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Research Article

Assessment of Fish Market and Marketing Channel in Dhanusha District of Nepal

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Abstract

Agriculture Development Strategy (2015-2035) has emphasized fisheries and aquaculture production for food and nutrition security in Nepal. Dhanusha is one of the leading districts in fish production and consumption but the marketing situation is becoming a serious obstacle in speedy development of this sector. Due to lack of research, the situation in the study area is unknown. This study was conducted in 2018 from January to April with the aim of assessing the existing marketing channels and the factors affecting the marketing system in seven locations of Dhanusha district. A total of 40 retailers were selected by purposive sampling technique and interviewed through structured questionnaire. The results showed that Mallaha community (73%) dominated the fish selling business. Five types of marketing channels were operated in selected markets and the most common channel was involvement of fish farmers, retailers and consumers (60%) with producer's share of 84%. The average farm gate, wholesale and retail price for carp fishes were NRs.250, NRs.269 and NRs.299 per kg respectively. The price of fish depended on market structure, species, quality, size, weight, season and inflow of fish from India. The domestic production fulfilled 80% of the local demand and rest amount was fulfilled from Indian imports. The cost incurred at retail level for ice, transport and rent of shop were NRs. 6.76, NRs. 6.16 and NRs. 3.79 per kg fish. The study suggested establishment of scientific, wholesale fish market along with improvement of transport facilities and maintenance of hygienic condition.

Keywords: *Consumer's Preference; Demand; Marketing Channels; Price; Producer's Share*

Abbreviation

CBS: Central Bureau of Statistics; DADO: District Agriculture Development Committee; DoFD: Directorate of Fisheries Development; FAN: Fishery Association of Nepal; mt: Metric Ton; kg: Kilogram; NRs.: Nepalese Rupees; SPSS: Statistical Package for Social Science

Introduction

Fishery is potentially an important sector of agriculture in Nepal. Fish production in Nepal is gradually increasing with a growth rate of 8 - 9% per year reaching 77,000mt in 2017, contributing 55,500 from aquaculture practices and 21,500 from Capture fisheries but this productivity lags far behind from neighboring countries [1]. With likely increase in contribution from culture fisheries, the necessity of developing an efficient domestic marketing system assumes great importance, since the producers are concentrated in a particular location while the consumers are spread country-wide. The appropriate marketing infrastructure and profitability encourage the

marketing agents for efficient flow of goods from the production sites to the market centers [2]. Fisheries is one of the highest contributors of national economy accounting for about 1.22% of total Gross Domestic Production, and 4.32% of Agricultural GDP in the country [3]. The fish consumption is higher in the terai region than in the hilly region of Nepal [4].

Currently, there are 12 private fish hatchery and nursery and pond number, pond area and production are 2985, 3951 and 4126.6 mt respectively in Dhanusha district [5]. The per capita fish consumption worldwide is about 12 kg, while it is about 2 kg in Nepal [6]. Fish production has immense market opportunities in Nepal [1].

Materials and Methods

A total of 40 retailers were selected by purposive sampling technique in 8 retail markets of 7 different locations of Dhanusha district. The study was conducted from January to April 2018. The primary data was collected by interview (structured questionnaire) of retailers in fish markets and direct observation. The sources of secondary data were the DADO profile, DoFD, CBS, related documents, publications and research paper. All the important primary data that were collected from fish sellers were entered and analyzed in Ms-Excel and SPSS program (Version 16.0) for further analysis.

