1. INTRODUCTION

1.1 BACKGROUND

Nepal is the country blessed with vast inland water resources in the form of ponds and rivers. Nepal has diverse topography and geographical features and a total area of 1, 47,181 sq. km. It is bordered by China in north and India in the south, west and east. It is located between 26.22' to 30.27' north latitude and 80.4' to 88.12' east latitude. It holds snow-clad peaks in the north plain in terai region in the south through mountainous region in the middle surrounded by Mahabharata and Churia foothills. It possessed different geographical strata. Hence, its climate altitude and geography are extremely diverse. Forest agricultural land and water are the main resources of Nepal.

In Nepal total land occupied by water is approximately 5, 76, 011 hacters of which ponds occupy 6700 hacters (Source: DOFD, 2065/66) and lakes occupy 5000 hacters (Source DOFD, 2065/66) and the rest by rivers. Besides these about 1,500 hacters is occupied by manmade reservoirs.

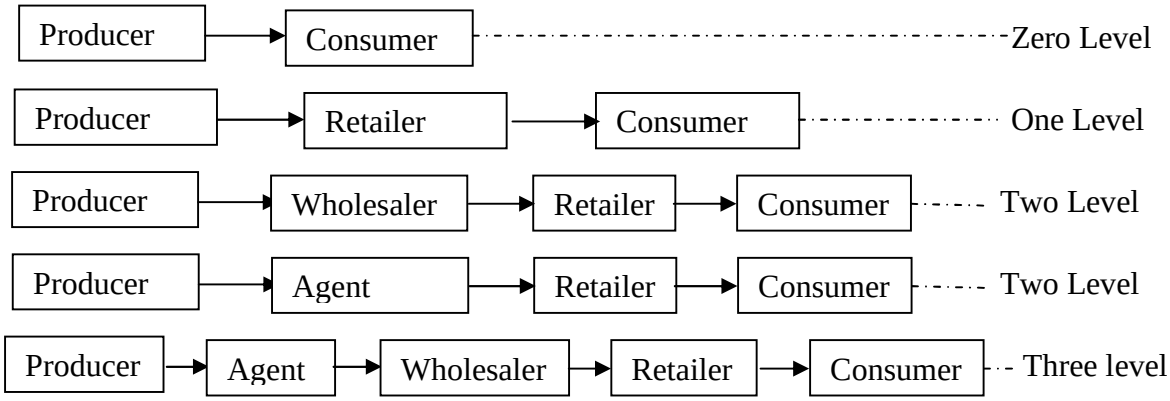
Terai region contributes about 25% of the total area of Nepal. Nepal has extremely contrast climate and altitudinal variations. The climate of Nepal is greatly influenced by altitudinal variation. Due to the altitudinal effect, the temperature distribution in Nepal is not uniform. Warmer low lands like Terai, inner-Terai and mid lands and cooler midhills and the Himalayan region. The temperature rises from March to July, which decreases from October to January (Pandey, 1987).

1.2 MARKETING SYSTEM

Marketing is the process related with the exchange of goods or services. In broad sense, all the activities to be performed before buying and selling goods, while buying, selling, even after buying and selling are the subjects concerned with marketing.

Marketing of fish involves all those activities by which fish from its production site is collected and through different channels reaches the hand of consumer**.**

1.2.1 CHANNEL OF DISTRIBUTION



Among the above mentioned channels of distribution, most convenient fish marketing channel that was generally observed was zero level. In this channel, fish collected by contractors from its production site is brought to market and sold.

The markets of fish producing areas where the fisherman or producer sells their fishes are the local markets. The fishes harvested from the ponds are carried to these markets with the help of different vehicles.

The fish markets are situated at various places in Dhanusha districts. The fish markets are locally known as Machha hat bazaar. There are 85 hat bazaars present in Dhanusha district. Some market shows good income in Dalkewar collection center with 6 lakhs / year, in Badhari income/ year seems 3 lakhs. However, in Hanspur and Umaprempur income / year regarded from 6 thousand to 10 thousand. Wide range was observed in the income / year of these markets. (Appendix-I)

Some markets are also observed with their unknown income/year. (Appendix-II)

1.3 OBJECTIVES

1.3.1 General objective

The general objective of the study is to analyze present fish marketing system in Dhanusha district and to find demand of fish in consumer market.

1.3.2 Specific objective

- To know channel of fish distribution.
- To know about production of fish in Dhanusha district.
- To know about the rate of major fishes, which have good market in Dhanusha district.

1.4 JUSTIFICATION

- Only few and sporadic works were carried out in the district till date. Thus, extensive exploration of fish marketing covering the district is essential.
- As the district has rich aquatic environment and favorable condition for fish marketing, it is essential to explore it.
- The basic knowledge about the fish marketing system in Dhanusha district is not sufficient.
- Always city is given priority for the study of Fish marketing system and small district like Dhanusha is neglected.
- The fish marketing system will be studied for strengthening its marketing system.

1.5 STUDY AREA

Dhanusha district, one of the 75 districts of Nepal is the district rich in pond fish culture. It lies in the southeastern region of Nepal whose total area is 1,180 sq. km. This district comes under low land area. Its elevation is 61 m to 610 m. It is situated between 26.67' N latitude and longitudinally 80.14' E to 86.08' E. It surrounded by Sindhuli in north, Siraha in east separated by Kamala river and Mahottari district in west and by Madhubani (India) in south.

The climate of the Dhanusha district is marked by tropical and subtropical climate. There is heavy rainfall during the month of June to September.

Mean temperature is 32^{o}c (max) and 20.5^{o}c (min). (Source: Janakpur Airport, 2010)

The district, Janakpur as its district headquarters has a population 6,71,364.

There are 104 VDC in Dhanusha district (Appendix-III).

1.6 LIMITATION OF THE STUDY

Social researches being a vague subject possesses some kind of limitation in every field of experimentation were difficult. Research in different villages in short time with limited resources and budget of a student. The study was self-financed.

2. LITERATURE REVIEW

Regarding fish marketing in context to our country very few research works and observation have been done so far.

Hamilton (1822) was first who gave authentic information about the fishes of Nepal in his monumental work "Fishes of Ganges". Hora (1940) studied ecology, bionomics and evolution of the torrential fish fauna. 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'.

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 in NEFIS.

Lofvall (1998) had worked on marketing in Kathmandu valley in support to a new Kalimati market project. Murray (1998) study reveals poverty alleviation focused on rural aquaculture or fisheries development typically stress the potential of increased fish production to both sustain and enhance food security and for income generation. 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 fish species in Nepal enumerated 185 indigenous fish found in Nepal. Panth (1998) studied the fish preservation and its marketing.

Joshi and Tiwari (1999) studied the present fish marketing system and potentiality for improvement. Wagle, Gurung and Sharma (2001) described indigenous fishes and their contribution in rular 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.

