



શિક્ષણ સંશોધન સંસ્થા

**IIM**  
AHMEDABAD

W.P. 69

# Working Paper



MARKETING OF FRESH WATER FISHES IN INDIA

By

U.K. Srivastava

WP698  
|■■■■■■■■|  
WP  
1987  
(698)

W P No. 698

September 1987

The main objective of the working paper series of the IIMA is to help faculty members to test out their research findings at the pre-publication stage.

INDIAN INSTITUTE OF MANAGEMENT  
AHMEDABAD-380015  
INDIA

## MARKETING OF FRESH WATER FISHES IN INDIA

U.K. Srivastava\*

In this paper an attempt has been made to analyse the marketing pattern (use flows, physical flows, channel flows and fishermen's share in consumer rupee) of fresh water fishes and to summarize the key areas for action to improve the marketing system and farmer's share in consumer rupee.<sup>1</sup> Before discussing the marketing pattern, demand-supply scenario, price behaviour of fish vis-a-vis other commodities and role of inland fishery in meeting the demand is presented.

### Demand-Supply Scenario

The per capita availability of fish in India is estimated to be 3.5 kg which is one of the lowest in the world. Also the increase in wholesale price of index of fish has been much more rapid than the price of all commodities and food articles. Data presented in Table 1 shows that while during the 33 years period from 1953 to 1985, the wholesale price indices of all commodities has gone up by 7.6 times, food articles by 6.7 times, meat by 12.7 times, the fish prices went up by 18.0 times.

---

\* Dr. U.K. Srivastava is Professor of Economics in the Centre for Management in Agriculture, and Chairman, Research at the Indian Institute of Management, Ahmedabad. He has coordinated several major studies in fishery sector at IIMA.

<sup>1</sup> This paper is largely based on U.K. Srivastava et. al. Inland Fish Marketing in India, Vol. 1-8, Concept Publishing Co., 1985.

TABLE-1 : WHOLESAL PRICE INDICES

Base 1970-71 = 100

<u>Year</u>	<u>All commodities</u>	<u>Food Articles</u>	<u>Meat</u>	<u>Fish</u>
1953	46.7	43.9	38.3	27.0
1955	40.4	35.8	36.3	27.8
1960	54.2	48.3	44.3	34.4
1965	71.2	70.0	74.0	84.0
1970	99.0	100.4	98.1	97.7
1975	175.8	170.2	202.5	157.9
1980	248.0	207.3	306.4	267.0
1985	353.3	294.6	489.9	484.6

Source: Compiled from various issues of Monthly Wholesale Price Index.

The IIMA studies<sup>2</sup> indicated that the demand-supply gap of fish in domestic market estimated at 1 million tonnes in 1985 is to widen considerably by the end of this century, <sup>even</sup> when a conservative demand estimate is put at 12.5 million tonnes. To meet this, marine catch is not expected to contribute more than half of the projected demand. The balance would have to come from inland fisheries sector. In case of inland fisheries sector, the required increase was seven times in the next two decades as against the growth of 3 times during the last 3 decades. Although inland production was about 1/3rd of the total fish production, it supplied about 57% of the domestic demand.

#### Inland Fishery Resources

Inland fishery resources are classified into two types: fresh water and brackish water. Fresh water resources are further classified in terms of rivers, fresh water ponds, and reservoirs. Similarly, brackish water resources are also further classified in terms of ponds for culture, farms for capture/filtration, lakes, swamps and estuaries (Fig. 1). The fish production from the fresh water resources is mainly sold in the domestic markets. Production from brackish water resources largely consists of prawn which are exported.

---

<sup>2</sup> V.K. Gupta, *et. al.* Marine Fish Marketing in India (Vol. 1 to 6), IIM, Ahmedabad, 1984; U.K. Srivastava, *et. al.* Inland Fish Marketing in India, Concept Publishing Co., 1985; U.K. Srivastava and M. Dharm Reddy (Eds), Fisheries Development in India : Some Aspects of Policy Management, Concept Publishing Co., 1985; U.K. Srivastava and S. Vatheal (Eds), Strategy for Development of Inland Fishery Resources in India : Key Issues in Production and Marketing, Concept Publishing Co., 1985; and G.R. Kulkarni and U.K. Srivastava (Eds), A Systems Framework of Marine Foods Industry in India, Concept Publishing Co., 1985.

