1. INTRODUCTION

1.1 BACKGROUND

The Himalayan kingdom of Nepal occupies a large part of Himalaya supporting biologically diverse fish fauna. There are 185 fish species belonging to79 genera, 31 families and 11 orders (Shrestha 2008). A fishery is a small but potentially important sector of Agriculture in Nepal. At present fisheries contribute about (1.7%) of the agriculture gross domestic product (Pradhan and Shrestha 2014).

Nepal has huge fish production potential as it has natural water resources of 8, 10,600 ha including lakes, reservoir, paddy field, ghouls, rivers and ponds. It has 4, 30,000.00 MT fish production in natural water resources. In present status of Nepal, almost 81,701.2 hector coverers artificial fish production area. Including pond, paddy field, ghouls, enclosure, cage, raceway culture, with 52,800.00 MT fish production in artificial covered area (DOFD 2014 Appendix-I).

Nepal has short supply of fish from its domestic production so we are force to import more than 80% of fish from other country mainly, India (Tiwari 2008).

The concept of organized fish marketing in Nepal was developed in 1981/1982(DOFD 2004) with the start of the Aquaculture Development Project. Support services and credit facilities have been extended to the entrepreneurs in the fish marketing business. According to the respondents, the fish marketing system seems to have evolved and is self regulating with increasing production and demand. Though packed fish in ice and chilled fishes are commonly acceptable to the consumer but fresh and healthy fish is preferred by rural local consumer in Nepal. Demand by the urban affluent consumer for processed fish and fishery products is gradually increasing. Therefore, proper management and supply i.e. marketing is necessary.

The growing education and consciousness of the Nepalese people has brought significant change in their consumption pattern, increasing consumption of nutritious food like fishes. Fish is commonly acceptable to all non vegetarian population of Nepal. The consumer in Nepal prefers fresh and healthy fish.

The city stands at an elevation of approximately 1,400 meters (4,600 ft) in the bowl-shaped Kathmandu Valley of central Nepal. It is situated latitude 27^0 43' 0" N and longitude 85^0 19' 0" E, surrounded by four major hills: Shivapuri, Phulchoki, Nagarjun, and Chandragiri. Kathmandu Valley is part of three districts (Kathmandu, Lalitpur, and Bhaktapur), has the highest population density in the country, and is home to about a twelfth of Nepal's population. According to the 2011 census, Kathmandu Metropolitan City has a population of 9,75,453 and measures 49.45 square kilometers.

The present status of fresh ice fish market Kalimati Kathmandu Valley, it is far the biggest one both in volume and value, flooded by frozen and live fish. Statistics on fish sale and supply are not available, but according to the information obtained from fish traders, the daily supply of fresh/ice fish in Kalimati (Kathmandu) more fishes are generally consumed during the festival and wedding season. In order to meet the daily demand of Kathmandu Valley, virtually all fish imported from outside the Valley. It is estimated that 75% of the fresh fish supply which is available in the local market of Kathmandu, Bhaktpur and Lalipur district as much as of is of Indian origin (Adhikary 1993) specially from Andhra Pradesh, Bihar (Mozaffarpur and Raxaul) and Uttar Pradesh. Of this bulk rohu and catla fish are the dominant species.

1.2 MARKETING SYSTEM IN NEPAL

Marketing is the process related with exchange of goods, things, commodity and services i.e. in the broad sense, all the activities to be performed for buying and selling goods. Even after buying and selling are the subjects concerned with market. For marketing fisheries product domestically and for the physical development of markets, infrastructure facilities are most important (Yasmin et al. 2010).

In the last two decades, there has been a land mark movement towards markets liberalization in the world. Fish market is a place where the fishes and fish products of commercial importance are subjected to sale. Regulation of fish production and consumption through sale is known as fish marketing (Shammi and Bhatnagar 2002). Market infrastructure includes wholesale market, retail market and fish retail outlets. However, the most serious marketing difficulties seem to occur in the remote communities which lack transport, ice, poor road facilities and where the farmers are in a particularly weak position in relation to intermediaries (Rahman 1997). In addition, a new marketing chain have settled by the middlemen based on the extreme exploitation of the fish farming communities by setting up an illogical artificial pricing policy through intermediaries at different levels. Fish production plays an important role in the socio-economic life of Nepal. The main source of fishes in Kathmandu fish market is Kalimati.

The fresh/ice fish market is by far the biggest one, both in volume and in value, followed by frozen imports whereas the other products are only minor items (Lofvall 1998).

Physical facilities and infrastructure in all types of fish markets are far from satisfactory (FAO 2001).

In Bangladesh, infrastructure of wholesale and retail fish markets were not adequate, in regard to sale area, packaging, sanitation, water supply, drainage, cleaning, washing, maintenance and repair except very few(Flowara et al. 2012).

In Nepal fish marketing infrastructures have been developed in most cities in the Terai along with agriculture marketing networks. Fish traders at all levels, including wholesalers, middlemen, retailers and vendors on a community and co-operative basis model has been successfully operated for several years and is being assessed with a view to wider application in other areas (DOFD 2004).

1.2.1 FACTORS AFFECTING PRICES

- Elasticity of demand: If demand rises and supply is constant then price rise. If demand rises and supply is constant then price rise.
- The uncertainty supply and demand: If demand is constant and supply falls then price rises. If rise in demand is greater than fall in supply – the price fall and vice versa.
- Type, weight and quality: If weight and quality are directly affected price.
- Location of fish market and Natural disaster also directly affected price.

1.2.2 FISH DISTRIDUTION CHANNELS

The marketing channel (fish distribution) of fish varies in different cities. Generally, the producers sell their product direct through retailers, wholesalers and middlemen. Farmers have three basic options i.e. selling to the consumer at the local market, selling to Indian agent and selling wholesalers through contractors.

The first person in the marketing channel is the fish farmer i.e. fish producer and last is consumer. Lesser the gap between the two, more profit will be achieved by both. Some fish distribution channels are-

Zero level

In this channel, fish collected by contractors from its production site is brought to market and sold.

One level

In this channel, fish collected by retailers from its production site is brought to market and sold.

Two levels

In this channel, fish collected by wholesaler / agent from its production site is brought and sold to retailer. It is long route than level one.

Third level

In this channel, fish collected by agent from its production site and is sold to wholesaler and wholesaler transfers to retailer. Finally retailer sells to consumer.

1.2.3 HYGEINE AT DIFFERENT STAGES OF MARKETING

Hygiene is to be considered as the priority need from the time of collection to the consumer level. It can be categorized as follows:

- ***Working surface****:*

  Should be washed down and brushed thoroughly everyday using water and disinfectant.

- ***Personal cleanliness:***

  Hands should be kept clean and washed scrubbed frequently. Hand gloves should be used. People with cut and damaged hand should not handle fish protective clothing should be kept clean.

- ***Equipment and Tools:***

  Used bucket should be kept clean and off the floor.

- ***Storage:***

  Fish should be kept off the floor and should be kept in boxes with ice if possible.

- ***Boxes:***

  Should be clean and smooth surface. They should be thoroughly cleaned, disinfected and rinsed before use.