Sah (2005) described fish production and marketing system in Dhanusha district of Nepal. Dev (2006) studied on improving fish marketing system in the selected Terai district of Nepal. Bhusal (2006) described the assessment of fish diversity and catch of Narayani River and its impact on household earning of fisherman. Pandey (2007) studies the preservation of fish and its market. Shukla (2007) described food value of preserved fish culture. Rijal (2007) studies the fish marketing systems in Nepal and food and ornamental fishes of Kathmandu. The study report showed that the market of captured and cultivated fish is growing in the country annually.

Clauseu (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. The survey was done in Kamala, Jallad and Rato river, Bishara pond and one pond form Basahiya village. 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 Indrawati river and its impact on livelihoods of fisherman.

3. MATERIALS AND METHODS

3.1 STUDY PERIOD

The research work was conducted in the study area from April 2010 to October 2010, during which the field was visited.

3.2 METHODS OF DATA COLLECTION

The data of the study was collected by visiting the different fish markets and using different methods. The information regarding the study matter was collected from different reports, research papers and dissertation. The visits were made in different fish markets to collect information on different fish. Information on sun-dried fishes was taken from local markets.

4. OBSERVATIONS

4.1 PONDS AND RIVERS

The rivers associated with the district are Kamala, Jalad, Dudhmati, Jamuni, Charnath,Rato nadi, Badhari, Jagdar, Parsuram Khola.(IRPU,Dhanusha, 2061)

There are many ponds present in the VDC of Dhanusha district. There are 2 to 88 ponds situated in a single VDC of the district. The main fish producing area are Janakpur, Nagrain, Tarapatti, Sirsia, Kanakpatti, Sonigama, Baidehi, Rahunathpur, Yadukoha, Fulgama and Nanupatti.(Appendix-IV)

The fishery development centre of Janakpur has 83 ponds among which one is incomplete covering 13.26 hacter area of the center (Appendix-V).

Figure-1 Researcher at the ponds of FDATC

There are 104 ponds situated in Janakpurdham. Some of these are Gangasagar, Dhaushchhetra, Rukmini Pokhari, Bish-hara Pokhari, Saraswati Pokhari, Goddhoni Pokhari, Matkorwa Pokhari, Bhutahi Pokhari, Binhi Pokhari, Dasharath Talau, Argajja Pokhari, Bihar Kunda, Agni Kunda, Bela Pokhari.

Some ponds have religious value like Gangasagar, Dhanuschhetra. The harvesting of fish is not done from the ponds of religious value in this district.

Ponds of the villages of Dhanusha district are used for fish production. Fish from the village of other district are also transported to the fish markets of Dhanusha district. From the boarder side of India (like Basopatti) , the fishes are imported for marketing in Dhanusha district.

4.2 FISHES OF DHANUSHA DISTRICT.

List of fishes with their local names of Dhanusha district.

	Scientific name	Local name
1.	*Anabas testudineus*	Kabai
2.	*Amblypharyngodon mola*	Mada, Dhawi
3.	*Barilius barna*	Poti
4.	*Barilius bengalensis*	Guderi
5.	*Barilius vagra*	Faketa
6.	*Botia lohachata chaudhuri*	Baghi
7.	*Catla catla*	Bhakur
8.	*Chanda nama*	Chanari
9.	*Channa gachuwa*	Chenga
10.	*Channa punctatus*	Garai
11.	*Channa striatus*	Saura
12.	*Cirrhinus mrigala*	Naini
13.	*Clarias batrachus*	Magur(Mungari)
14.	*Colisa fasciatus*	Kotra
15.	*Esomus donricus*	Dedhwa
16.	*Eutropicthys vacha*	Bachawa
17.	*Heteropneustes fossilis*	Singhi
18.	*Labeo rohita*	Rohu
19.	*Gudusia chapra*	Suia
20.	*Glassogabius gluris*	Bulla
21.	*Mystus bleskeri*	Tengra
22.	*Mystus senghala*	Kati
23.	*Macrognathus aculeatus*	Gaichi
24.	*Macrognathus armatus*	Gaichi
25.	*Macrognathus pancalus*	Kathagaichi
26.	*Nandus nandus*	Dhala
27.	*Nemacheilus botia*	Natwa
28.	*Ompok bimaculatus*	Popta
29.	*Oxygaster bacaila*	Chelhwa
30.	*Poseudeutsropius atherenoidus*	Patali

31. *Puntius sophora* Pothi
32. *Wallago attu* Buari
33. *Xenentodon cancila* Kauwa

Figure-2 Fish observed in market

Figure-3 Fish observed in market

4.3 FISH MARKETS

Fish markets are located at different places in Dhanusha district. There are 85 local hat bazaars in different places of the district. Among which the name of some famous fish markets are mentioned earlier in the introduction. Most of these hat bazaars are situated along with the Rajmarg. There are many small hat bazaars present in the Dhanusha district without any particular name.

Markets located in villages, district headquarters or at a crossroads are considered primary markets. They are usually near areas where fish are caught. Fisherman bring a variety of fishes to the primary markets.

Figure-4 Basahiya road fish market

Figure-5 Campus chowk fish market

4.4 FACILITIES

4.4.1 ROAD FACILITIES

Road facilities are not so good in Dhanusha district. There are "Coal tarred road" Mahendra Rajmarg for Bandipur fish market. In some places, Gravelled roads are also seen. Roads have been damaged at several places during the flood time. (Appendix-VI).

4.4.2 TRANSPORT FACILITIES

Bicycles are the most popular vehicle used for carrying the fishes. Transport facilities are not so much developed in the Dhanusha district. At some places, the vessel (containing fishes) is tied at the middle of a bamboo pole and then two persons on their shoulder hold it. Local fishes are brought to the fish markets in the earthen vessels carried on shoulder or head of the fishermen. Fishes from distant place are brought in Rickshaw, bullock cart, bus and jeep.

4.4.3 UTENSILS USED IN FISH TRANSPORT

Fishermen use aluminum utensils (locally known as hundies, tasala) and plastic boxes 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. For this, alternate layers of ice and fishes are arranged in fishing vessels to bring down the temperature to about 0^{o}c (chilling method). Sometime rice bran is also used along with the ice for preservation. Dried fish are sold in some markets like kuwa bazaar, bus park fish market and campus chowk fish market. Fishermen buy ice at Rs. 200/ sill from different ice factory (e.g. kaushal shah ice factory) for fish preservation.

4.5 SELLING METHOD

There is no restriction of catching fish from rivers. Fisherman catches the fishes without any hesitations and sells them in market.

Fishmongers use to sell fish placing it on plastic sheets on ground. Shops are not built for the fish marketing purpose. Fishmonger sits on the mudha or bench and they keep their fishes on plastic, which they called tripal. Fishmongers use knife (hasuwa) for chopping the fish and balance for measuring the weights of the fish.

On the other hand, the private fishponds are given on a contract basis. According to contractor of Basahiya village, they pay up to 3,00,000/- lakh/ year for private pond and they have to pay cash because contracts are not given on credit basis Fishes that are

brought to the fish market by contractor or fishermen are sold to whole sellers. The whole sellers sell the fish to the local fishmongers or export it to Kathmandu or India.