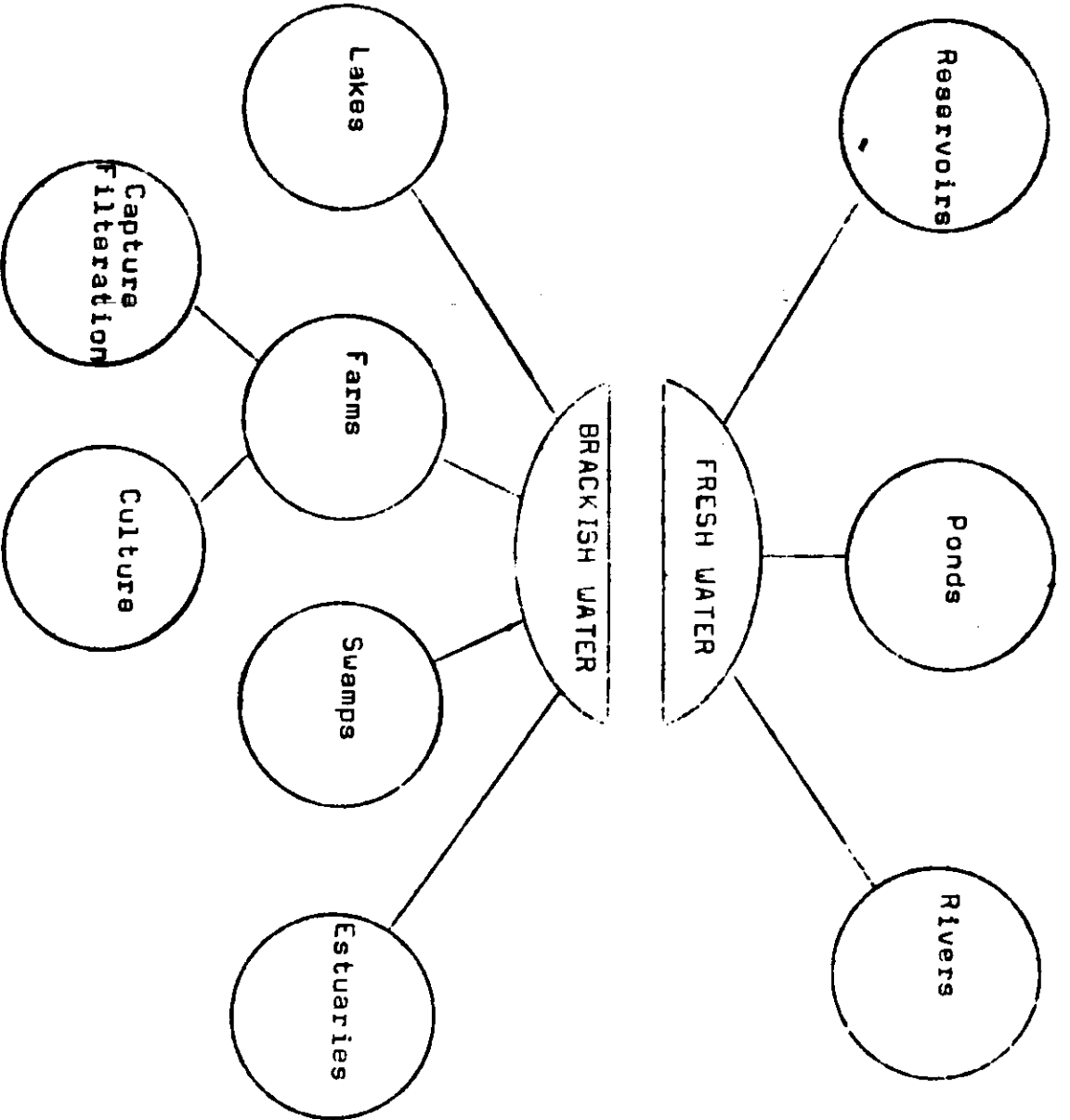


Fig. 1 : Inland Fish Production Sub-system

Among the fresh water resources, there is a large scope for production enhancement mainly in case of ponds and reservoirs (still waters). This can be illustrated from the fact that while the research institution claim an yield of 6,000 to 10,000 kgs per ha, the observed average yield from ponds is only around 700 to 800 kgs. In case of reservoirs again the present average yield comes to only 14 kgs per ha. against 100 to 150 kg per ha observed yield in some reservoirs in India itself.

#### MARKETING SYSTEM OF FRESH WATER FISHES

The marketing system of fresh water fishes can be analysed in terms of : a) useflows, b) physical flows, c) channel flows, and d) fishermen/fish farmers' realization from consumer rupee.

##### Useflows

The production from inland fresh water resources is largely consumed in fresh form. A negligible quantity is dried by traditional method and used for non-edible purposes. Ice is used to preserve the freshness of fish. Very rarely the facilities of cold storage are used. When fish was sent to outstations, it was packed with ice but no processing was done.

##### Physical Flows

Due to eating habits and economic conditions of the people in area surrounding the fish production centres, fish flows to other stations, mainly to urban centres. In India, Calcutta alone consumes more than 10% of fresh water fish production and about 30% of reservoir fish especially of major crops. A major share of production from pond and riverine resources were consumed locally or nearby production centres.

Unlike pond and riverine fishes, the catch from the reservoir were mainly consumed in urban centres, away from the production centres. This is mainly because of poor local consumption and due to high price and bulk production from reservoirs. As the fish marketing is controlled by powerful marketing intermediaries, they prefer to send the fish to outstation and distant places, where the demand and price of the fish are very high.

In the physical flow of fish, it is interesting to note that during 1980-81 about 78% of pond production and 60% of riverine production were consumed in rural areas locally and nearby production centres. In case of reservoir fish, a major share (about 70%) was consumed in urban areas. The movement of pond fish is very less followed by riverine and reservoir fishes. Table-2 gives a clear picture of urban and rural consumption and movements of fish production from fresh water systems.

TABLE-2 : PHYSICAL FLOW OF FRESH WATER FISH (1980-81)

Sub-system	Rural consumption	Urban consumption	Flow % local consumption	Upto 100 km	More than 100 km
1. Ponds	78	22	72	26	2
2. Reservoirs	30	70	30	40	30
3. Rivers	60	40	60	10	30

Source: U.K. Srivastava, et. al. Inland Fish Marketing in India (Vol. 1), Op. cit.

#### Channel Flows

In channel flow of fresh water fish, the following intermediaries were mainly involved :