- ***Building:***

  Preferably, fish should be handled in covered area with proper flooring that can be easily cleaned. Screens on doors will helps to keep out insects.

1.3. OBJECTIVES OF THE STUDY

1.3.1 GENERAL OBGECTIVE

The general objective of this study is to analyzed fish marketing system and present status in Kalimati fish market.

1.3.2 SPECIFIC OBJECTIVES

1. To know the types of market.

2. To find out different fish species and its price

3. To find out the present marketing problems and facilities.

1.4 JUSTIFICATION OF THE STUDY

This study makes an attempt to study of the present fish marketing management system of Kathmandu. It is a contemporary issue of market management. Fish marketing system as a complex and major issues of present time. In case of Nepal, we show too many market related issues as like in a waste management, management of parking, lack of sufficient fish production, lack of advance technology, unhealthy distributor competition, political instability, water supply, lack of Government supervision, problems of transportation, inputs problem of abroad and so on.

1.5 LIMITATION OF THE STUDY

The study covers in Kalimati, Kathmandu, where the effects of marketing system have been analyzed.

The research had been also for fulfilling in academic objectives of the research.

Paucity of time limits area and limits financial resources.

2. LITERATURE REVIEW

In Nepal, most of the scholars have done research in Fish and Fisheries, but a few scholars have done research related to fish marketing.

In the Nepalese fish production areas, are the local middlemen collecting the fish from the farmers /fishermen. The access to the Kathmandu market is usually via one of the large suppliers. Recently, increased compensation between the groups have been noticed when the Indian based suppliers extended its vertical integration and set up a direct wholesale/retail distribution network in Kathmandu.

Hamilton (1822) was first who gave authentic information about the fishes of Nepal in his monumental work "Fishes of Ganges". In the 19th century a number of other ichthyologist, including Mcclelland (1839), Gunther (1861), Beaven (1877) and Day (1889) studied the fish fauna of Nepal. In the 20th century, Regan (1907) studied seven fish species sent to him by Dr. N. Annadelei, India, out of which five species were reported from Nepal. Hora (1937) studied comparison of the fish fauna of northern and southern faces of the great Himalayan region. Hora (1940) studied ecology, bionomics and evolution of the torrential fish fauna. After (1951) fish and fisheries were studied by number of people, Taft (1955), Dewitt (1962), Menon (1962), Thapa and Rajbanshi (1968), Majpuria and Shrestha (1968), Bhatt (1970) and Atkinson (1974). Shrestha (1978) studied the fish fauna of Nepal are reported 118 fish species. Ferrow (1978) described some limn logical and biological data from the Rara lake. Ferrow (1980-81) gave a list of 120 species in his book "Wild Life of Nepal".

Edds (1985) compiled a list of eight new records of fish previously not recorded from Nepal. Some studies on different aspects fish markets, different types of fishes sold in village markets and Kathmandu markets had been described by Shrestha (1994) in 'Fishes fishing implements and methods of Nepal'.

Smith, Bhandri and Sapkota (1996) studied aquatics biodiversity in the Karnali and Narayani river basins of Nepal.

Panth (1997) described the fish and its market management techniques in Nepal. Panth and Gubhaju (1997) studied fish marketing and Post harvesting management. Singh

(1997) have studied on potential market. Swar, Pradhan and Lofvall (1997) have mentioned role of fisheries and aquaculture in the economic development of Rural Nepal.

Shrestha (1998) described status of fish species in Nepal enumerated 185 indigenous fish found in Nepal

NIAM (1998) submitted the document that explains the present market study aims at stimulating market driven intensification & diversification production to pave way to seek better quality of life for farmers and consumers of the state.

Dahal (1998) studied on fresh fish marketing in Kathmandu Valley. Semi structured interviews were conducted with individuals and organizations and a day workshop on fish trading in Kathmandu valley was organized. Shrestha (1998) described status of 185 indigenous fish species in Nepal. Panth (1998) studied the fish preservation and its marketing.

Lofvall (1998) Finding reveals that the condition for operating the market may be change over time and development should be monitored so that management can adjust accordingly

Murray et al. (1998) study reveals poverty alleviation focus on rural aquaculture or fisheries development typically stress the potential of increased fish production to sustain and enhance food security and for income generation. In the absence of organized fish marketing system and infrastructure, the fish farmers and its marketing system are affected as well, which is shown in the study of fish market study in the different countries

Joshi and Tiwari (1999) studied the present fish marketing system and potentiality for improvement.

Matsuda (2000) Modern marketing and trade include commercialization of cultured species, fish paste, canned fish, frozen/fresh/live fish, fish oil/fish meal/fertilizer, and potential resource species.

Wagle, Gurung and Sharma (2001) described indigenous fishes and their contribution in rural livelihoods in Nepal. Khanna (2001) described fish preservation and processing. Gubhaju (2001) studied the strategies for the conservation of fish in Nepal. Kleih (2003)

submitted a guide to the analysis of fish marketing systems using a combination of sub-sector analysis and the sustainable livelihoods approach.

Gurung and Bista (2003) described indigenous fishes and their contribution in rural livelihoods in Nepal. Bishnoi (2005) Wholesalers keep the record of fish demand in the market and accordingly, they set the price.

Sah (2005) described fish production and marketing system in Dhanusha district of Nepal. Dey and Prein (2006) studied on improving fish marketing system in the selected Terai district of Nepal. Rijal (2007) studies the fish marketing systems, food and ornamental fishes of Kathmandu. The study report showed that the market of captured and cultivated fish is growing in the country annually.

Rai, Clauseu and Funge-Smith (2008) conducted the study of FAO Regional office for Asia & the pacific was requested to conduct a review of the development potential for fisheries and aquaculture in Nepal. Shrivastva (2008) studied on fish and fishery resources in Dhanusha district.

Kumar et al. (2008) the infrastructure facilities at most of the surveyed landing centers, fishing harbors and wholesale and retail markets have been found grossly inadequate and poorly maintained.

Tiwari (2009) studied quality and marketing of fresh fish in Kathmandu Valley of Nepal. Dhami and Dhami (2009) described the fish marketing and its management. Chalise (2009) described the assessment of fish diversity and catch of Indravati River and its impacts on livelihoods of fisherman.

Asaduzzaman et al. (2010) higher production cost, transport cost, unhygienic market place, lack of sanitary facilities, poor ice-supply, and exploitation by the middlemen, lack of capital and the political disturbances were the common constraints of the fish marketing.

Alam et al. (2010) study on fish marketing in Swarighat, Dhaka, Bangladesh described market chain from producers to retailers goes onward through a number of intermediaries: traders, broker, aratdars, wholesalers, mahajans, and dadondars. Market structure, species quality, size and weight have an influence on the price of fish and it was obtained from

the survey that the price of fish increases per kilogram with size and species wise. A great amount of profit is made by all traders in the market in a successful manner.

Ayo-Olausi and Anyanwa (2010) Major problems faced by the marketers were erratic supply of electricity, inadequate cold storage facilities and stalls to display the fish products.

Shilpi (2010) and Gandha (2012) have described fish marketing system in Dhanusha district stating still stronger marketing strategies have to be made for the flourish of this industry. According to them fish marketing system in Dhanusha district is in improving way.