4.6 FISH PRODUCTION

In Nepal fish farming is mainly done in Terai region. Out of total fish production in Nepal, Terai region covers 97%.(Source: Fish export import survey profile 2066/2067)

Table No.1

4.6.1 Annual fish production

Year	Area(hac.)*	(MT)**	MT/hac
2058-2059	645	1880	2.91
2059-2060	645	1800	2.91
2060-2061	600	2050	3.10
2061-2062	665	1995	3.0
2062-2063	665	1995	3.0
2066-2067	647	2239	3.46

(Source: DADO, Dhanusha, Nepal)

*1 hacter=10,000 sq metres

** 1 metric ton=1,000 kilogrammes

Production of fish is 2429.95 Kg from Fishery Development and Training Centre in 2066/2067.

Table No.2

Production of hatchling, fry and fingerlings from Fishery Development Centre in 2066/2067.

S.N.	Types	Number(piece)
1.	Hatchlings	3,02,00000 (Three crores two lakh only)
2.	Fry	16,06,000 (Sixteen lakh six thousand only)
3.	Finger lings	7,01,000 (Seven lakh one thousand only)

(Source: FDATC 2066/2067)

Some private sectors are also involved in the production of hatchling and fry.(Appendix-VII)

4.7 Export and Import of fishes

There are 18 government hatcheries and approximately 102 private hatcheries in Dhanusha district. Among the total fries produced, 50% of the productions of fries are exported to India and rest is supplied in the district as well as in other part of country. (Source: Annual Program & Statistical Information DADO, Dhanusha ,2066/2067)

The total fish imported from India to Janakpur is 355.36 metric ton and the total fish exported to India from Janakpur is 3.13 metric ton.(Source: Central Animal Quarantine Office, 2066/2067)

Table No.3

Timetable for availability of fish seed at Fishery Development and Training Centre.

S.N.	**Type of fish**	**Types of fish seed**		
		Hatchling	Fry	Fingerlings
1.	Common carp	-	Chaitra-Jestha	Ashadh-Bhadra
2.	Silver carp	Baisakh-Bhadra	Jestha-Aswin	Asadh-Mansir
3.	Bighead	Baisakh-Srawan	Jestha-Bhadra	Ashadh-Mansir
4.	Rohu	Asadh-Srawan	Srawan-Aswin	Asoj-Magh
5.	Naini	Asadh-Bhadra	Srawan-Aswin	Kartik-Magh
6.	Grass carp	Last week of Chaitra to Baisakh	Jestha-Asadh	Srawan-Bhadra

(Source:FDATC,2067)

Figure- 6 Fingerlings packed for transportation

Figure-7 Researcher at Fishery Development Centre

4.8 COST PRICE OF FISHES:

Rate of hatchlings, fry and fingerlings at Fishery development center is

Table No.4

Rate of hatchlings

S.N.	Type of hatchling	Rs./lakh piece
1.	Rohu, Naini	2000/-
2.	Silver, Bighead grass carp & Bhakur	2500/-

Table No.5

Rate of fry

S.N.	Type of fry	Rs/1000 Piece
1.	All type	250/-

Table No.6

Rate of fingerlings

S.N.	Size	Type of fingerlings	Rate in 2066 B.S.	Rate in 2067 B.S.
1.	Below 2-3 inch	All type	75 paisa/piece	75 paisa/piece
2.	Below 3-4 inch	All type	1.50 paisa/piece	1.50 paisa/piece
3.	Below 3-4 inch	Silver , Bighead, Tilapia, Grass carp	Rs.100/kg	Rs 120/kg
4.	Below 3-4 inch	Common carp	Rs.110/kg	Rs.150/kg
5.	Below 3-4 inch	Rohu, Naini, Bhakur	Rs.120/kg	Rs.150/100 piece

(Source: FDATC, 2067)

Fishes like Rohu, Naini, Common carp, Bighead and Silver are expensive at production site than the other fishes.

Table No.7

Rate of fishes at production site:

S.N.	Type of fish	Rs/kg
1.	Rohu	220/-
2.	Naini	220/-
3.	Common carp	210/-
4.	Bighead	200/-
5.	Silver	180/-
6.	Other fishes	180/-

(Source: FDATC, 2067)

Some fishes have high rate in the markets than other. They are Rohu, Naini, Bighead, Tengra, Gaichi and Buhari.

Table No.8

Rate of fishes in fish market in 2067.

S.N.	Name of fish	Price of fishes		
		Max Rs/Kg	Min Rs/Kg	Average Rs/Kg
1.	Rohu	280/-	260/-	270/-
2.	Naini	260/-	240/-	250/-
3.	Bhakura	260/-	240/-	250/-
4.	Bighead	250/-	240/-	245/-
5.	Magur	180/-	160/-	170/-
6.	Singhi	200/-	180/-	190/-
7.	Buhari	275/-	230/-	250/-
8.	Gaichi	450/-	420/-	400/-
9.	Tengra	460/-	450/-	450/-
10.	Kathgainchi	460/-	300/-	350/-
11.	Kati	270/-	240/-	250/-
12.	Bami	240/-	200/-	220/-
13.	Pothia	180/-	140/-	145/-
14.	Garai	170/-	150/-	150/-
15.	Boghi	180/-	110/-	120/-
16.	Bachwa	275/-	230/-	250/-
17.	Grass carp	250/-	240/-	240/-
18.	Silver carp	240/-	220/-	230/-
19.	Common carp	250/-	240/-	245/-
20.	Katri	140/-	120/-	120/-
21.	Kabai	140/-	110/-	120/-
22.	Chelwa	110/-	90/-	100/-
23.	Latta	120/-	100/-	105/-
24.	Bulla	90/-	60/-	70/-
25.	Suia	160/-	130/-	140/-
26.	Derhwa	60/-	40/-	50/-
27	Natwa	80/-	50/-	60/-
28.	Saura	100/-	70/-	80/-

- Bar diagrams show below indicate average rise in the market rate of some important market value fishes:

4.8.1 ROHU FISH

Rate of Rohu

Year	Max Rs/kg	Min Rs/kg	Average Rs/kg
2065	200	160	180
2066	230	210	220
2067	280	260	270