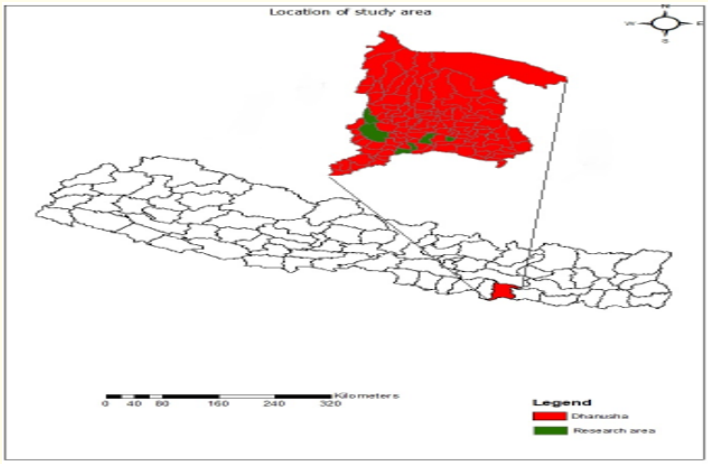


Figure 1: *Map of the study area.*

Sampling frame

Locations	No. of markets	No. of retailers
1. Janakpur sub metropolitan city	2	10
2. Bide municipality	1	5
3. Sahidnagar municipality	1	5
4. Hanspur municipality	1	5
5. Laxminiya municipality	1	5
6. Aaurahi municipality	1	5
7. Dhanauji municipality	1	5
Total	8 markets	40 retailers

Table

Results and Discussions

Socio demographic characters

Mallaha community (73%) dominated the fish selling business in Dhanusha district. The proportion of male retailers (83%) was much higher than females (17%). 50% of respondents were literate and 50% were illiterate. The literate respondents had attained only up to primary level of education.

Marketing channels

The most common channel of fish marketing in Dhanusha district was purchase from fish farmers and directly sold to the consumer by the retailers (Channel 2). The fish producers and farmers and fish traders are the main actors of fish marketing system [7]. The producers share in channel 2 was 84% and only 79% in channel 3. This finding is well supported by results of (Kumari) at Hisar and Gurgoan districts of India.The producers share decreases with the increase in number of intermediaries in marketing channel. There are two groups of traders involved in fish marketing of Dhanusha district; the Indian trader and those from Nepal [8].

Channel 1: Fish farmers→Consumers (20%)

Channel 2: Fish farmers→Retailers→Consumers (60%)

Producers share=250/299*100=83.61%

Channel 3: Fish farmers→Wholesalers→Retailers→Consumers (11%)
(235) (269) (299)

Producers share= 235/299*100=79%

Channel 4: Fish farmers→Collectors→Retailers/Wholesalers→Consumers(4%)

Channel 5: Imported fish from India, Importer→ Wholesaler→Retailer→Consumer (5%)

Seasonal fluctuation in price

In the study area, fishes fetched higher price during winter and lower in Summer. The average price difference for carp fishes during summer and winter months was found to be NRs. 41.43 per kg of fish.

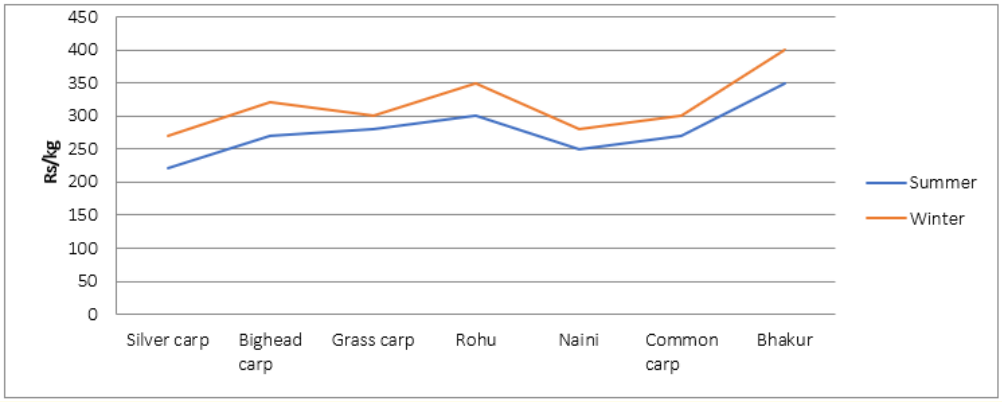
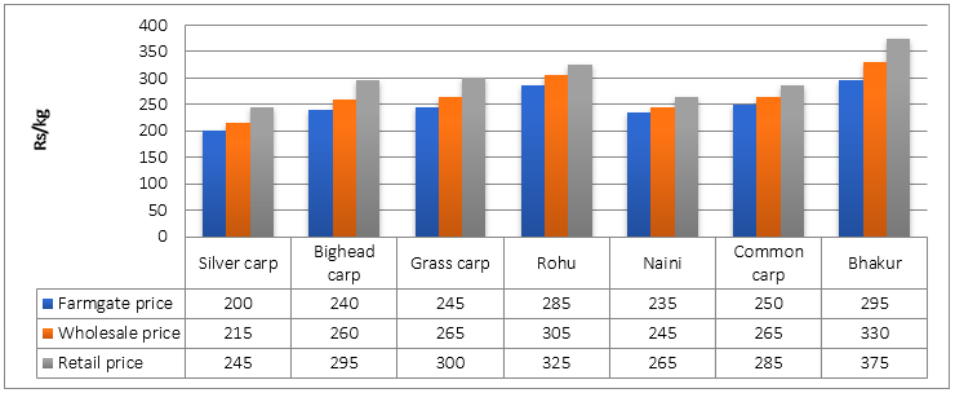