Nwabueze and Nwabueze (2010) paper recommends the creation of enabling environment to encourage more people to go into aquaculture in order to beat the problem of seasonality in fish supply.

Madugu and Edward (2011) marketing of processed fish is a lucrative business in the study area if well -managed and distributed. There is a need for the formation of a strong co-operative society by marketers so as to ease the problem of capital and loan acquisition from finance institutions.

Flowra (2012) studies the fish marketing system and socio-economic status of Aratdars in Natore and Rajshahi, Bangladesh explained marketing provides the channel of communication between the producers and consumers which passes through a number of intermediaries: farias, beparies, retailers, and aratdars. Have reported that the marketing system can improved by the proper coordination of producers, middleman, retailer and consumers studied the infrastructure of fish markets were not good but improving in regular pathway.

Jamali et al. (2013) a number of constraints during fish marketing were reported by traders including higher transport cost, poor road communication and transport facilities, poor supply of ice, and exploitation by middlemen. In spite of socio-economic constraints, most of the household's of the traders (80%) have improved their status through fish marketing activities.

Jha (2013) had been reported 33 species of fishes from different of Janakpur. Poudel (2014) had been recorded 27 species of fishes from different market of the Rupandehi District.

Chourey et al. (2013) mention their report Fish marketing system in Bhopal, the growth of fish production and development of fishery sector is highly dependent on an efficient fish marketing system. More efficient is the marketing channel more sustainable is the trade third level.

Okeoghene (2013) had described recommended that major constraints like poor storage/preservation, inadequate capital and marketing costs should be tackled to improve the efficiency of marketing system of frozen fish in the State. Fish traders at all levels from producers to collectors/local middlemen to suppliers and wholesalers to retailers and vendors have developed and operates through organized marketing networks. From the findings, marketing of fish were carried out by females, most of the respondents are in the economically active age group and are mostly married; they have a lot of experience in the business, majority of them are retailers selling less than four cartons of fish on daily basis and most of them have formal education. Assessment of marketing of frozen fish in Nigeria.

Sheikh (2014) the study reveals that the problems of fish seller during marketing time, Prawn and fish marketing system in Tehsil-Sironcha, Gadichiroli India.

Baba and Sanchi (2015) there was significant difference between the retail price and the river bank price of fresh fish in the study area. It could be concluded that fresh fish marketing in the study area was profitable and that fresh fish marketing in the study area was inefficient.

3. MATERIALS AND METHODS

3.1 STUDY AREA

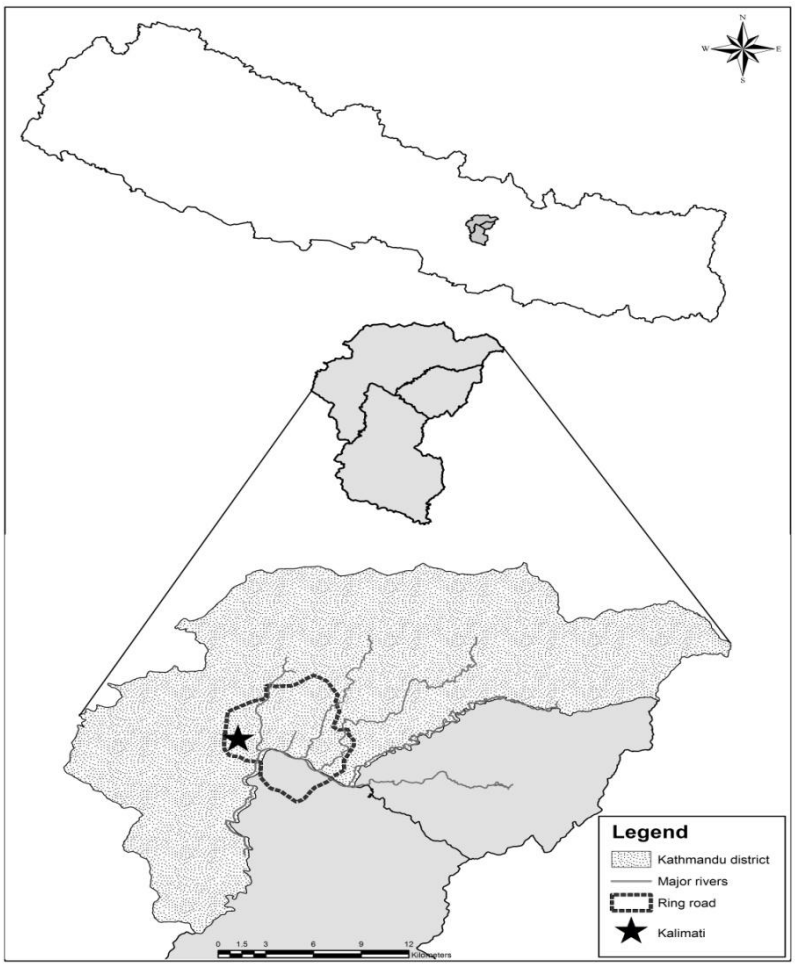

Fig: 1 Map of Nepal showing the location Kathmandu Valley in study area Kalimati.

The study was carried out in the Kalimati, Kathmandu. Kalimati is the largest Fish market of Nepal. Kathmandu is the only city of Nepal with the administrative status of Metropolitan City, as compared to Sub-Metropolitan City. Kathmandu is the core of Nepal largest urban agglomeration located in the Kathmandu Valley consisting of total 21 municipalities. In the Kathmandu Valley, which is representative of its valley's climate, the average summer temperature varies from 28–30 °C (82–86 °F). The average winter temperature is 10.1 °C (50.2 °F).Rainfall has been recorded at about 1,400 millimeters (55.1 in) for the Kathmandu Valley, and averages 1,407 millimeters (55.4 in) for the city of Kathmandu.

3.2 STUDY PERIOD

The research work was conducted in the study area from April 2014 to March 2015, during which field was visited.

3.3 METHODS OF DATA COLLECTION

Field surveys were used for the collection of primary data from the respondents. For the confirmation of the secondary data, primary data was used. The study area was visited to check on standards in term of fish distribution and marketing information. By using questionnaire interviews and direct observations, primary data were gathered for this survey as well as the secondary data were gathered in books, journals, articles, thesis and e-library. The fishes of this area were identified by using different keys and photographs (Shrestha 2008).

The 26 fish trader was carefully chosen as the most suitable in the study area through careful inspection for the questionnaire interviews (Appendix-III). Questionnaire was examined in the field before interviews. Information about fish marketing channels, price of fishes, trading actions, constrains of fish marketing and traders are the consequences of the interviews. From the appropriate government and non-government organizations such as Director of Fisheries Development (DOFD).

3.4 DATA PROCESSING AND ANALYSIS

The using Data processing and analysis were done by different computer software like, Microsoft Excel data from different relevant sources were coded and, recorded into a database system. To make certain the accuracy of the data recorded at each stage of the survey, similarity between preparatory data sheets and the original coding sheets were assessed, accuracy and quality of the data were examined up, edited and coded at the field level.

4. RESULTS

4.1 FISH MARKET TYPES IN KATHMANDU VALLEY

Kalimati Fruits and Vegetables Market Development Board, Kathmandu centre has developed a fish marketing infrastructure that includes chilled, refrigerated and icing facilities. However, monitoring of this is done at random by the Municipality, Consumer's forum, Department of Food Technology and Quality Control.