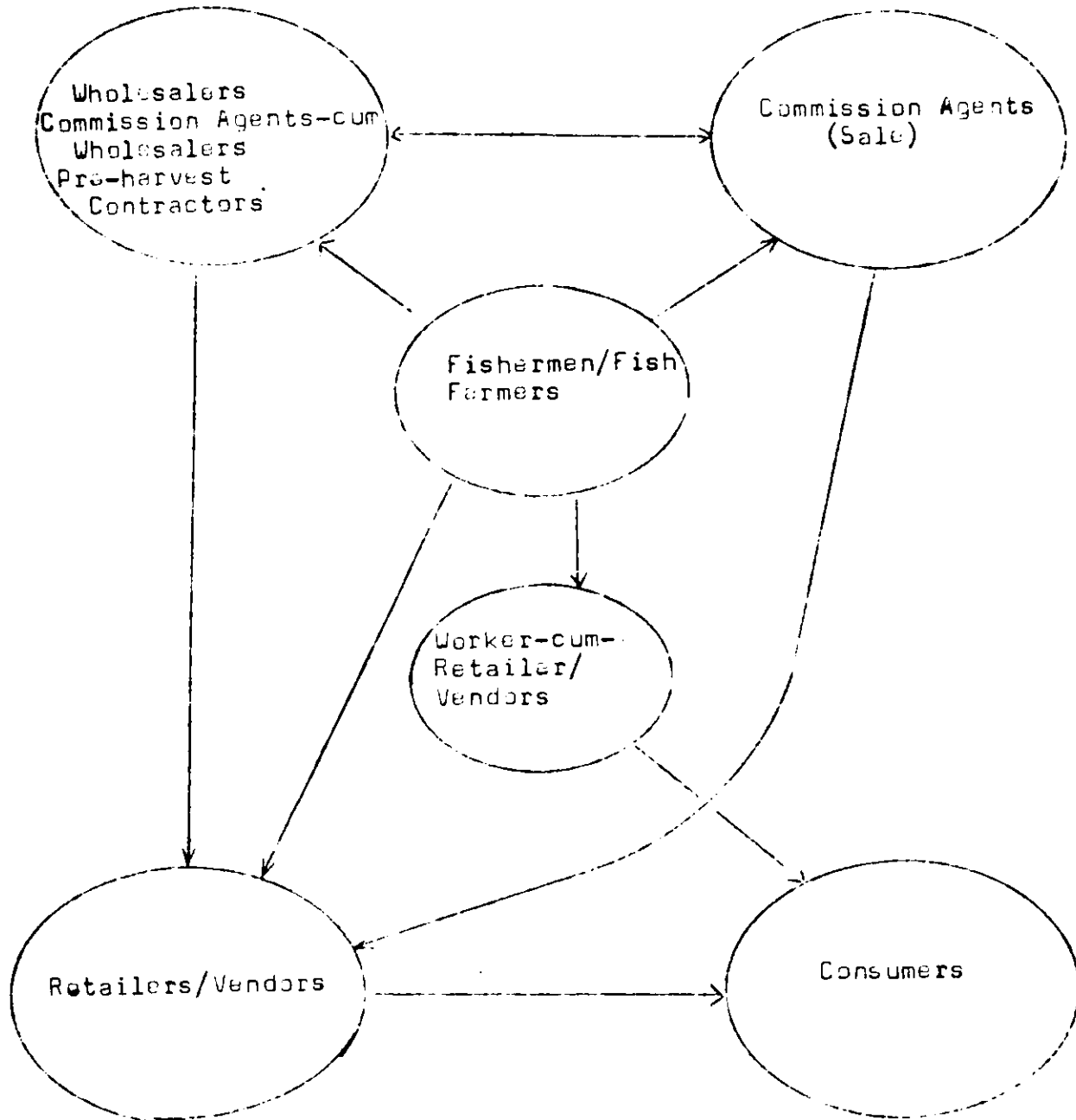


1. Wholesalers; commission agent-cum-wholesalers; pre-harvest contractors.
2. Commission Agent (sales)
3. Cooperative society
4. Retailer; Worker-cum-retailer
5. Vendor; worker-cum-vendor.

The market intermediaries take fish from producers to consumers. Fish flows have taken place through various combination of these intermediaries called market channels. Fig. 2 shows the general channel flow of fresh water fish in the country. The channel flow of fresh water fish in the country were by and large similar across the system. Fishermen (fish farmers) sold to wholesalers directly or through commission agents (sales) at their own risk and retail intermediaries. Wholesale intermediaries sold to retail intermediaries either through commission agents or directly.

The 12 intermediaries that have operated in the economy were :

<u>Intermediaries</u>	<u>Notation</u>
Pre-harvest contractor	PHC
Contractor-cum-Wholesaler-cum-Retailer	CO+W+R
Cooperative Society	CS
Commission Agent	CA
Outstation Commission Agent	OCA
Commission Agent-cum-Wholesalers	CA+W
Wholesaler	W
Wholesaler-cum-Retailer	(W+R)
Worker-cum-Retailer	(Wk+R)
Worker-cum-Vendor	(Wk+V)
Retailer	R
Vendor	"