Figure 2: *Seasonal price behavior of carps in Dhanusha district.*

During the summer months the growth rate of fish is more than winter so supply is more but demand and consumption is less so the price decreases. But in winter, the growth of fish is less but demand and consumption is high so fish have to be imported from India also in order to meet the local demand. And hence the price of fish increases in winter.

Price of different fish species

Fish prices have shot up by 10 - 15% in the last one year, largely due to increased demand for locally produced fresh and live fish. In the study area, wholesale price of various types of fish produced ranged from Rs 215 to Rs 330 per kg. Retail prices were between Rs 245 to NRs. 375 per kg of fish. Due to more demand than supply, prices have soared. Bhakur and Rohu fetch the highest retail price NRs. 375 and NRs. 325 per kg respectively. Also silver carp fetched lowest price at all levels . The average Farmgate price, wholesale price and retail price for carp fishes was found to be NRs.250, NRs.269 and NRs.299 per kg respectively.



	Silver carp	Bighead carp	Grass carp	Rohu	Naini	Common carp	Bhakur
Farmgate price	200	240	245	285	235	250	295
Wholesale price	215	260	265	305	245	265	330
Retail price	245	295	300	325	265	285	375

Figure 3: *Price of Carps at different levels in Dhanusha district.*

Price difference of Nepali and Indian Fish in Nepali market

During the survey, it was found that Nepalese fishes were found fresh and good quality than Indian fishes. Indian fish was more consistent in size whereas the fish from Nepal was smaller in size. Nepalese fish fetched higher prices than Indian fish in terms of freshness [9].

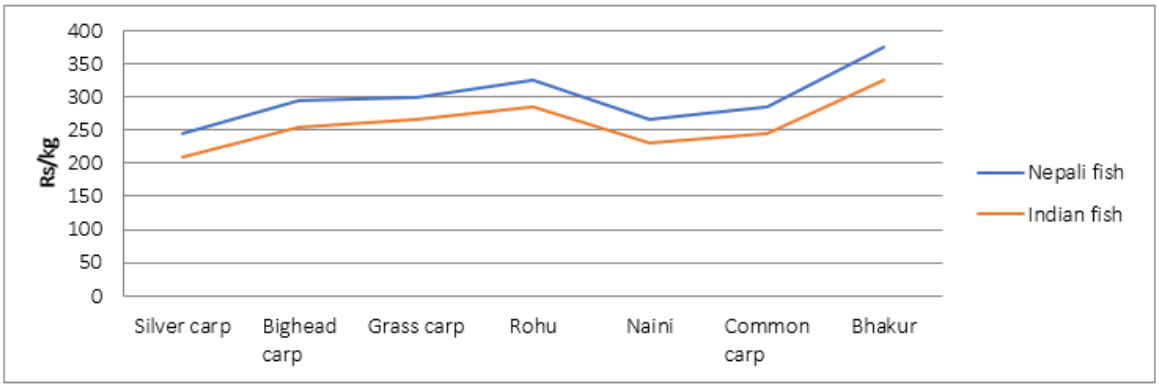


Figure 4: *Price of locally produced and imported carps in markets of Dhanusha district.*

The general perception was that the Indian fish having been packed in ice for several days and the quality was inferior. Results revealed that average price difference between Nepali and Indian fish was found to be NRs. 40 per kg of fish.