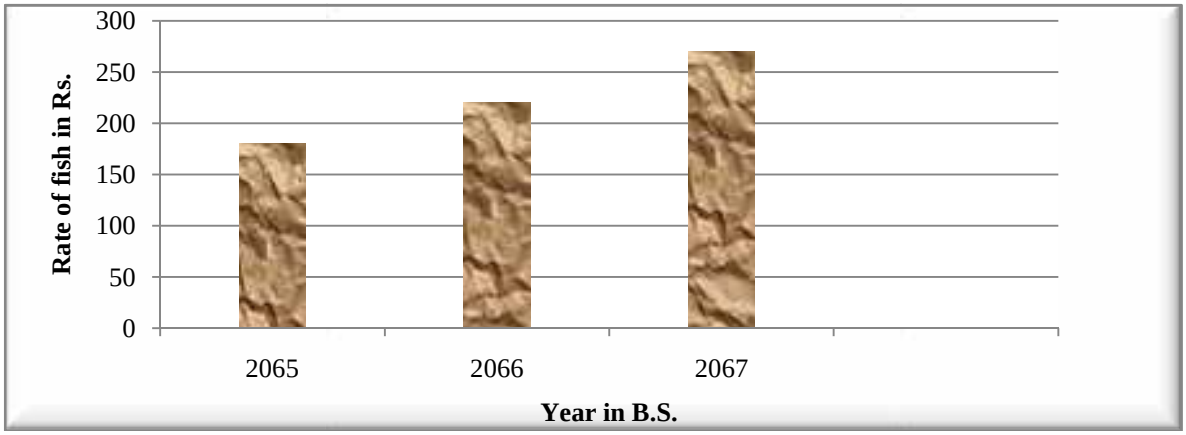


Figure- 8

Data shows the increment in the fish rate by 50% within last three years.

4.8.2 NAINI FISH

Rate of Naini

Year	Max Rs/kg	Min Rs/kg	Average Rs/kg
2065	170	150	180
2066	210	190	200
2067	260	240	250

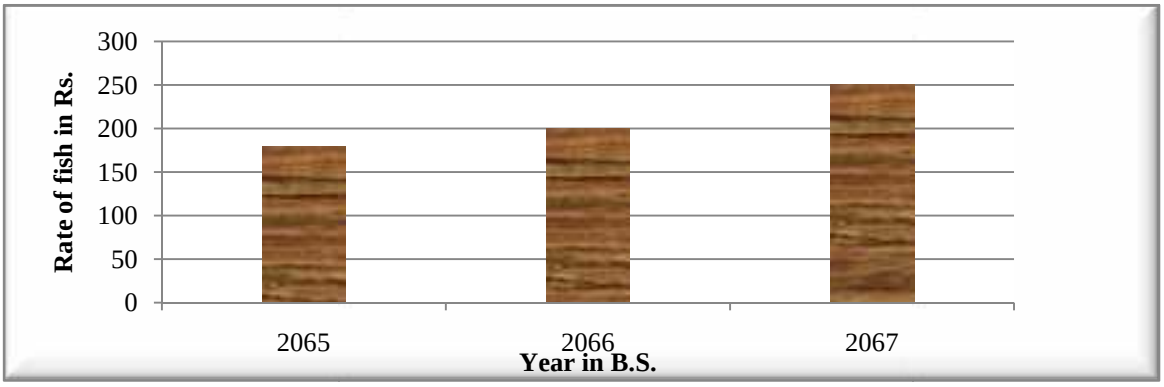


Figure- 9

Data shows the increment in the fish rate by 38.8% within last three years.

4.8.3 BHAKURA FISH

Rate of Bhakura

Year	Max Rs/kg	Min Rs/kg	Average Rs/kg
2065	210	190	200
2066	230	210	220
2067	260	240	250

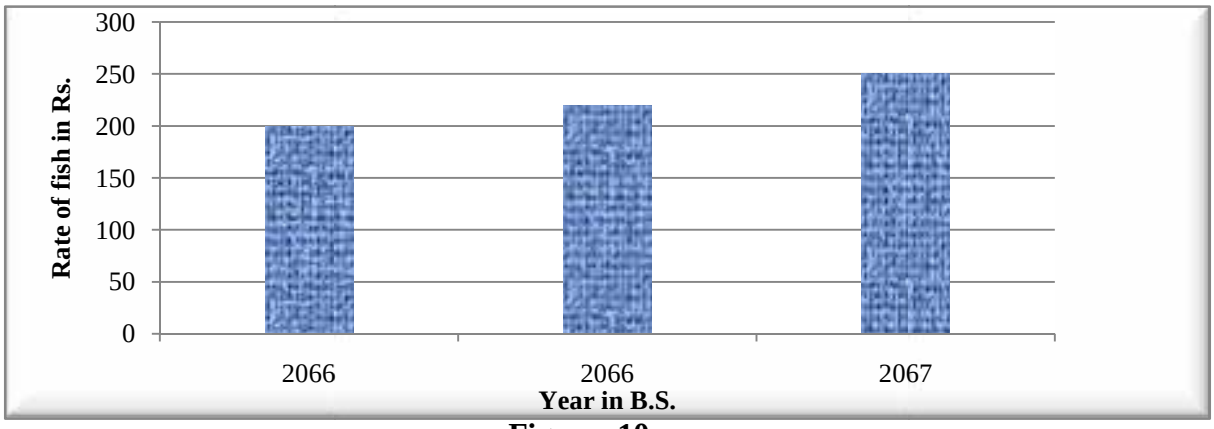


Figure- 10

Data shows the increment in the fish rate by 25% within last three years.

4.9 RELIGEOUS ASPECTS

The famous Janaki temple is situated at Janakpur in Dhanusha district. This temple has big religious values. Therefore, people are not allowed to slaughter fish, goat, sheep, chicken or any other animals for selling purpose within ring road (Parikrama) of Janakpur. Due to which fish markets are also not found within ring road (Parikrama) of Janakpur.

The maximum fish purchased day in a year is the day before of the festival Jitia. One day before Jitia festival, women of the district and other people of the district eat fish and Maruwa roti (local food) and on the day of festival, the women of the district have fasting for two days without drinking water at all. On that day, more than 100mt of fishes are sold at different fish markets of Dhanusha district.

4.10 SOCIO- ECONOMIC CONDITION OF FISHERMEN OF DHANUSHA DISTRICT.

In Dhanusha district, the population of fishermen is about 1725.(Source: DADO, 2066/2067). They belong to Mallah, Bin, Sahni, Dhanukh, Mukhiya etc. by cast. Generally, they live in those villages where there is river or a large number of ponds are found. In Dhanusha district the fisherman live mainly in Janakpur, Basahiya, Bela, Bandipur, Nagrain, Laxminia, Kumhraura, Chandrapur, Jatahi etc.

The fisherman are illiterate, only few are educated up to class five, matriculated are rare. The educated are mostly male. The no. of educated female is negligible.

Economically, fishermen are poor but now a days the male members of most of the fishermen family went to Arab country like Dubai, Qatar. They sent money from foreign country to their family by different remittent and their family spent the money for different purposes.

Five years ago, fishermen used to earn money, which was just sufficient for feeding, but nowadays they spent for not only good food also for educating their children (mostly son), clothes, festivals etc.

Nowadays the female members of the fishermen family are more involved in the fish marketing business. Daughter of the fishermen mostly work in the houses of rich people and earn more than Rs. 1000/month.

Table No.9

Family income of the fishermen.