Female though it was seen mostly men were involved in the market but the females were also seen to take keen participation.

Active participation in fresh fish marketing and distribution was found to be higher in average 42 years of age. The Kalimati fresh fish marketers are able-bodied and prepared to undergo the stress associated with the marketing and distribution of fresh fish. Few of the respondent, had no formal education while most had primary education, more of the retailer-respondents had 6/10 and 11/20 years of experience on the job. The wholesaler-respondents had higher years of experience of between 6–10 years and 11–20 years on the job.

Kalimati fish market is one of the permanent and huge fish markets were wholesale and retail shop are available.

4.1.1 PERMANANT BAZAAR

Fish markets are located at different places in Kathmandu. In Kalimati wholesale fish market and fish collection centre. Fish markets are along with vegetable market. This bazaar is seen in everyday throughout the year. From Kalimati, it is sold to other two permanent bazaar in Kathmandu namely, Khichapokhari and Balkhu bazaar.

Nowadays the new concept is developed for live fish trade centre (fish market in Balkhu). In Balkhu three live fish trade centre are opened. The aim of these markets is to provide fresh and live fishes to consumer and also they have started to supply in restaurants (hotels) to give extra facilities.

4.1.1.1 Wholesaler

The wholesalers buy fish in bulk from auctioneers and sell it to retailers or other traders. Some value addition is carried out by the wholesalers in terms of categorization, grading, cleaning, icing and packing fish before sale. Exact information on the marketing margin of wholesalers is not available. They usually know the demand of species outside markets and are aware of average trend of daily fish catches at the landing centers. In the case of farmed fish, a wholesaler acts as a commission agent to whom the fisherman sells his produce. The wholesaler assumes the risk of selling the fish and therefore keeps a higher margin as compared to auctioneers. Ice and transportation form the largest share of the wholesaler's costs (Table No.1).

4.1.1.2 Retailer

The retailers sell the fish directly to consumers. They have the assessment of local demand and limitations of their purchasing power. Maximum value addition to fish happens with the retailers. The retailer grade, clean, ice, pack, display and dress fish for the consumers. Retailers mainly buy fish from the wholesaler, but in several cases, groups of retailers have been found participating in the auction process for buying fish directly from the auctioneer. Retailers keep a marketing margin of about 20 per cent, though a lot of variation across the country. Labor forms the largest share of the retailer's costs. The prices depend on variations in the supply and demand (Table No.2).

4.1.2 TEMPORARAY BAZAAR

These types of bazaar seen in urban centers of the Valley, small retailers moving on foot or bicycle, but cannot be seen in Kalimati. Vendor get fish in Kalimati fish market.

4.1.2.1 Vendor

Most vendors being mobile sell fish directly at the consumer's doorstep. Vendors also carry out value addition by sorting, grading, cleaning and icing fish. They participate in auction directly in some of the part of Valley. They are forced to sell all the produce on a given day, as they don't have the capacity to hold or preserve the fish. The major costs depends to vendors are on ice and transportation.

There are number of other fixed retail outlet in the urban center of Valley, Retailing takes place through small retailers moving on foot or bicycle. These sellers get their fish from the Kalimati Fruit and Vegetable Market wholesaler at a rate of 15-20 kg and move around the city to find their customers. Some of them are not full time fish sellers but would sell other products as well depending on what available for the day.

4.2 PRESENT STATUS OF FISH MARKETING

The Kalimati fish market covers of a few rather distinct segments:

- Frozen marine fish imports from India, in particular white fish fillets and shrimps.
- Fresh fish consisting mainly if carp from pond culture but also some river fish and small amount of Indian marine fish.
- Live fish are imported from India and also from Bara and Chitwan in Nepal.

Fish seller belonged to different castes and social groups of Kathmandu Valley but, people who have originated from Terai have a traditional bigger group of consumers than the other groups. The incoming groups buying fish (in local market) is generally from lower-middle class being able to afford. Restaurants and hotels also buy fish but most of fish is consumed directly by the household.

Table No.1: 2071 Import Based on Monthly Kalimati Fruit and Vegetable Market Fresh Fish Annual Wholesale Price (14 April 2014 - 13 April 2015)

S.N.	Month	Weight in Kg.	Price/Kg. (Rs.)		
			Minimum	Maximum	Average
1	Baisakh	5,52,000	200	220	210
2	Jesth	4,61,420	200	220	210
3	Ashad	2,83,000	210	220	215
4	Sawan	2,38,000	210	220	215
5	Bhadra	2,34,000	220	230	225
6	Asoj	3,04,000	200	230	225
7	Kartik	2,44,600	220	240	230
8	Mangsir	4,20,000	200	230	215
9	Paush	3,33,500	210	220	215
10	Magh	3,84,500	200	220	210
11	Faglun	3,20,000	200	230	215
12	Chaitra	3,90,500	210	220	215
13	Total	41,65,520	200	240	216.66

(Source: Kalimati Fruit and Vegetable Market Annual Report 2071)

4.3 FISH SPECIES FOUND IN KALIMATI MARKET

Table No.2: Wholesale and Retail price of the Kalimati fish market with different species

S.N.	Name of fish		Price of fish (kg.)		
	Scientific name	Local name	Wholesale	Retail	Average
1	*Aristichthys nobilis*	Bighead	280	350	315
2	*Aorichthys aor*	Kant	500	600	550
3	*Catla catla*	Bakura	250	300	275
4	*Channa punctatus*	Garai	250	300	275
5	*Channa striatus*	Saura	300	400	350
6	*Cirrhinus mrigala*	Naini	220	250	235
7	*Clarias btrachus*	Magur	180	230	205
8	*Clupisoma montana*	Gura	300	350	325
9	*Ctenopharyngo idella*	Grass carp	300	350	325
10	*Cyprinus carpio*	Common carp	250	300	275
11	*Heteropneuste fossilis*	Shinghi	900	1000	950
12	*Hypophthalmichtys molitrix*	Sliver carp	220	250	235
13	*Labeo rohita*	Rohu	220	250	235
14	*Macroganathus aral*	Gaichi	400	500	450
15	*Mystus seenghala*	Kati	500	600	550
16	*Oreochromis mossambicua*	Tilapia	250	300	275
17	*Oxygaster bacaila*	Chelhwa	250	300	275
18	*Pangasius pangasius*	Jalkapoor	220	250	235
19	*Puntius sophore*	Pothi	400	450	425
20	*Wallago attu*	Buhari	350	400	375
21	*Xenentodon cancila*	Chuchhe bam	600	700	650

(Source: Kalimati fish retailer's traders)

4.4 FACILITIES FOUND IN KATHMANDU VALLEY

4.4.1 ROAD FACILITIES

Road facilities are good in Kathmandu Valley.

4.4.2 TRANSPORT FACILITIES

Different mode of transportation used for distribution of fish and fishery products of which the distribution by foot and bicycle are the most popular. Other vehicles used for carrying the fishes are motorcycle, public passenger transport, bus and jeep.