Consumers Preferance for fish species

The results revealed that the most preffered species by consumers was Rohu while the average preferred was bighead and common carp and the least preffered was silver carp.

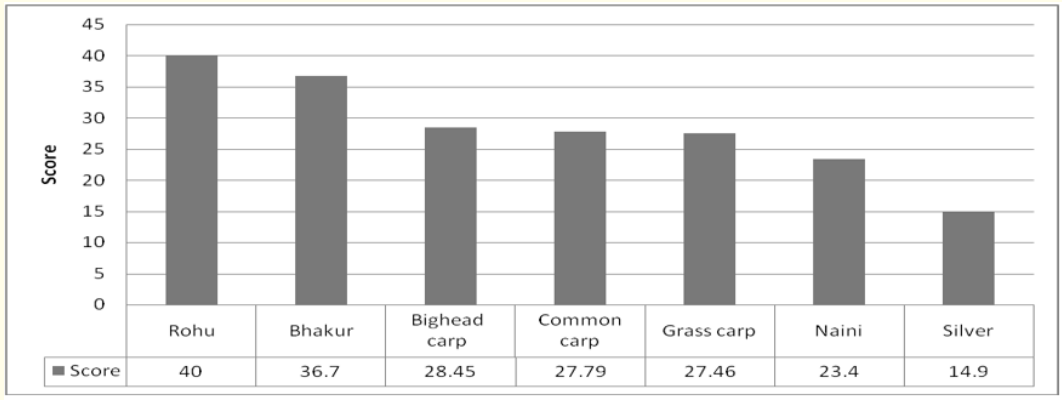


Figure 5: *Consumers behavior for fish species in Dhanusha district.*

The high preference for Rohu was because of its good taste. Bhakur is one of most expensive fish but due to its taste it is highly preffered. The taste of Silver carp was disliked by many consumers.

Domestic fish purchase and imports

The results revealed that around 80% of the locally produced fish at different production sites in Dhanusha district fulfill the market demand. The remaining demand is met by import from India. This finding is well supported by reports of FAN in 2015 [10].

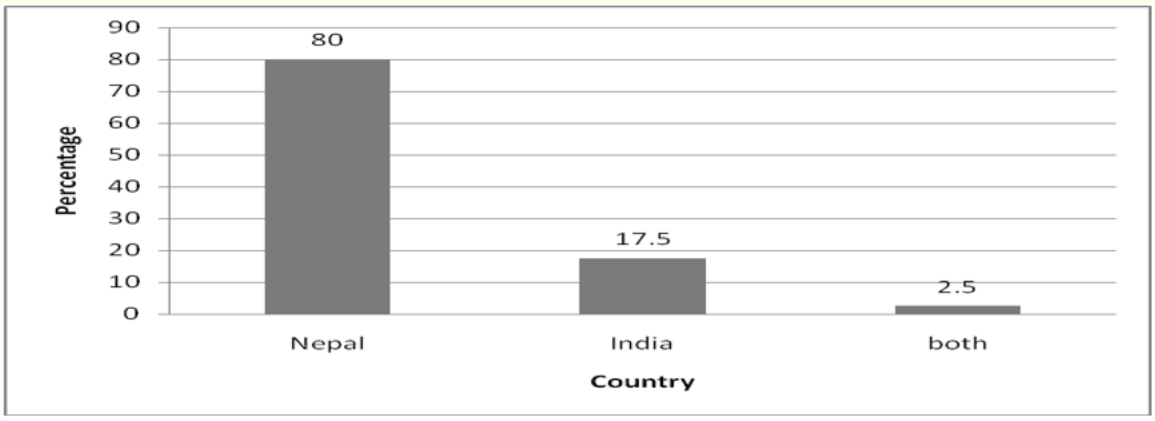


Figure 6: *Local fish purchase and imports in Dhanusha district.*

The production of fish had not met the local demand despite a rapid growth in fish farming. Hence, demand for fish outstrips domestic production. Mainly fish were imported from Indian production sites of Calcutta and Andra Pradesh.

