you transport the product? What are the problems and opportunity in transportation means?
- Do you get any training related to banana production and marketing? If Yes, What sort of training?
- Intervention/activities to promote banana production and marketing

Questionnaire for Middleperson

Name of the firm …….

Age: ……

Gender: (a) Male (b) Female

Education:

a) Illiterate b) Literate c) Below SLC d) SLC e) Intermediate f) Bachelor g) Master

Years of experience: …….

Types of trader: Supplier ( ) Wholesaler ( ) Retailer ( )

15. Who are your major suppliers?
16. What are the major districts or collection centers you are getting products from?
17. Who are input suppliers (like sacks) for your business?
18. Who are your buyers and where are they located?
19. What are the services required (transportation, storage, laborers, advisory, and book keeping)?
20. What are the channels of marketing?
21.

Please tell about your banana marketing					
Who do you buy banana from? (1= small farmers, 2= large farmers, 3= collector, 5=Road side traders, 4= local collector agent, 5=others (specify)	Where do you collect banana? (1= from farm gate, 2= from market, 3= from primary collectors, 4= wholesalers, 5= others specify)	Whom do you sell your banana? 1=Wholesaler, 2=Processor, 3=Retailer, 4=Consumer, 5=collection center, others)	Purchase price range of banana (NPR/kg)	Sales price range of banana (NPR/kg)	Please tell about the quantity of banana you sold last years? (kg)

22.

3. How business trend in banana is changing over the last 5 years?(1= increasing 2= decreasing 3= same)	
Please explain the trend. (eg. Why is your business increasing/same /decreasing)	

23. **Where did you buy banana last year?**					
District	Seller	Amount	Price	Methods of payment	Agreement(1=Yes, 0=No)
Methods of payment:1= cash on delivery, 2= on credit, 3=Advance payment, 4= others (specify)					

- How do you transport the product? What are the problems and opportunity of means of transportation?

  (a) Vehicle (b) Cold Storage Vehicle (c) Labor (d) others

- Have you received any training related to banana production, processing and marketing?

  (a) Yes (b) No

24. **What criteria do you use in determining price of banana? Rank (1=major 4=minor)**				
Quality (grades)	Demand in market	Varieties	Indian market	Others (specify)

25. How do you manage money and Investment for your business?

11.1 **Do you have access to finance? (1=Yes, 2=No)** **If Yes,**	
Source of loan (1=Bank 2=Finance company 3=Groups/Cooperatives 4=Local money lenders 5=others (specify)	

26. **Problems you face in marketing of banana? Rank**				
Poor quality products	Poor quantity products	No processing facilities	No storage facilities	others (specify)

27. **What may be the roles of government to improve the marketing of banana? (rank (1-5) them with scores)**				
Fix the price of banana	Transportation and storage facilities	Training on processing and value addition activities	Develop production technology	Promote organic cultivation

- How many collectors/traders are present in this local market hub? Do you have any association among them?
- Relationship status among collectors, wholesalers and traders.
- What types of support do you get from government sector? Is there any local level policy affecting your business? If yes, How?
- Consumers/costumers opinion about quality, price and volume of selling product
- Do you have any quality standards provision for banana trading? If yes what types and how?
- What can be done to increase the linkage and coordination between banana producers, collectors & other traders?
- What can be the value addition activities?
- Intervention/activities to promote banana production and marketing

28. SWOT Analysis

2. What are the strength, weakness, opportunities and threats in your banana market? **Please specify it**	
<u>Strength</u>	**<u>Weakness</u>**
<u>Opportunities</u>	**<u>Threats</u>**

<u>Questionnaire for consumer</u>

10) Name of the consumer: …….

11) Age of the consumer ……

12) Gender: 1) Male 2) Female

13) Address: VDC/Municipality ……. Ward.no …….

14) From where do you buy the banana?

vi) Wholesaler market

vii) Retail market

viii) Farmer

ix) Haat bazar

x) Others

15) What do you consider while **purchasing the banana**?

i) Price

ii) Freshness

iii) Size

16) Wh**at price do you pay for the banana**?

17) What is you**r opinion about the price of banana**?

i) Expensive

ii) Moderate

iii) Cheap

18) What type of problems do you encounter in the market?