Indian carp is packed in the ice immediately after harvest at the pond in Andhra Pradesh from the pond, the fish is taken to a packing center, it is washed and again packed in ice at a ratio of 70% fish and 30% ice in thermoplastic boxes, it is commonly use all over the world. The top of the box is covered with a thermoplastic film. The boxes sizes are about 60×40×40 cm. boxes are loaded onto a truck. The cargo is thereafter covered by a tarpaulin. The trucks are commonly Tata cargo trucks. The fish boxes arrives from Andhra Pradesh to Mozaffarpur after a journey of about 3 days, appeared to be in very good condition. Mozaffarpur is a major city in a North India state Bihar and is situated some four hours by road from the Nepalese border. Through Mozaffarpur, being a center for fish distribution for North India and a large part of it would transit Raxaul, border town with Nepal(Birgung) then reaches Kathmandu the Mozaffarpu and Gorakhpur fish is reloaded for Kathmandu. Generally into smaller trucks one truck taking 100-124 boxes corresponding to 4-4.9 MT. One box containing 40 kg of fish. The same types of packing takes place in case of delay i.e. strike and natural disaster toward Kathmandu. The transport time for Mozaffarpu to Kathmandu is 22-24 hours and from Raxaul to Kathmandu 8-10 hours, altogether the transport take some 5 days from Andhra Pradesh to Kathmandu. The fish once arrives in Kalimati, fish is delivered to the buyers /wholesaler immediately, in case of non delivered stock, it remain in truck, acting as store space or kept in non-insulated store room for distribution the coming day. The ice is purchased and added as necessary. Nepalese fish production areas a like rarely transport by truck but is more commonly sent by night bus or mini tempo. Fish is usually packed in thermoplastic boxes using ice for chilling and large leaves or jute for protection. According to the consultant's experience, the packing often takes place on the ground under the less

desirable condition from a hygiene point of view. The ice and fish ratio varies depending on the season and use of ice is only at the pond site. Most of fishes comes from to the market center in Janakpur and Biratnagar, and is only kept in ice when it is decided that the fish is to be sent to Kathmandu. In the town ice is available but may be difficult to obtain for farmers living in isolated areas.4- 6 MT/day fishes arrives in Kathmandu at the Kalimati fish market and there goods are transported by small four wheeler or light pick up. But nowadays requirement is 11.41 MT/day (kalimati annual report 2071).

4.4.3 UTENSILS USED IN FISH TRANSPORT

Fishermen use aluminum utensil (locally known as hundies) and plastic boxes are mostly used for taking the fish to the market. They cover these vessels with clothes or plastic and tie it with the rope.

4.4.4 PRESERVATION FACILITIES

Mostly fresh fishes are sold in fish markets and remaining fishes are preserved in ice for next day in freezer. The usual fish preservation is by smoking or sun drying. There is no fish processing factory and fish cold storage yet in Nepal. The ratio of fish to ice is 1:1 in summer and winter 3:1 it is depend upon season.

4.5 SELLING METHODS

Marketing channel (fish distribution) is more important for selling method. It is depending upon the kind and quality of fish market, ability to use marketing services and the prevailing social and physical environment. In Kalimati fish market, the marketing channel third level in this level fish collected by the agent from production sites and sold to wholesaler and wholesaler transfer to retail traders. Finally retailer sells to consumers.

Fishmongers use to sell fish placing it on plastic sheets there shops to sell fish. Mobile seller are placing Bamboo basket. Fishes that are brought to the fish market by contractor or fishermen are sold to wholesalers. The wholesalers sell fish to the local fishmongers or export it to other part of the country.

4.6 ANNUAL FISH PRODUCTION

In Nepal the annual fish production has shows increment. Data shows in fish production was 39, 947 MT, in 2010/2011 was 52, 450 MT, in 2012/2013 production was 57, 500 MT and 2013/2014 production was 64,900 MT. The annuals production growth rate of Nepal 2009-2014 average percentage is 6.37 (Appendix-II).

4.7 IMPORT OF FISH

The year 2071 total production of Nepal (64,900MT)was supply only 2 percent in Kalimati(1,030.92MT).

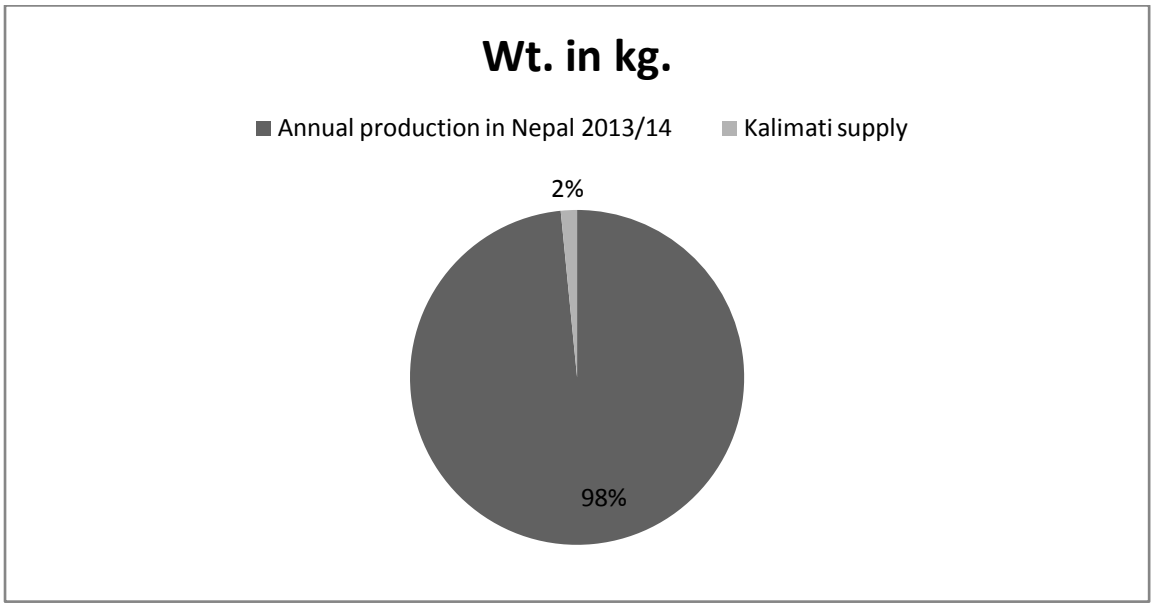

Fig: 2 Supply in Kalimati

The Kalimati fish market in 2071 (2014), imports 75 percent of fish from India and 25 percent from different parts of Nepal. Price of wholesale growth rate is 0.60% (Table No.1).

The annual import growth amount average percentage was (10.38) of Kalimati 2061-2071B.S. But in the year 2064 and 2068 were negative average value and annul average price was 5.51 (Appendix-IV).

4.8 OTHER FISH PRODUCTS

4.8.1 Dried fish

As feed as sold in the present Kalimati wholesale market. The products imports from various places in India (mostly in Calcutta) are sold to poultry and pig farmers. In addition, many feed factories import dried fish directly.

4.9 COST PRICE OF FISHES

4.9.1 Rate of fishes in Kalimati Wholesale market, 2071

Rate of the fishes varied in different fish market but tentatively maximum rate of fishes. Minimum rate of fishes and average rate of fishes which is shown in (Table No.1 & 2).