Materials used for packaging of fish

Results revealed that most of retailers used plastic crates as fish packaging material in urban areas. Also aluminium pots were used as packaging material but mainly in rural areas. Some of retailers in urban as well as rural areas used both plastic crates and aliminium pots. Nowadays trend of preserving of fish in insulated thermo boxes together with the ice is also increasing. The price of packaging materials differed with varying quality, durability, size and weight.

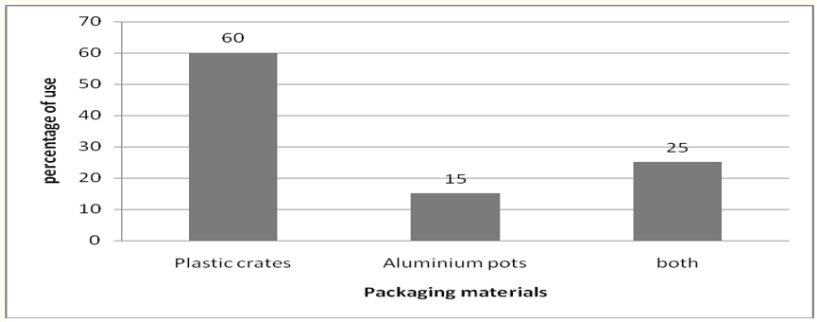


Figure 7: *Packaging materials used in Dhanusha district.*

During the survey, it was found that live fishes were kept in aluminium pots along with water. Rural people perceieve that fishes kept in aluminium pots are fresh. Hence, majority of retailers in rural areas use aluminium pots.

Mode of transportation for fish species to the market

The respondents made use of different mode of transportation for transport of fish to the market. Most of fish traders transported their fish by motorcycle (mainly in urban areas), some by cycle (mainly in rural areas) while some made use of both the means of transport. The mode of transportation depends on quantity of fish and travel distance . Cycles used by local retailers and motor bikes used by the traders [8]. Buses were used for transport of fish to long distances. Due to short distance between production and marketing sites, majority of retailers use motorcycle and cycle for fish transport.

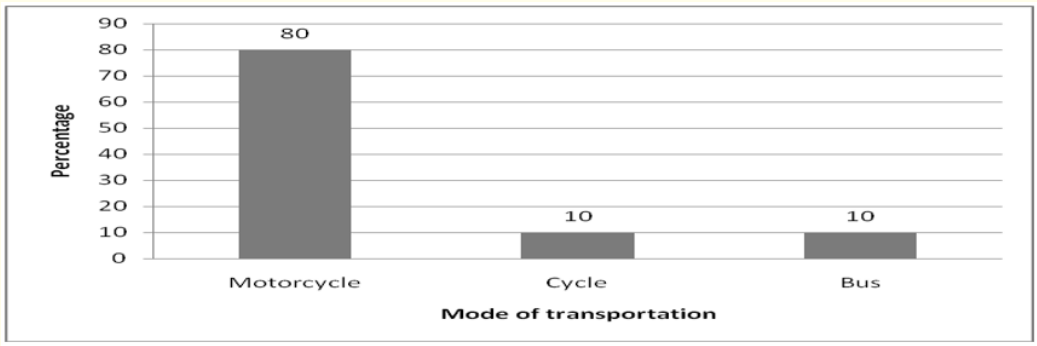


Figure 8: *Transportation means used by retailers in Dhanusha district.*

Kumari in 2015 reported that the bus service gave less priority to fish transportation despite being highly perishable commodity. On the other hand the prices charged by bus services for fish transportation was more on ad-hoc basis and inconsistent.