S.N.	Source	Average income /per family/ per month
1.	Selling fish	5,000
2.	Agriculture	2,000
3.	Labour	3,000
4.	Cattle	2,000
Total		12,000

(Source: Fishermen of Basahiya village)

Most of the houses of fishermen are made up of bamboo and straw. But nowadays they built their houses made up of bricks. Their houses have 3 or 4 rooms. Average family members of fishermen are about 6 to 9.

The male members of family wear 'Dhoti' or ' Lungi' and 'Ganji'. Some wear 'Shirt' and 'Paint'. Whereas female wear 'Sari' and 'Blouse'. The food of fishermen is mostly rice, wheat, vegetables and fish.

Figure-11 Female members involved in fish market

Figure-12 Researcher with fish in the Basahiya road fish market

5. STRENGTH (OPPORTUNITY) AND WEAKNESS (CONSTRAINTS) OF FISH MARKETS

5.1 STRENGTH

Fisheries sector shows following strength for business promotion.

- Increase in the knowledge about nutritional value of fish among people.
- Increase in the demand of fish in the market (growing consumer number)
- Increase in transportation facilities
- Availability of fish seeds, feeds throughout the year
- Growing interest of the farmers towards fisheries
- Bank loan subsidy
- Co-operative attitude
- Availability of technical forward
- High price for goat meat
- Fear of bird flue
- Building shops for fish market
- Hygiene maintenance in the fish market
- Giving importance for culture and development of the fishes having marketing value like Rohu, Bhakur, Naini, *Mystus*.

5.2 WEAKNESS

Fisheries sector shows the following weakness.

- Transportation facilities not assured.
- Fish perishable item difficult to handle
- Unstable government policies
- Financial resources not assured and trust worthy
- High interest rate with complicated formalities
- No any subsidy from government side
- Water scarcity
- Big margin between prices of producers and traders
- Input of Indian fishes in low cost reduces local fish demand
- Lack of chilling station and Ice plant etc.
- Supply inadequate number of fingerlings.
- Use of poison in the fishponds by outsider cause great loss to the pond owner.
- Many public ponds are not being used for fish production due to the conflict among the people.

- Rough road seasonal road and lack of bridges cause disturbance in transportation.
- High temperature in summer in Dhanusha district causes mass mortality of fishes.
- Lack of knowledge about hygiene maintenance in fish market
- Quality production, catch , consumption is not confirm
- There are no proper provision and space for disposal of gut or visceral contents
- Lack of spacious and specific fish market
- Land owner of fish market use to collect the tax with no proper and rigid criteria

6. DISCUSSION

The findings of Sah (2006) showed that traders were involved in the marketing system of fish. His study revealed that farmers are facing several fish production problem and several fish marketing problem. Comparing the condition of fish markets then and now some problems such as transportation facilities have been solved to same extent. Similarly, for preservation and storage many private ice factories have been established nowadays.

According to Shrivastava (2008), the study revealed that during 2005 to 2006 the total fish production was about 3 metric ton/hacters. But the present study showed the increased fish production by 13.29% i.e. 3.46 metric ton/hacters. This increases in data of production in due to availability of fish seed from private and government sector. Another cause in involvement of many fish traders who think this business as a profitable one.

Lofvall (1998) finding reveals that the condition for operating the market may change overtime and the development should be monitored so that management can be adjusted accordingly. The present study " Fish Marketing System in Dhahusha district" reveals that the operating system of the fish market can be enhanced by proper management and monitoring this sector regularly.

Dhanusha district is in Terai region where the weather mostly remains hot throughout the year. The maximum temperature of district recorded during 2010 is 32^{o}c (maximum) and 20.5^{o}c (minimum).

In Dhanusha district, there are many rivers and ponds. The present work of fish markets have been done in Basahiya road fish market, Nagrain fish market, station road fish market, Kuwa bazaar fish market, Piradi fish market, Mahuwa Kapleswor fish market etc. The research work also held at production site of fishes in some villages of Dhanusha district like Nagrain, Debdiha, Nanupatti and Janakpur.

In the absence of organized marketing system 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. Murray, Koddithuwakku and Little (1998) have reported that the marketing system can be improved by the proper coordination of producers, middleman, retailer and consumers.

So far the fish marketing channel of Dhanusha district is concerned, it seems very simple, which is zero level. Contractor of fish market use to take help of the person who use to carry the fish from the site of production in aluminium pot (locally known as fish

hundi) on bicycle and sometimes on buses to the fish markets directly from where the fishes are sold and reaches to the hand of consumer.

There are different kinds of fishes available in fish markets of Dhanusha district. Actually there are more than 33 species of fishes are observed in different fish markets but all these fishes are not available in every season in the fish markets. The fishes which have high market value and available throughout year in the fish markets are *Labeo, Catle, Wallago, Cyprinus,Cirrhina, Channa, Mystus, Clarias*. The fishes, which are not sold, are preserved in ice for next day, which cause 50gm loss in fish weight (according to fishermen of Dhanusha district).

The medicinally important fishes seen in the market are Clarias, Heteropneustes etc. Similarly fishes like *Channa g*achuwa, *Barilius* are also important as biological controller of mosquito.

Sun dried fishes are sold in very small scale in some fish markets like Basahiya, Campus chowk , Kuwa bazaar etc.

Most of fishes seen in the fish markets comes from the ponds of local villages and rest is from boarder side of India, Andhrapradesh etc.

Fish production in 2066/2067 is 2239 metric ton from 647 hacters in Dhanusha district. Hatchling production in 2066/2067 is three crore two lakh piece. Fry production in 2066/2067 is sixteen lakh six thousand piece fingerlings production in 2066/2067 is seven lakh one thousand piece (Fishery Development and Training Centre,2066/2067).

The rate of all most all fishes increases by 20% to 25% from production site while reaching to the fish markets.

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 neighbouring countries. So it becomes the priority to check this problem and increase the local fish production with its proper marketing strategies.

7. SUGGESTIONS

Fish marketing system in Dhanusha district is very much in poor condition. Marketing channel is not strong. Government agencies, NGO, INGOS can play a support role in developing the fish marketing work. These institutions can work in the area of fish production, post harvest management, transportation, marketing etc. Formation of co-operative societies from grass root level to central level with capacity building will be helpful in carrying out the responsibilities to achieve targeted goal.

Improvement of fisheries in natural waters offers a great opportunity for employment and income generation among poor people. This also helps to uplift the country economic condition. However, no work so far has been done for conservation strategy of fish fauna in natural water resources of Dhanusha district.

Other works that can be done are:

- Production initiation program can be conducted in community level.
- Awareness creation among focus group and local governance should be conducted in local level for the conservation of river, biodiversity through environment conservation education at school level.
- Training and technical support can be conducted to the target group.
- Public meeting, adult literacy classes. Government as well as non-government organization can hold group organization and capacity building program.
- Spacious and specific fish markets at different places should be arrange by government in Dhanusha district.
- The Landowner should make proper provision for collecting the tax of fish market.
- Inappropriate fishing practices should be checked.
- Proper provision and space for disposal of offal and entrails content should be arranged for hygiene maintenance in fish markets.