**Fig. 2 : Channel Flows in Domestic Fresh Fish Supply**

**Sources:** U.K. Srivastava, et. al., *Inland Fish Marketing in India*  
Vol. 1, Op. Cit.

The following chart gives the pattern of flow of fish through different intermediaries :

<u>Identification No.</u>	<u>Channels</u>
I	F - R - C
II	F - V - C
III	F - (Wk+R) - C
IV	F - (Wk+V) - C
V	F - W - R - C
VI	F - W - V - C
VII	F - CA - R - C
VIII	F - CA - V - C
IX	F - PHC - R - C
X	F - PHC - V - C
XI	F - (W+R) - C
XII	F - W - OCA
XIII	F - (W+CA) - OCA
XIV	F - (CO+W+R) - C
XV	F - CS - R - C
XVI	Others

Note: F and C stand for fishermen and consumer respectively

It will be seen that not all the channels were operative in all the districts and that some were more popular than others in the country, as a whole. For example Channel V (F - W - R - C), Channel I (F - R - C), Channel VII (F - CA - R - C) are more popular than other channels.

The quantity of fish handled by each channel differed both within the country, as a whole, as well as within a particular state or district. Channel VII (F - CA - R - C), which handled 30% of the total production in an average district was the leading one in this respect. The next (excluding 'others' in the descending order of their contribution were Channel V (F - W - R - C) (1%), Channel XII (F - W - DCA) (9%) and so on, the last place being taken by Channel X (F - PHC - V - C), whose contribution was a mere 0.24%. Thus, of the 12 market intermediaries, the retailer was the most prominent; the other significant intermediaries were the wholesaler, commission agent and vendor. The least important intermediaries happened to be pre-harvest contractor, wholesaler-cum-retailer, contractor-cum-wholesaler, and cooperative society.

Sale through cooperatives/corporations were very limited. Even in the channel flow, where fishermen/fish farmer sold to cooperatives, private intermediaries were also involved like other cases. In such cases cooperatives became one more additional intermediary in the marketing channel flow. Sale through cooperative/corporation retail outlet was very limited and quantity sold to consumer through cooperative retail outlet was negligible.

The striking features about intermediaries over states (ignoring 'other' channels) can be summarised as follows:

- a) Pre-harvest contractors were present in Bihar and Rajasthan only.
- b) Contractor-cum-wholesalers were found in Madhya Pradesh only.
- c) Cooperative Society acted as a market intermediary in Gujarat and Maharashtra only.
- d) Wholesaler-cum-Retailers were found in Karnataka only.
- e) Worker-cum-Vendor were found in Andhra Pradesh, Maharashtra-Rajasthan only.
- f) Worker-cum-Retailers were present in Andhra Pradesh, Assam, Karnataka, Madhya Pradesh, Maharashtra and Rajasthan only.
- g) Wholesalers were not present in Bihar.
- h) Commission Agents were not found in Karnataka, Madhya Pradesh, Maharashtra, Orissa and Rajasthan.
- i) Retailers and vendore acted as market intermediaries in all the states.
- j) Outstation commission agents operated in Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu and West Bengal.

## SOME OBSERVATIONS ON MARKETING OF RESERVOIR PRODUCTION

In the reservoir fishery system, marketing of fish is one of the most important components. It has interface with production, reservoir leasing system, fishermen welfare and the development of the reservoir.

Between the fishermen and the final consumers there <sup>were</sup> usually two to four stages in the distribution system. After landing at each centre, fish either flows to the rural markets/consuming centres or is assembled at assembly markets. Most of the assembly markets are in large townships. From assembly markets, fish is mostly despatched to important consuming markets. However, a small portion of market surplus is sold in nearby rural markets. As a matter of fact, the distribution system is mainly dependent on the marketing practice followed at a particular reservoir. At local markets, near the fish landing centres the fishermen directly sell to the consumer or to the local retailers (e.g. licensing system). For outstation sale, it is sold to wholesalers who despatch the fish to commission agents at consuming markets.