S.N.	Types of problem	Ranking			
		Very High	High	Medium	Low
1	Higher Price				
2	Lack of cleanliness				
3	Low quality banana				
4	Diseased fish				

5	Lack of availability of fresh banana				
6	Others				

Thank you for your cooperation

Annex III

Questionnaire for Data Collection for Milk Value Chain

Questionnaire for Producers

19. General information:

19.1 **Name of the Respondent**: ……

19.2 **Sex**: a) Male b) Female

19.3 **Address**: ……

19.4 **Age**: …….

1.5 **Educational status**:

a) Illiterate b) Literate c) Below SLC d) SLC e) Intermediate f) Bachelor g) Master

1.6 **Annual family income**:

a) Less than Rs 100,000 b) NRs 100,000-200,000 c) NRs 200,000-30000 d) More than NRs. 300,000

1.9 **Occupation**: ……

1.10 **Is milk production is your main business?**

A) Yes B) No

1.9 **How many years of experience do you have in milk production/ cow farming?** ……

1.10 **Do you have any training related to milk production/ cow farming?**

c) Yes b) No

If Yes, Mention Duration ……. From where …….

20. Grazing/Farming Land information:

Total Land	Land for Farm	Land for grazing

21. Which variety do you tame most? ……

Dairy animals and milk production

	Local Breed	Exotic Breed	Total
Number of cows			

Lactation Period			
Milk Yield/ Cow			

22. What methods you use for breeding your cow?

Method of Cow Breeding	Artificial insemination	Natural Method	Both AI and Natural Method
1= Artificial insemination, 2= natural mating, and 3= Both AI and Natural Method			

23. Total Selling

For Local Breed

Total Production	House Hold Consumption	Total Selling	Rate	Amount

For Exotic Breed

Total Production	House Hold Consumption	Total Selling	Rate	Amount

24. Inputs supply

S.N.	Type of inputs	Quantity	Rate	Total Price
1	Feedings			
2	Cost of AI service per cow per year			
3	Cost of shelter /fence/ shed for dairy cow)			
4	Vet/ Medicine Service			
5	Total			

25. Where do you sell your produce? Please, specify district and location

District …….. Location ……

26. What is the % of production is purchased by the collector, wholesaler, retailer, processor and consumer?

Collector (%)	Wholesaler (%)	Retailer (%)	Processor (%)	Consumer (%)

27. Have you received any support/ help from any organization?

v. Yes

vi. No

If yes, please mention the name of the organization and what sorts of help did you receive?

- What is the status of Producer-collector-trader relationship in local market hub?
- What can be done to increase the linkage and coordination between milk producer and market?
- How do you manage money and investment in your business?
- How do you transport the product? What are the problems and opportunity in transportation means?
- Do you get any training related to milk production and marketing? If Yes, What sort of training?
- Intervention/activities to promote milk production and marketing

Questionnaire for Middleperson

Name of the firm …….

Age:

Gender: (a) Male (b) Female

Education:

a) Illiterate b) Literate c) Below SLC d) SLC e) Intermediate f) Bachelor g) Master

Years of experience:

Types of trader: Supplier ( ) Wholesaler ( ) Retailer ( )

29. Who are your major suppliers?

30. What are the major districts or collection centers you are getting products from?

31. Who are input suppliers for your business?

32. Who are your buyers and where are they located?

33. What are the services required (transportation, storage, laborers, advisory, and book keeping)?

34. What are the channels of marketing?

35.

Please tell about your milk marketing					
Who do you buy milk from? (1= small farmers, 2= large farmers, 3= collector, 5=Road side traders, 4= local collector agent, 5=others (specify)	Where do you collect milk? (1= from farm gate, 2= from market, 3= from primary collectors, 4= wholesalers, 5= others specify)	Whom do you sell your milk? 1=Wholesaler, 2=Processor, 3=Retailer, 4=Consumer, 5=collection center, others)	Purchase price range of milk (NPR/kg)	Sales price range of milk (NPR/kg)	Please tell about the quantity of milk you sold last years? (kg)

36.

4. How business trend in milk is changing over the last 5 years?(1= increasing 2= decreasing 3= same)	
Please explain the trend. (eg. Why is your business increasing/same /decreasing)	

37. **Where did you buy milk last year?**					
District	Seller	Amount	Price	Methods of payment	Agreement(1=Yes, 0=No)

Methods of payment:1= cash on delivery, 2= on credit, 3=Advance payment, 4= others (specify)					

- How do you transport the product? What are the problems and opportunity of means of transportation?

  (a) Vehicle (b) Cold Storage Vehicle (c) Labor (d) others

- Have you received any training related to milk production, processing and marketing?