4.10 FISH INSURANCE AND LEGISLATION

According to insurance law 2069, section 8 (Gha-2) which was effective from Magh 1, 2069 the insurance committee has directed the structure and system of fish insurance. According to the provision in law Government of Nepal will invest 50% of insurance amount.

Conservation of aquatic life is addressed by the Aquatic Animal Protection act (AAPA) (1961), which prohibits the use of explosive or poisonous substances in anybody of water with the intension to catch or kill aquatic life. This act has been revised by the parliament and consolidated in 1999 A.D.

Because of fish insurance and legislation the peoples have more attraction towards the fisheries sector.

4.11 SUPPLY

The fish transport, Lalitpur, Bhaktpur, Hetauda, Pokhara, Kavre- Palanchok, Dolakha, Nuwakot and other part of Kathmandu Valley.

4.12 MARKETING PROBLEMS

They encountered a variety of marketing problems such as, poor communication, high transportation cost, low price of fish, financial hardship, higher market tolls and lack of marketing facilities such as, electric supply, water supply, drainage facilities and the law order situation.

Winter season(Mansir- Falgun) is the most useful season in case of fresh fish in compare it on rainy season, due to the different types of Hindus religion's festival, Wedding and other types of parties. This periods more possibility to increase the price of fresh fish.

Wholesaler was interviewed they that daily supply of fresh fish boxes one box containing 40 kg (8000/-).Labor were required for ice braking and grinding, packing and shifting one place to another. Aluminum pot (Hundies) were used for temporary storing which was available to minimum of Rs. 3000/- .

The price and quantities of fish fluctuated day to day.

Customer was not fixed but wholesale customers are regular.

There was no law and order in the fish marketing. Credit was not paid in timely.

They are also providing service for customer demand.

Competitions: By growing up population density, fish selling competition also increase then the price rise down.

Waste management: Presence of garbage and sewages were not managed and caused environment degradation like soul smell.

Water supply is required to clean the fish and shop.

Transportations: It takes long route to reach the market which might invite the risks of different types of diseases.

Police: Goods are passed or enters in borders the Police demand the bribe money.

Strike: Very often which hold the goods and capital.

According to the president of Kalimati Machha bazaar samiti "to which every person of traders associate by this samiti and take the membership. If there was any problem seen in

fish marketing, president would call the all member meeting and solve their problem, related to fish market and marketing.

4.13 FISH CONSUMPTION TREND

Food of fish is popularly increased in many households. The most interesting trend is the change in feeding habits of households, with many vegetarian and non-vegetarian families, due to health ground. Many Brahmin approx. 25% households consume fish which were strictly vegetarian traditionally, due to the knowledge of nutrition, availability, taste and price about fish.

5. DISSCUSIONS

5.1 OPRETATION AND STRUCTURE OF DISTRIBUTION NETWORK

Traders in fresh fish together with the increasing fish coming to Kathmandu Andhra Pradesh during last 27 or so years, a change in the distribution chain structure of the Kathmandu Valley fish market. Today the market is dominant by three major suppliers. Ram Babu Yadav, Dilip Yadav, Shahan Muslim, is base in India and acts as a broker for large fisheries companies in Andhra Pradesh for sales of pond cultured carp in the whole of the north India, particular in Bihar and in Nepal. Now operates through direct sales agents in Kathmandu. The sale operations were made through a Nepalese middleman from Birgung or through his partners. The other dominant supplier in the market and deal with both Indian and Nepalese fish. There are a number of smaller/wholesaler having direct contact with the middle man in the various production and market area the consultant that the company on an average sends truck load to Kathmandu every day (1 truck 4-4.9 MT). Regard to the sales structure of the industry important Indian fish. The fish from Andhra Pradesh is usually sold direct by the Indian fisheries company in Kathmandu remunerating broker and sales agents /wholesaler on a commission basis. The trade appears extremely well organized with financially powerful and professional companies working on contract basis with large fish farmers. Supplies are regular, stable and of uniform quality. There are many main companies in Andhra Pradesh supplies the Kathmandu market.

Fresh fish is in high demand nowadays in Nepal due to low risk, short time high productivity with little investment compared to other animals like Chicken, Goat and Buff. Fishes are also high source of nutrient (Lofvall 1998).

The fish incoming in Kalimati is packed in ice; there are an important difference types and quality of the packing depending on the origin of the product. The system of labeling/certification of product safety of fish and fishery products have yet not been well developed.

If fish is packed in ice properly, which seem to be the case it should usually hold for 10-15 days. According to Huss 1995. Self life for tropical carp in ice could be as much as 16-21 days.

The fishermen suggested that the law and order in the fish market should be maintained and credit should be supplied in timely, which was followed by suggestions such as, market tolls should be fixed, immediate sale of fish, improvement of roads and communication facilities and timely supply of equipment. Of course this is the common scenario of fish markets in others countries like Bangladesh which calls for immediate improvement.

According to respondents, major sources of fresh fish are rivers, lakes and ponds. These are regular sources that are not reliable due to seasonality and the fact that fishermen cannot rightly predict their cash. The more reliable sources are cultured ponds and wild ponds which are few in the study area. These factors contribute to scarcity and high cost of fish. Also, there is considerable need to preserve unsold fish. Transportation was observed to be a major problem in fish marketing and distribution in the study area.

As most fresh fish sellers travelled by road - some of the roads are bush tracks while others are tarred but in a state of disrepair. This reduces the volume of traffic on the roads and raises the cost of transporting fish. Furthermore, the fish are transported in large, wide and round containers, which make it difficult for the containers to be loaded into vehicles used. Only special vehicles can conveniently accommodate these containers because of their unique shapes and sizes. This adds to the inconvenience of transporting the fish. Participation by female fish marketing and distribution was seen and similar finding was reported by (Aihonsu et al. 2007). In which place as more female were involved in marketing so other members of the family were free to go for other types of works. As this trades was depended directly on season so it can be taken as side- business also for those who do not want to involved fulltime. Education and years of experience had been found to have positive influence on choice and management of business (Ebe 2007). Most of the respondents were self sponsored as many of them complained of not having any form of assistance and did not know how to go about obtaining loans from credit facilities. Income margin per month was observed to be low. This low income could be attributed to the many constraints especially transportation of fresh fish to sale outlets. Other constraints were inability to access loans, and the presence of middlemen in

the distribution of fresh fish which have resulted in the unstable price and high cost of fish in the study area.

However, the middlemen who have settled new marketing chain have imposed serious marketing difficulties to the farmers particularly in a weak position (Rahman 1997) by exploitation the fish farming communities and setting up an illogical artificial pricing policy. As a result dissatisfaction to consumers, farmers, fishers and poor traders occur due to high marketing margin.

The prices usually fluctuated seasonally due to variations in the supply and demand (Shang 1981). The consumers' acceptance and price levels of the market are major factors that determine economics viability in many situations (Sadanandan et al. 1992).

The fisheries sector can be recognized as a powerful income generator as it stimulates growth of a number of subsidiary industries and is a source of cheap and nutritious food (Chaurey et al. 2014). It is also an important source of income and employment to millions of rural farmers particularly women where education was negligible and experience was countable.