Reservoir fishery management generally is with the Fisheries Department of the respective states. As there are no organised fish markets near the reservoirs marketing of the landings becomes difficult for the Fisheries Department. The Department, therefore, prefers to control and administer the reservoir, leaving the marketing responsibility to the marketing agencies like wholesaler, commission agent, retailer, vendor and fishermen. Sometimes, the Department itself undertakes the marketing if it is a small reservoir. However, due to the involvement of so many intermediaries and due to long channels of marketing, the Departments prefer either to lease the reservoirs to contractors/corporations

or to the fishermen (on the basis of license system). Reservoir fish marketing depends on the government's leasing policy also. If the reservoir is given to the fishermen on licensing system, the whole marketing system and channels differ from the system, and channels of the contractor's marketing. If the reservoir is given to a contractor, he controls the whole marketing system, leaving a small share to the fishermen. However, for some big reservoirs like Hirakud and Tungabhadra where the production is enormous, contractors are unable to invest money to cope up with the marketing trends. Hence, government prefers to give it to the fishermen on licensing system, where the fishermen are given free rein to dispose off the catch according to their choice. However, taking advantage of the fishermen's poverty, wholesalers and commission agents again come into the picture by investing money on their behalf and thus taking over the marketing into their hands.

Though fish from many reservoirs reach its ultimate consumer at Calcutta, the marketing operations vary from state to state in general and reservoir to reservoir, in particular. However, a brief account of various marketing flows<sup>existed</sup> at the reservoirs with various conditions is presented below:

Depending upon the system prevailing and market environment, intermediaries start occupying one by one in the marketing chain. In this marketing chain, from Fisheries Department to the retailers/vendors at Howrah, occupy important places. Fishing is never the primary purpose of constructing a reservoir. The agency which undertakes general reservoir management is usually either the State Irrigation Department/Power Department depending on the primary objective for constructing the reservoir. Fisheries is only a secondary benefit from

the reservoir. Hence in some states Irrigation Department/Fower Department charges some royalty for allowing the fishery management. Thus it occupies the first intermediary role. However, in some states like Bihar, Himachal Pradesh, Haryana and Rajasthan, no royalty is charged by the owner of the respective reservoirs. At such places, fisheries department is the first intermediary of the marketing chain in charging the royalty from the Federation/Corporation or contractor/cooperative society. If Corporation/Federation takes over the reservoir on lease, then it occupies the second or third intermediary role depending on the owner of the reservoir, who charges the royalty. Contractor-cum-wholesaler comes next, who bids the highest rates if tenders are invited to lift the catch. He occupies the third intermediary role in the chain of marketing. As the contractors generally despatch the fish to the commission agents at Calcutta, the fourth intermediary's place is occupied by the commission agents who auction the fish to the local retailers. If the contractors are not in the picture, then the wholesalers/commission agents in the nearest town of the respective reservoirs occupy the third intermediary role. However, if Corporation/Federation is directly involved with the fishing as well as the marketing, then the commission agents at Howrah occupy the third intermediary role. If the fish is sold locally, then the local retailers occupy the place of fourth intermediary. Depending upon the market situation, location of the reservoir, and size of the town, vendors come next to retailers as an intermediary. Vendors exist at some reservoirs, while at the rest of the reservoirs, retailers do the vendor's role also. Thus, depending upon the



situation and place where the fish is sold, vendors occupy the place of sixth intermediary, or the fifth intermediary. Thus, finally fish reaches its ultimate consumers.

#### Marketing of Riverine Production

In this system the fishermen either directly sell fish to wholesalers or through commission agents to retailers. The commission agents, wholesaler-cum-commission agents and wholesalers do not sell directly to consumers except to bulk buyers such as hostels, restaurants and hotels. Otherwise, they sell to retailers and vendors who come to the wholesale market and purchase fish either through auction or directly. When the production of fish was very low, it was directly sold to consumers by fishermen. The marketing channel from the producer to consumer are shown in Figure 3.