  (a) Yes (b) No

38. **What criteria do you use in determining price of milk? Rank (1=major 4=minor)**				
Quality (grades)	Demand in market	Varieties	Indian market	Others (specify)

39. How do you manage money and Investment for your business?

Do you have access to finance? (1=Yes, 2=No) **If Yes,**	
Source of loan (1=Bank 2=Finance company 3=Groups/Cooperatives 4=Local money lenders 5=others (specify)	

40. **Problems you face in marketing of milk? Rank**				
Poor quality products	Poor quantity products	No processing facilities	No storage facilities	others (specify)

41. **What may be the roles of government to improve the marketing of milk? (rank (1-5) them with scores)**

Fix the price of milk	Transportation and storage facilities	Training on processing and value addition activities	Develop production technology	Promote organic production

- How many collectors/traders are present in this local market hub? Do you have any association among them?
- Relationship status among collectors, wholesalers and traders.
- What types of support do you get from government sector? Is there any local level policy affecting your business? If yes, How?
- Consumers/costumers opinion about quality, price and volume of selling product
- Do you have any quality standards provision for milk trading? If yes what types and how?
- What can be done to increase the linkage and coordination between milk producers, collectors & other traders?
- What can be the value addition activities?
- Intervention/activities to promote milk production and marketing

42. SWOT Analysis

3. What are the strength, weakness, opportunities and threats in your milk market? Please specify it	
<u>Strength</u>	**<u>Weakness</u>**
<u>Opportunities</u>	**<u>Threats</u>**

Questionnaire for consumer

19) Name of the consumer: …….

20) Age of the consumer ……

21) Gender: 1) Male 2) Female

22) Address: VDC/Municipality ……. Ward.no …….

23) From where do you buy the milk?

xi) Wholesaler market

xii) Retail market

xiii) Farmer

xiv) Others

24) What do you consider while **purchasing the milk**?

i) Price

ii) Freshness

iii) Size

25) Wh**at price do you pay for the milk**?

26) What is you**r opinion about the price of milk**?

i) Expensive

ii) Moderate

iii) Cheap

27) What type of problems do you encounter in the market?

S.N.	Types of problem	Ranking			
		Very High	High	Medium	Low
1	Higher Price				
2	Lack of cleanliness				
3	Low quality milk				
5	Lack of availability of fresh milk				

6	Others				

<u>Thank you for your cooperation</u>

Annex IV

Questionnaire for Data Collection for Goat Value Chain

Data Collection for Goat Value Chain

Questionnaire for Producers

28. General information:

28.1 **Name of the Respondent**: ……

28.2 **Sex**: a) Male b) Female

28.3 **Address**: ……

28.4 **Age**: …….

1.5 **Educational status**:

a) Illiterate b) Literate c) Below SLC d) SLC e) Intermediate f) Bachelor g) Master

1.6 **Annual family income**:

a) Less than Rs 100,000 b) NRs 100,000-200,000 c) NRs 200,000-30000 d) More than NRs. 300,000

1.11 **Occupation**: ……

1.8 **How many years of experience do you have in goat farming?** ……

1.9 **Do you have any training related to goat farming?**

d) Yes b) No

If Yes, Mention Duration ……. From where …….

29. Farm information:

29.1 How many goats do you own? **.....**

Total Land	Land for Farm	Land for grazing

30. Which variety of goat do you domesticate most? ……

31. From where do you buy the goat kid?

c) Cooperatives b) Gov. Organization c) Agro/vet d) others (specify)

32. From where do you buy the feedings?

A) Cooperatives b) Gov. Organization c) Agro/vet d) others (specify)

33. Inputs supply

S.N.	Type of inputs	Quantity	Rate	Total Price
1	Fodder and forage plantation			
2	Labor cost			
3	Vaccine and medicine			
4	Mating cost			
5	Insurance for she-goat			
6	Feed cost			
8	Total			

34. How many goats do you sell in a year? And mention the average selling Price of goat

……..

Production	Household Consumption	Sold	Rate	Amount

35. Where do you sell your goat? Please, specify district and location

District …….. Location ……

36. What % of goats is purchased by the collector, wholesaler, retailer, processor and consumer?

Collector (%)	Wholesaler (%)	Retailer (%)	Processor (%)	Consumer (%)

37. What is the percentage of loss due to disease problems?

……..