The growth of fish production and development of fishery sector is highly dependent on an efficient fish marketing system. Considering the current structure of the fish marketing system in Kathmandu Valley, it appears that the "New Kalimati Market" can play an important role in establishing a more efficient market for fresh /iced fish, with regard to available quantities, quality and cost, to the benefit of producer, trader and consumers.

In addition a number of other retailers in the urban center in the Valley take place through small retailers moving on the foot or Bicycle. These sellers get their provision from the above mentioned wholesalers at a rate of 15-20 kg. Per person and day and move around the city to find their customer. Some of these are not full time fish sellers but would sell other products as well depending on what is available for a day. It is estimated that there are at least some 200 of these mobile retailers in Kathmandu Valley (AG: DP/NEP/91/035 Technical Report 1998).

Many of the traders are of traditional fisherman caste, e.g. Shahini. Most appear to be Nepalese nationals but from the Tarai-region the border area with India. It is difficult to distinguish between the two nationalities. Women are involved in fish trade in Kathmandu. In fact, the only professional woman the consultant meets during the

research work was the wife of one of the wholesales/retailers in Kalimati, Balkhu who operated the business together with her husband.

The rate of fishes in temporary fish market is lower than that of permanent fish market, because the permanent fish market lies in fixed where as temporary market is not fixed. The stock fishes are affected by means of transportation for next market in next places and may be changes the quality of freshness. Therefore, the fishermen sold their goods in cheaper prices. In permanent fish market the transportation is not affected by next bazaar and as possible to keep for maximum freshness, Hence the rate of fishes are constant as much as possible.

5.2 ANALYSIS

Fisheries sector shows both strength and weakness in business. Following some strength and weakness of this sectors are:

5.2.1 Strength

- Increase in knowledge about nutritional value of fish among people.
- Increase the demand of fish in the market (growing consumer number).
- Fish market insurance should be provided by the Government of Nepal
- High price of goat meat.
- Fear of bird flu.
- Aquaculture development has followed an encouraging path in Nepal.
- Building shops for fish markets.

5.2.2 Weakness

- Transportation facilities not assured.
- Lack of knowledge about hygiene maintenance in the fish market i.e. disposal of wastes.
- Unstable government policies.
- Big margin between the pieces of producers and traders.
- Input of the Indian fishes in low cost reduces local fish demand.
- There are no rules regulations of public ponds in tender processing.

The practice of poisoning the fish due to personal differences the major production of the fish is affected. Therefore, the major focus of the country is on the development of the marketing system for the fishes, which has been imported from the neighboring countries. So it becomes the priority to check this problem and increase the local fish production with its proper marketing strategies.

The EU percentage of production of the world total (3, 4% in 2011) has been steadily declining since 2005 (4, 5%). As a matter of fact, the EU occupies fifth place in the fish production ranking after China, Indonesia, India and Peru. As concerns aquaculture production, it accounts for 1, 24 million tones, covering only 1, 5% of the total and ranking sixth (Apeendix-No.VII).

6. CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

Nepalese fish, there are a number of middleman involving in Kathmandu trade in each production area. For example, both in Janakpur and Biratnagar there appears traders sending fish to capital regular, middleman usually buy the fish directly farmers or fisherman

This study has shown that cultured fish sale the most regular and reliable source of fresh fish in the area. Though fresh fish supply from rivers and lake, India are more, supply is regular.

Basically all wholesalers also operate as retailers and have shop in Kalimati, Kichapokhari and Balkhu. Kalimati is the most important zone with currently 26 shops wholesale/retail, where only 3 shops are main fish distributors. In Balkhu and Kichapokhari, 3, 6 shops respectively. Giving a total number these types of combined wholesale/retail outlets in Kathmandu of 20-25 kg. Sales per trader.

The new fish market, live fish trade centre / live fish markets are totally different in rate, supply and quality of fishes. The live fish markets are new markets. There are immediately opened in all over the country. The aims of these markets are live fishes reaches to the kitchen table of consumer instead of dead and preserved fishes.

The difference of live fish markets and other fish markets were affected by means of rate, supply and quality. In live fish markets the rate of fishes are greater than that of other-fish markets including extra charges like oxygen cylinder, water tank and use of skilled man power to reach in market. Live fishes are not easy to sell in market, it is not sold everywhere, and the fish market is proper management with oxygenated water in building and management with suitable environment (hot & cold). The live fishes plays key role to remove the uses of formalin in fishes for preservation. According to the fisherman, supply of live fishes are lesser than that of dead fishes, i.e. in average supply approx 30kg in live fish market because the main problem is communication which is not developed / lack in the knowledge of live fishes trade and lower economic condition has also not encouraged

the live fish trade. The formalin used Indian fishes are available in low cost prices in the fish markets.

If proper hygienic measures are not adopted during the process like cleaning, gutting, more harmed would be resulting to the preserved material owing to increase the microbial population.

- Incomplete preservation leads to decarbo-oylation of flesh amino acid i.e. histidine to histamine. The histamine and other related substances collectively named saurine are the common causes of fish poisoning (Srivastava 1999)
- Empowering the traditional fishermen who are till now capable of fishing and increase production.
- Promoting conservation and management aquatic resources and genetic diversity.
- Increasing fish production through integrated approach to capture fishery and culture fishery.
- Improved marketing network and promoting fishery industry with a view to generating more job opportunities for the people and improving socio-economic condition of traditional fishermen for improving rural economy.
- Targeting an increase in per capita consumption.

6.2 RECOMMENDATIONS

Government should therefore create a more enabling environment for more people to go into aquaculture so as to beat the seasonality of fresh fish supply. Due to inadequate and high cost of fish preservation/storage in the area. Fish smoking can be achieved by using cheaper alternatives of fuel such as rice husks, wood wastes and maize cobs as substitutes for wood. The government should open up more roads and intensify efforts on the maintenance of existing roads. Research efforts should be directed more toward producing better- shaped containers that will ease the transportation of fish. Recommend marketers should from a strong co-operative society there is also need for providing license to increasing the production and marketing .