8. SUMMARY

Fish marketing channel of Dhanusha district is very simple, which is zero level. Contractor of fish market use to take help of the person who use to carry the fish from the site of production in the fish hundi on bicycle and sometimes on buses to the fish market directly from where the fishes are sold and reaches to the hand of consumer.

There are 85 local hat bazaars in different location of the district. The lands of fish markets are private. The fishes brought in the market are from local villages and India. (DADO,2066 Dhanusha)

There are 1,741 ponds in Dhanusha district 747 hacters area is covered by ponds. Not all the ponds are used for fish production because some are not in condition and some have religious value. (FDATC, Dhanusha, 2066)

Fishermen catch the fishes from the rivers without any restrictions. Ponds are given on contract basis. Whole sellers who sell them to local mongers or export to Kathmandu and India take great deal of precaution in handling fishes.

Fish production is 2239MT from 647 hacters area in 2066-2067. (DADO, Dhanusha, Nepal)

Production of hatchling is 3,02,00000. Fry is 16,06000, Fingerlings 7,01,000 from Fishery Development and Training Centre in (2066/2067)

All together 33 species of fishes have been recorded from different market of the districts.

The cost price of fishes varies from species to species and their consumption rate. The rate of almost fishes increases by 20%-25% from production site while reaching to the market.

Socio-economic condition of fishermen of Dhanusha district is not very good. They are not benefited from the government loan facilities for the pisciculture due to complicated procedure of getting loan.

Scarcity of fish seed, fish feed, poisoning of ponds by peoples are the problems in fish farming.

Ice factories are very few in number, which also create problem in fish preservation.

As the nutritional value of fish is high, so as a food items its demand is high. However, the rate of production is not sufficient to fulfill the demand of consumer.

A fishery is a part of agricultural science, so government should take proper and rigid steps to enhance this sector. This helps in increasing the socio-economic conditions of the fishermen as well as demand of fish and controlling the rate of fish, which in turn helps in uplifting the economic condition of the nation.

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10. APPENDICES

Appendix-I: Name of hat bazaars with income per year.

In these hat-bazaars mainly food grains, vegetables and fish are purchased.

S. N.	Name of Market	Day of market	Held under	Income/ year	Distance from Janakpur (in kosh*)	Transportation facility
1.	Dhabauli	Saturday, Monday	VDC	1 lakh	6	-
2.	Sabaila	Monday, Wednesday	High School	2,35,000	-	Bus
3.	Deuri-Parwaha	Tuesday Thursday Saturday	VDC School	1 lakh	2.5	Train
4.	Danushadham	Sunday Wednesday Friday	VDC High School	65,000	11	Bus
5.	Umaprempur (Nausaya)	Monday Friday	Private (Ramesh Pant)	10,000	6.5	Bus
6.	Nagrain	Monday Saturday	VDC	60,000	3	Bus
7.	Dewdiha	Saturday Tuesday	VDC	15,000	3.5	-
8.	Hariharpur	Monday	VDC	15,000	5.5	-
9.	Bateswar	Sunday Wednesday	VDC	1,50,000	6	-
10.	Kurtha	Monday Friday	High School	50,000	1.5	Bus
11.	Badhari, Bengaduwar	Monday Thursday	High School & VDC	3 lakh	9	Bus
12.	Lalgadh, Bengadawar	Tuesday Friday	VDC	14 thousand	8	Bus
13.	Dhalkewar collection center (Sa. Bazaar purwadhar Bikas Aayojana)	Sunday Wednesday	High School	6 lakh	8	Bus
14.	Kanchhi Bazaar	Thursday Sunday	VDC	57,000	-	Bus
15.	Kanakpatti	Monday Friday	School	50,000	2	Walking Distance

16.	Hanspur Kathpulla	Wednesday Saturday	School	6,000	3	Walking Distance
17.	Baghchauda	Tuesday	School	25,000	4	Bus
18.	Itharwa	Wednesday Saturday	School, VDC	25,000	14km	Bus
19.	Dhanauji	Sunday Tuesday Thursday	School	65,000	10km	Walking distance
20.	Duhabi	Sunday Wednesday Friday	School	35,000	14km	Walking Distance

* 1 kosh= 3 kilometre

(Source: DADO, 2067)

Appendix- II: Name of hat bazaars with unknown income year present in Dhanusha districts. In these hat bazaars mainly food grains, vegetables and fish are purchased.

S. N.	Name of Market	Day of market	Held under	Distance from Janakpur (in kosh*)	Transportation facility
1.	Adukoha	Sunday, Wednesday	VDC	5	Bus
2.	Bisharvora	Monday, Thursday	VDC	7	Train
3.	Khajuri	Saturday, Wednesday	VDC	7.5	Train
4.	Balahagoth	Saturday, Tuesday	VDC	7.5	Train
5.	Raghunathpur	Sunday, Wednesday	High School	9	Bus
6.	Barmajhiya	Tuesday, Wednesday	High School	9	Bus
7.	Satosar	Tuesday, Friday	VDC School	-	Bus
8.	Bhatihan	Wednesday Saturday	VDC	5	Bus
9.	Kharihani	Sunday, Thursday	VDC	6.5	Train
10.	Baidehi	Monday Wednesday Friday	VDC School	3	Train
11.	Nuwakhor Prasahi	Saturday Tuesday	VDC	5	-
12.	Chisapani Godar	Sunday	VDC	12.2	Bus
13.	Godar	Sunday Thursday	VDC	12.2	Bus
14.	Juri Bazaar	Saturday Wednesday	Private	4.3	-
15.	Birendra Bazaar	Monday Friday	VDC	11	Bus
16.	Sikhiyahi mugraha	Saturday Tuesday	Bazaar Committee	12	Bus
17.	Dharapani	Saturday Wednesday	-	10	Bus
18.	Kisanpur Yagyabhumi	Tuesday Saturday	VDC	10	Bus

19.	Tarapatti Sirsiya	Sunday Wednesday	-	3.5	Bus
20.	Kazara Ramaul	Saturday Tuesday	-	4.5	Bus
21.	Thera	Monday Thursday	-	2	-
22.	Kachuri	Sunday Wednesday	-	2	-
23.	Purandaha	Monday Thursday	-	2	-
24.	Paudeswar	Friday Monday	-	2	Train
25.	Pra. Ko. Mahuwa	Sunday Tuesday	-	2	Train
26.	Balganga	Tuesday Saturday	-	4.5	-
27.	Phulgama	Tuesday Saturday	-	3	-
28.	Tulsiyahi Jabdi	Tuesday Saturday	-	5	-
29.	Baherabela	Monday Friday	-	5	Train
30.	Lagma	Monday Thursday	VDC	-	Bus
31.	Tinkoriya chowk	Monday Thursday	VDC	-	Bus
32.	Sakhuwa Mahendranagar	Saturday Tuesday	-	-	Bus
33.	Bhuichakrapur	-	-	-	-
34.	Laxminia bazaar (L.Bagewa)	Monday Friday	-	2.5	Bus
35.	Laxminia	Monday Friday	-	2.5	Bus
36.	Sapahi	Monday Thursday	-	2.5	Bus
37.	Baniniya	Sunday Wednesday	-	2.5	-
38.	Ramdaia	Sunday Wednesday	-	4	-
39.	Sinurjoda	Monday Friday	-	3	-