38. Have you received any support/ help from any organization?

vii. Yes

viii. No

If yes, please mention the name of the organization and what sorts of help did you receive?

- What is the status of Producer-middleperson relationship in local market hub?
- What can be done to increase the linkage and coordination between goat farmers and market
- How do you manage money and investment in your business?
- How do you transport the goats? What are the problems and opportunity in transportation means?
- Do you get any training related to goat farming and marketing?

  (a) Yes (b) No
- Intervention/activities to promote goat farming and marketing

Questionnaire for Middleperson

Name of the firm …….

Age: ……

Gender: ……

Education:

a) Illiterate b) Literate c) Below SLC d) SLC e) Intermediate f) Bachelor g) Master

Years of experience:

Types of trader: Supplier ( ) Wholesaler ( ) Retailer ( ) Processor ( )

43. Who are your major suppliers?
44. What are the major districts or collection centers you are getting goats from?
45. Who are input suppliers for your business?
46. Who are your buyers and where are they located?
47. What are the services required (transportation, storage, laborers, advisory, and book keeping)?
48. What are the channels of marketing?
49.

Please tell about your goat marketing					
Who do you buy goat from? (1= small farmers, 2= large farmers, 3= collector, 5=Road side traders, 4= local collector agent, 5=others (specify)	Where do you collect goat? (1= from farm gate, 2= from market, 3= from primary collectors, 4= wholesalers, 5= others specify)	Whom do you sell your goat? 1=Wholesaler, 2=Processor, 3=Retailer, 4=Consumer, 5=collection center, others)	Purchase price range of goat (NPR/kg)	Sales price range of goat (NPR/kg)	Please tell about the quantity of goat you sold last years? (kg)

50.

5. How business trend in goat is changing over the last 5 years?(1= increasing 2= decreasing 3= same)	
Please explain the trend. (eg. Why is your business increasing/same /decreasing)	

51. **Where did you buy goats last year?**					
District	Seller	Amount	Price	Methods of payment	Agreement(1=Yes, 0=No)
Methods of payment:1= cash on delivery, 2= on credit, 3=Advance payment, 4= others (specify)					

- How do you transport the goats? What are the problems and opportunity of means of transportation?

(a) Vehicle (b) Cold Storage Vehicle (c) Labor (d) others

- Have you received any training related to goat farming, and marketing?

(a) Yes (b) No

52. **What criteria do you use in determining price of goat? Rank (1=major 4=minor)**				
Quality (grades)	Demand in market	Varieties	Indian market	Others (specify)

53. How do you manage money and Investment for your business?

11.2 **Do you have access to finance? (1=Yes, 2=No)** **If Yes,**	
Source of loan (1=Bank 2=Finance company 3=Groups/Cooperatives 4=Local money lenders 5=others (specify)	

54. **What may be the roles of government to improve the marketing of goat? (rank (1-5) them with scores)**				
Fix the price of goat	Transportation and storage facilities	Training on processing and value addition activities	Develop farming technology	Collect the goats from the farmers

- How many collectors/traders are present in this local market hub? Do you have any association among them?
- Relationship status among collectors, wholesalers and traders.
- Consumers/costumers opinion about quality, price and volume of selling product

- Do you have any quality standards provision for goat trading? If yes what types and how?
- What can be done to increase the linkage and coordination between goat producers, collectors & other traders?
- What can be the value addition activities?
- Intervention/activities to promote goat farming and marketing

55. SWOT Analysis

4. What are the strength, weakness, opportunities and threats in your goat market? Please specify it	
Strength	**Weakness**
Opportunities	**Threats**

Questionnaire for consumer

28) Name of the consumer: …….

29) Age of the consumer ……

30) Gender: 1) Male 2) Female

31) Address: …….

32) From where do you buy the goat?

xv) Wholesaler market

xvi) Retail market

xvii) Farmer

xviii) Haat bazar

xix) Others

33) What do you consider while **purchasing the goat meat**?

i) Price

ii) Freshness

iii) Size

34) Wh**at price do you pay for the goat meat**?

35) What is you**r opinion about the price of goat meat**?

i) Expensive

ii) Moderate

iii) Cheap

36) What type of problems do you encounter in the market?

S.N.	Types of problem	Ranking			
		Very High	High	Medium	Low
1	Higher Price				
2	Lack of cleanliness				
3	Low quality goat				
4	Diseased fish				
5	Lack of availability of fresh goat				
6	Others				

Thank you for your cooperation