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8. PHOTOPLATE

Photo: 1 Showing Kalimati Market main gate Photo: 2 fully loaded Fish boxes in Truck

Photo: 3 Labor's are offloading the Truck photo: 4 Fish boxes shift in storage room

Photo: 5 Fish stall in Kalimati Photo: 6 *Labeo rohita*

Photo: 7 *Mystus seenghala* and *Aristichthys nobilis* Photo: 8*Macrognathus aral*

Photo: 9*Clupisoma mantana* photo: 10*Pangasius pangasius*

Photo: 11 Interview with Shopkeeper Photo: 12 Personal interviews with wholesaler

9. APPENDICES

Appendix-I: Estimated water surface area in Nepal

Resources	Estimated Area (ha)	Percentage (%)
Natural water	4,01,500	49.14
Rivers	3,95,000	48.34
Lakes	5,000	0.61
Reservoirs	1,500	0.18
Village Ponds	6,500	0.80
Marginal swamps	11,100	1.36
Irrigated rice fields	3,98,000	48.71
Total	8,17,100	100

(Source: Directorate of Fisheries Development, 2011)

Appendix-II: Annual fish production in Nepal

Year	MT	Average%
2009/2010	49,730	
2010/2011	52,450	5.18
2011/2012	56,000	6.33
2012/2013	57,500	2.60
2013/2014	64,900	11.40

MT= Metric Ton (Source: DOFD, Department of fisheries development)

Appendix-III: the main distributer list of Name of Kalimati Fruits and Vegetables Markets Development Board Kathmandu, Nepal

S. N.	Trader Name	Shop No.
1	Ram Babu Yadav	KFM001
2	Kasheshowr Rudrawar Yadav	KFM004
3	Mohmad Mumtaj Alam	KFM005
4	Mohmad Yashin	KFM006
5	Deep Narayan Yadav	KFM007
6	Mohmad Mjlum Yadav	KFM008
7	Bhuban Manandhar	KFM009
8	Ishwor Chandra Pd. Shah	KFM010
9	Yogendra Shah Teli	KFM011
10	Shahdev Sahani	KFM012
11	Narendra K. Yadav	KFM013
12	Dinesh Yadav	KFM014
13	Upendra Gami	KFM015
14	Mohmad Junaid	KFM016
15	Raj Kumar KC	KFM017
16	Mahi Narayan Yadav	KFM018
17	Md. Israfil Kabari	KFM019
18	Badri Yadav	KFM020
19	Raj kumar Shah Kalwar	KFM021
20	Shree Narayan Yadav	KFM022
21	Krishna Khadki	KFM023
22	Taiyab Miya	KFM024
23	Saroj Kapali	KFM025
24	Suresh Yadav	KFM026
25	Nazir Miya	KFM027
26	Butha Thoki Cold Store	KFM028

Appendix-IV: Import Annual report of Kalimati Vegetables and Fruits Market (2061-2071)

Years (B.S.)	Amount in (kg.)	Annual average price (Rs.)		
		Minimum	Maximum	Average
2061	13,06,463	70	120	95
2062	18,45,564	70	140	105
2063	20,36,740	80	180	130
2064	18,07,030	90	130	110
2065	28,39,150	110	190	150
2066	26,79,815	115	165	140
2067	29,37,640	140	165	152.5
2068	25,83,474	140	200	170
2069	26,56,340	145	250	197.5
2070	40,91,200	200	300	250
2071	41,65,520	200	240	220

Source: Annual report of Kalimati Vegetables and Fruits Market

Appendix-V: 2071 Import Based on Source Kalimati fruit and vegetable market

S.N.	Source Place	Weight (kg.)
1	Morang	6,000
2	Parsa	10,18,920
3	India	31,34,600
4	Other part of Nepal	6,000
Total		41,65,520

Appendix-VI: Main fish species and size found in the Kathmandu Valley in Kalimati fish market

Species:	Market share:	Commercial size:
Rohu	50%	700 g - 2 kg
Catla/Bhakur	20%	1 - 3 kg
Sliver carp	15%	250 - 700 g or 5-10 kg
Bhurahi	5%	1 - 3 kg
Tengra	3%	1 - 3 kg
Naini	2%	25 - 100 g
Other	5%	

Source: Estimated by Mr. S.P. Dahl, Fisheries Development Division.

Appendix-VII: World production data

S. N.	Country	Fishery	Aquaculture	Total production	% total
1	China	16.046	50.173	66.219	37,0%
2	Indonesia	5.714	7.937	13.651	7,6%
3	India	4.302	4.578	8.880	5,0%
4	Peru	8.254	92	8.346	7%
5	**EU-27**	4.806	1.240	6.046	3,4%
6	U.S.A.	5.163	397	5.560	3,1%
7	Viet Nam	2.503	3.053	5.556	3,1%
8	Philippines	2.367	2.608	4.975	2,8%
9	Japan	3.850	907	4.757	2,7%
10	Chile	3.467	970	4.437	2,5%
11	Russia	4.262	130	4.392	2,5%
12	Norway	2.434	1.139	3.573	2,0%
13	Thailand	1.862	1.008	2.870	1,6%
14	Malaysia	1.383	527	1.910	1,1%
15	Other	28.677	8.973	37.650	21,1%
Total		**95.090**	**83.732**	**178.822**	**100,0%**

World production in 2011 (1.000 tones) S o u r c e: E U R O S T A T (f o r E U -27), FAO (For extra -EU Countries).

10. QUESTIONNAIRIE

10.1 QUESTIONNIRIE FOR FISH MARKETING SURVEY

Questionnaire form no:-_____ Date:-_____

Interviewer's name:-_____ Site no:-_____

10.1.1 Respondent's Identification

1. Name:-.....
2. District:-…… Municipality / VDC:-…….
   Ward No:-…… Village name:-……
3. Sex: Male / Female ……..
4. Household size …….. No. of Male …… No. of Female…… No. of children ……..
5. What is your source of income? …….
6. Is there another source of income? ……
7. If yes, what is the source of other income? .....
8. Which fishes you are sale? Local indigenous or exotic fishes. ……
9. How many rent do you pay in your shop in a month / Year?
10. What type market is it?
    - Temporary ……
    - Permanent ……
    - Irregular (weekly / fortnightly / monthly)
11. Are you a member of any group (fishers group etc) Yes …… No ……
12. If yes, what group?.....

10.2. INTERVIEWS WITH FISH TRADERSOF KALIMATI

10.2.1 Individual information

1. How many fish traders are involved in fish marketing business?
2. Are you fish trader or fisherman or fishmongers?
3. Does fisherman have other business in additional to this?
4. What is the demand of fish among the local people? High…….. Or Low……
5. How is fish consumed by people? Fresh…… dried…… value added…... others……
6. What type of market is it? Temporary_____
   Permanent_____
   Irregular (weekly/fortnightly/monthly)
7. What is the marketing channel?
   - Fisher – consumer
   - Fisher – wholesaler – consumer
   - Fisher - wholesaler – retailer – consumer
   - Others (specify)
8. What are products sold in market?

   Fish (fresh/dried/post harvested) Quantity selling price

   _____ _____ _____

10.2.2 Management

1. How is fish stored and carried to market:

   A. Fresh…..B. Iced……C. Frozen……D. Dried……E. Canned……F. Others……
2. How is fish transported to city market? Insulated truck……Insulated and Refrigerated vehicle……Fish covered with ice blocks……
3. How you manage the preservation of fish?
4. What are the problems are you facing in this business?

10.2.3 Supply

1. How much supplied from this market?
2. In which season, the supply of fishes highest and lowest?
   Highest……Lowest……
3. Are all the fish supplied to local market or somewhere else outside this district?

10.2.4 Cost operation

1. Will you tell me the price of various fish?
2. What is the cost of ice block?
3. What is the difference of price in fish local market and city market? Local market……City market…..studies of the fish marketing of kalimati?
4. Is there fluctuation in fish price depending upon different season or certain occasion (festival)? Yes…..No……
5. Fish price increase trend is similar to meat price or fish price growth slower than meat during last five years. Yes……No……
6. If No, why? Fish demand is lower than meat or fish unpreferable food for local people…..
7. How many rent do you pay?
8. Which species do you more benefit?