40.	Debpura Rupaitha	Friday Tuesday	-	2	Bus
41.	Bahuarwa	Monday Friday	-	3	Bus
42.	Kapileswor	Tuesday Friday	-	-	-
43.	Janakpur Thok Bazaar Sthal, Tirhutia gachhi, (Sa.W. Purwadhar Bikash Ayojana dwara nirmit)	Tuesday Friday	-	-	Municipality Bus
44.	Janakpur(Kuwa)	Monday Thursday Saturday	-	-	Municipality Bus
45.	Janakpur(pethia)	Sunday Thursday	-	-	Municipality Bus
46.	Jamunibas	Monday Saturday	VDC	6	Bus
47.	Paterwa	Tuesday Friday	VDC	23km	-
48.	Simradi	Tuesday Friday	VDC	30km	Bus
49.	Jatahi	Tuesday Saturday	-	-	Bus
50.	Suga Nikash	Monday Thursday	-	3	Bus
51.	Chakkar	Monday Thursday	-	3	Bus
52.	Sonigama	Monday Thursday	-	3	Bus
53.	Pra. Khe. Mahuwa	Sunday Thusday Friday	-	6	Train
54.	Gauri Bazaar	Tuesday Saturday	-	5	-
55.	Sarsa bazaar	Thursday Monday	-	5	-
56.	Bhuthi Bazaar	Sunday Wednesday	-	4	-
57.	Namanagara Bazaar	Saturday Tuesday	-	4	-

58.	Jogiyada	Tuesday Saturday	-	5	Walking distance
59.	Mahinathpur	Tuesday Saturday	-	6	-
60.	Machi	Sunday Wednesday	-	6	-
61.	Sarawe bazaar	Sunday Wednesday	-	6	-
62.	Mangraha	Tuesday Friday	-	6	-
63.	Hathletwa	Sunday Wednesday	-	7	-
64.	Sinyahi Madan	Tuesday Friday	-	10	-
65.	Lakkad	Thursday Monday	-	10	-

* 1 kosh= 3 kilometre

(Source: DADO, 2067)

Appendix-III: VDC of Dhanusha district:

S.N.	Name of VDC	S.N.	Name of VDC	S.N.	Name of VDC
1	Andhupatti	36	Fulgama	71	Mansinghpur
2	Aurahi	37	Ghodghas	72	Mithileswar nikas
3	Bafai	38.	Giddha	73	Mithileswar mauwahi
4	Bagchaura	39.	Godar	74	Mukhiyapatti mushargiya
5	Bahedabela	40.	Gopalpur	75	Nagarain
6	Bahuarwa	41	Gothkoyalpur	76	Nakta Jhij
7	Balabakhar	42	Govindpur	77	Nauwakhor Parsa
8	Balhatathal	43	Hanspur Kathpulla	78	Nanupatti
9	Balsaghara	44	Hariharpur	79	Pacharwa
10	Balhagoth	45	Hardiya	80	Paranuka
11	Baniniya	46	Harinoe	81	Paterwa
12	Basbitti	47	Hatipurharbera	82	Paudeswar
13	Barmajhiya	48	Inarwa	83	Puspwalpur
14	Basahiya	49	Itharwa	84	Raghunathpur
15	Bateswar	50	Janakpur N.P.	85	Ramdaiya Bhawadi
16	Bengashivpur	51	Jatiyahi	86	Rampur Birta
17	Bengadawar	52	Jhojhi Kataiya	87	Sabaila
18	Bharatpur	53	Kachuri Thera	88	Sapahi
19	Bhuchakrapur	54	Jamunibas	89	Satosar
20	Bhuthi Paterwa	55	Kajara Ramaul	90	Santipur
21	Bindhi	56	Kanakpatti	91	Singyahi Maidan
22	Bisarbhora	57	Kahjuri Chanha	92	Sinurjhoda
23	Chakkar	58	Kurtha	93	Sonigama
24	Chorakoyalpur	59	Lawtoli	94	Suga Madhukharhi
25	Debdiha	60	Lagmagadhguthi	95	Suga nikash
26	Deuri Parwaha	61	Lakhauri	96	Tarapatti Sirsiya
27	Depura Rupaitha	62	Lakkad	97	Thadi Jhijha
28	Dhabauli	63	Laxminiwas	98	Thilla Yaduwa
29	Dhalkewar	64	Laxmipurbagewa	99	Tulsi Chauda
30	Dhanaujee	65	Laxmipurbagewa	100	Tulsiyahi nikash
31	Dhanusha dham	66	Lohana Babhangama	101	Tulsiyahi Jabadi
32	Digmbarpur	67	Machi Jhitkaiya	102	Umaprempur
33	Dubarikot Hathlekha	68	Mahendranagar	103	Yadukuha
34	Duhabi	69	Mahuwa Kapleswor	104	Yagyabhumi
35	Ekrahi	70	Makhnaha		

(Source: DADO, 2067)

Numerous fish markets are there in above mentioned VDC of Dhanusha district.

Appendix-IV: Agriculture service centre / VDC Fishery profile

S. N.	Agriculture service center/VDC	No. of fishermen involved	No. of ponds	Covered area in hac.
A.	Agriculture service centre,Dhalkebar	177	198	66.87
1	Dhalkebar	3	3	1.2
2	Puspwalpur	3	4	1.0
3	Bengadawar	7	7	1.3
4	Tulsi	1	2	0.1
5	Laxmi Niwas	3	3	0.5
6	Naktajhij	9	7	3.2
7	Tallo Godar	3	5	3.4
8	Labtoli	3	3	2.4
9	Bharatpur	7	16	6.9
10	Mahendranagar	81	76	22.34
11	Digmbarpur	3	4	1.4
12	Hariharpur	4	5	4.0
13	Bateswor	4	4	0.5
14	Buichakarpur	4	4	0.6
15	Shantipur	6	7	2.3
16	Baniniya	12	14	3.8
17	Ramdaiya	12	13	5.0
18	Gopalpur	15	23	10.5
19	Tarapatti Sirsiya	17	18	7.1
20	Mithileshwor Mouwahi	11	16	6.1
21	Bhuthi Paterwa	8	10	5.8
22	Mithileshwor Nikas	15	20	11.1
23	Kajara Ramaul	13	13	8.4
24	Paudeshwor	22	22	9.5
25	Baghchaura	25	25	10.36
26	Mansinghpatti	11	12	6.5
27	Andupatti	10	10	5.23
28	Hanspur Kathpulla	7	10	5.8
29	Suga Madhukarhi	7	9	2.8
B.	Agriculture Servce Centre, Baidhaihi	508	601	194.32
1	Yadukoha	27	27	8.7
2	Dhabauli	47	47	17.3
3	Hathipur Hadbara	18	25	9.0
4	Gauth Koyalpur	29	34	7.96
5	Chaura Koyalpur	9	10	3.4
6	Nanupatti	56	94	16.2
7	Bamakhor	12	13	3.8