Storage adoption

The survey results showed that majority (82%) of retailers adopted storage mechanism for fish preservation. Mainly retailers in urban areas adopted fish storage as in cities dead, iced, fresh as well as live fish are sold. But fish sellers in rural areas areas do not store the fish as only fresh and live sale were preffered by consumers and also there was lack of storage facilities too. Ice was the only mechanism for fish preservation.

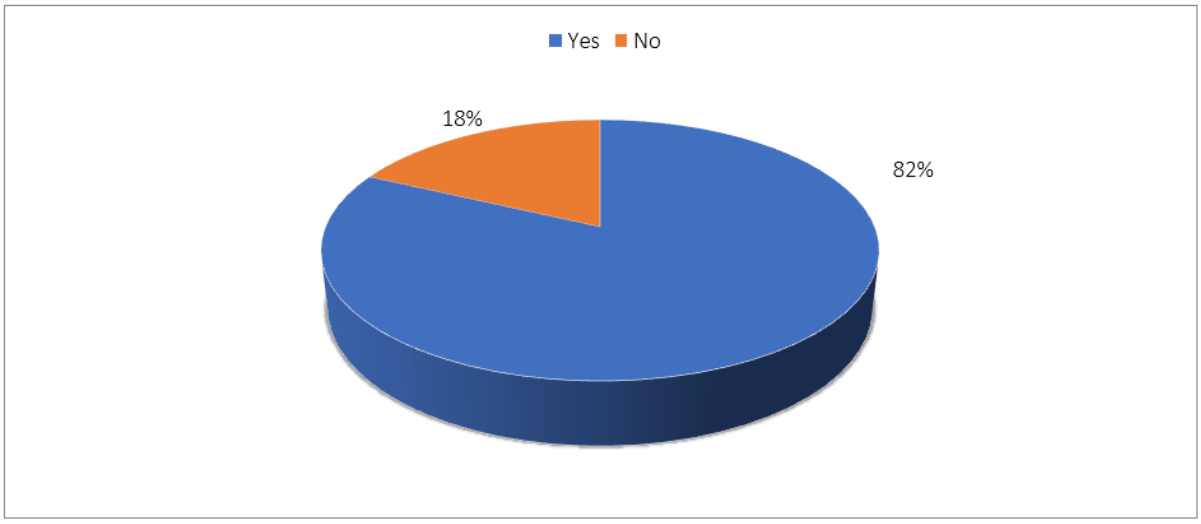


Figure 9: *Status of fish storage adoption in Dhanusha district.*

Cost incurred for different items in fish marketing

During the survey, it was found that major costs incurred in fish marketing at retail level were for transport, ice and rent of shop. Access to market was expensive due to lack of infrastructure like transportation that caused inaccessibility of locally produced commodity to domestic market. There was no any sophisticated shop for fish selling in Dhanusha district.In some places an open area was separated for retailers while in some areas fishes are sold in vegetable markets or on sides of footpath .The cost of rent varied with place. In rural areas the rent cost varied from NRs.35 to NRs. 150 and in urban areas the rent of fish selling place varied from NRs.100 to NRs.250. According to respondents, the cost for ice was NRs.650 for seal which was sufficient for 80 kg of fish storage.

Cost items	NRs/kg of fish
1. Transport	6.16
2. Ice	6.76
3. Rent of shop	3.79

Table 1: *Major cost items at retail level for fish marketing in Dhanusha district.*

Conclusion and Recommendation

There is great potential for the expansion, intensification and increased commercialization of aquaculture in Dhanusha district with improved marketing system and suitable technological and policy interventions. Hence, establishment of well-structured market along with improvement of transport facilities, adoption of Government formulated marketing channels, maintenance of hygienic condition are vital for improvement, uniformity and effectiveness of marketing system. This study suggests increament of both fish production and productivity by means of extensive production and marketing support services in order to reduce import and increase export. Study suggests fish traders for scientific support in transportation, storage and packaging system of fish in order to reduce wastes and losses, to improve the quality of product and to lower the marketing costs. Dhanusha Chamber of Commerce and Industry and FAN are suggested to encourage retailers for live fish sale by supporting to establish well structured shops.

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