8	Sinurjodda	15	15	2.7
9	Ithharba	9	9	0.9
10	Duhabi	15	15	4.0
11	Dhanauji	14	16	8.6
12	Jhojhikateya	9	11	6.4
13	Lakhauri	8	11	6.4
14	Deuri Parwaha	24	24	11.53
15	Aaurhi	16	19	9.0
16	Dubarkot	20	21	5.4
17	Thadijhijha	10	13	0.8
18	Gidha	9	11	4.20
19	Ikrahi	6	6	2.4
20	Machi Jhitkauha	27	31	11.4
21	Khajuri	15	15	4.5
22	Balhagoth	7	8	1.5
23	Balha Kathal	7	8	2.1
24	Balhasghara	6	6	0.9
25	Tatnuka	9	9	2.7
26	Inarwa	1	1	0.3
27	Pra.Khe.Mahuwa	11	13	3.33
28	Chakkar	27	29	18.6
29	Baphai	12	16	5.0
30	Pachharba	12	18	6.9
31	Sigyahimadan	9	11	4.0
32	Harine	10	10	3.0
33	Lakkar	2	5	1.4
C.	Agriculture Service Centre, Phulgama	212	269	136.33
1	Pulgama	16	33	11.0
2	Tulsiyahi Nikas	20	30	13.8
3	Tulsiyahi Jabdi	13	14	8.23
4	Mukhiyapatti	7	10	5.6
5	Baherabela	12	18	5.9
6	Debdiha	28	18	14.0
7	Lagma	25	13	6.9
8	Nagrain	17	23	6.4
9	Ghodghash	25	36	15.7
10	Basahiya	5	15	15.5
11	Debpura Rupaitha	26	34	18.9
12	Lohana	9	16	9.5
13	Bahuarba	9	9	4.9
D.	Office Area	125	190	130

1	Janakpur Muncipality	38	88	89.3
2	Sinurjodda	15	15	2.4
3	Bengashivapur	12	17	10.5
4	Kankapatti	12	12	6.2
5	Pra.Kho. Mahwa	6	6	4.0
6	Bispitti	12	12	2.7
7	Bindhi	4	14	8.5
8	Kurtha	9	9	2.7
9	Laxmipur Bajewa	17	17	3.7

Appendix-V: Ponds of Fishery Development and Training centre

S.N.	Type of pond	No. of pond	Area covered by pond
1.	Brood pond	13	2.5 hac
2.	Nursery pond	16	1 hac
3.	Rearing pond	30	3.2 hac
4.	Production pond	23	6.5 hac

(Source: FDATC 2067)

Appendix-VI: **Road facilities of Dhanusha district**

S.N.	Type of Road	Length	Places
1.	Soil road	-	-
2.	Gravelled road	200 k.m.	Dhanusa district
3.	Kalo patre	50 k.m.	Janakpur-Dhanushadham Janakpur to Jathi
4.	Bridge	7 k.m.	Hyum pipe
5.	Railway	52 k.m.	Kalvart, Janakpur- Jayanagar

(Source: DADO, Janakpur, Dhanusha)

Appendix-VII: Private Hatchery Centres

S.N.	Name of Hatchery Center	Address	Particulars(in Lakh)		
			Hatchling	Fry	Fingerling
1	Mukhiya fish production farm (Shree Boyalal Mukhiya)	Nanupatti-5	205	200	2
2	Mandal Hatchery (Shree Indra Mandal)	Nanupatti-3 Pachharwa-5	50	3	
3	Nabdurga fish production farm (Shree Bechan Sah)	Nanupatti-3	150	150	
4	Mahabir fish Hachery (Shree Mahabir Mandal)	Nanupatti-2	7	50	
5	Saran Fishery Farm	Nanupatti-5			
6	Mitra Fish Culture Farm (Ram Sagar Mandal)	Nanupatti-4	120	100	
7	Kamala Fish Farm (Shree Boyalal Mukhiya)	Dhabauli-8			
8	Ganga Fish Farm (Shree Manoj Kumar Mandal)	Dhabauli-7			
9	Mandal Matsay Prajanan Farm (Shree Yogendra Prasad Mandal)	Suganikas-5	100	10	
10	Adhikari Matsay Prajanan Farm (Shree Rajdev Sahani)	Chakkar			
11	Sahani Matsay Hatchery (Shree Rajdev Sahani)	Andupatti-1	10	10	
12	Sahani Matsay Farm (Shree Upendra Sahani)	Baghchaura-5	15	15	
13	Sobhit Matsay Prajanan Farm (Shree Sobhit Mukhiya)	Mahendranagar	87	40	0.5
14	Shrestha Matsay Prajanan Farm (Shree Bijay Raj Shrestha	Mahendranagar			
15	Girija Matsay Prajanan Farm (Shree Srawan Kuamr Jha)	J.N.Pa.-2	190	60	
16	Mishra Matsay Prajanan Farm (Shree Upendra Mishra)	J.N.Pa.-2	200	62	
17	Santi Matsay Prajanan Farm (Shree Jageshwor Yadav)	Ghodghas-7 Ganjulipul	260	169	
18	Yogi Mukhiya Matsay Farm (Shree Yogi Mukhiya)	Baphai-6	3	1	
19	Gogi Thakur Matsay Prajanan Farm (Shree Srawan Kuamr Jha)	Yagbhumi-4	12	12	

11. QUESTIONNAIRE

INTERVIEWS WITH FISH TRADERS OF DHANUSHA DISTRICT

Individual information

1. How many fish traders are involved in fish marketing business?
2. Are you fish trader or fisherman or fishmongers?
3. Can you tell me what is your annual income from this business?
4. Does fisherman have other business in addition to this?
5. Which caste are involved in this business?

Management

1. How you people manage the supply of fish seed?
2. How you manage the preservation of fish?
3. What problem you are facing in this business?

Supply

1. Which fish seeds are mostly preferred?
2. Do you take any precautions during releasing of fish seeds in the pond?
3. How much time the fish seed take to grow upto marketable size?
4. Tell me something about the fish feed you people use.
5. How much fishes are harvested in a month?
6. How many private and government sectors are involved in fish seed production?
7. Are all the harvested fish supplied to local market or somewhere else outside this district?

Cost operation

1. Will you tell me the price of various fish seeds?
2. What is the cost of Ice block?
3. How much you pay to the pond owner annually (contract charge)?
4. What is the rate of various fishes at production site?