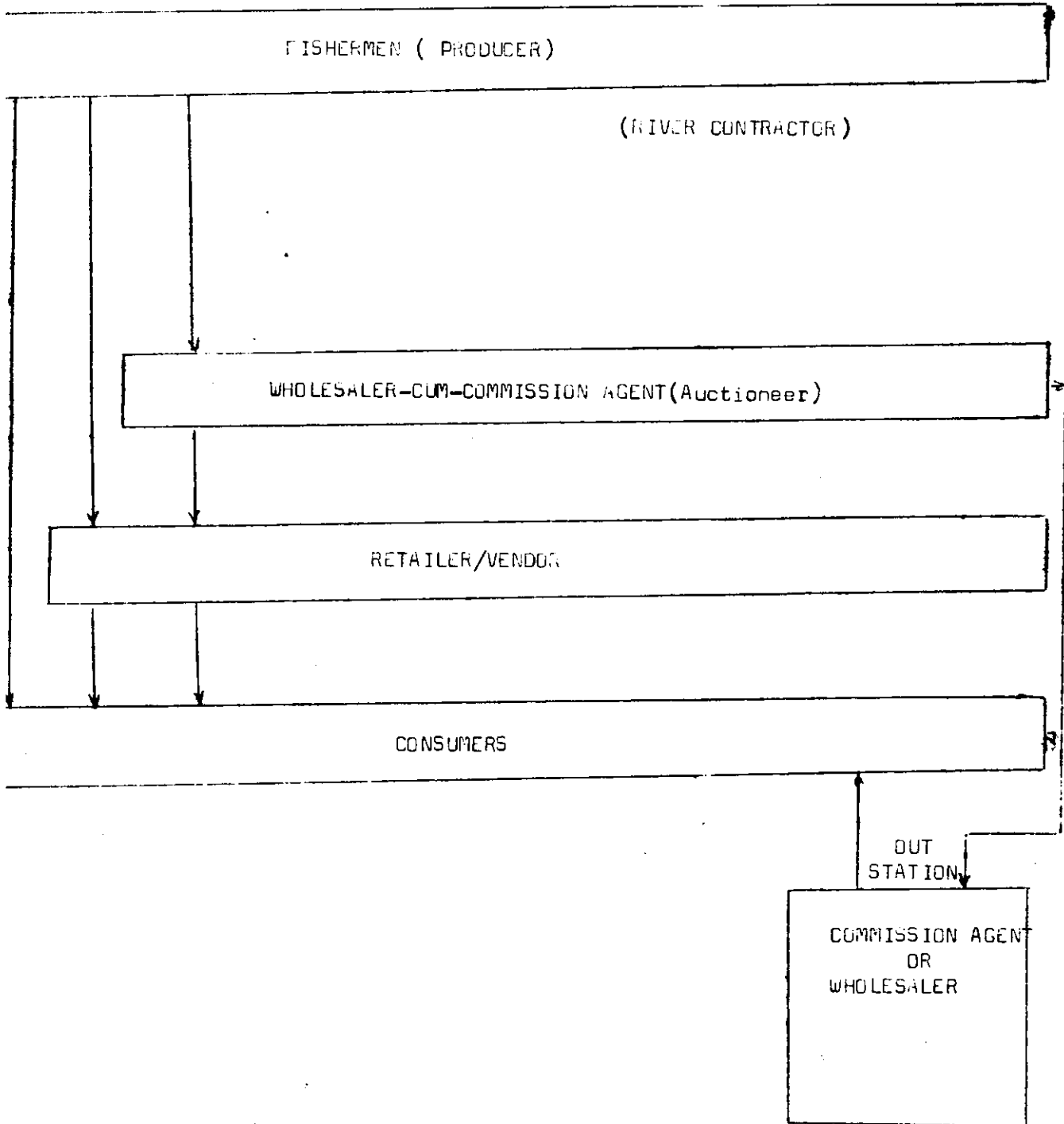


Figure - 3 : Fish Marketing Channels in the Centres.

Source: U.K. Srivastava, et. al., Inland Fish Marketing in India, Vol. 5, Op. Cit.

### FISHERMEN'S SHARE IN CONSUMER RUPEE

Since fish moves from producer to consumer through market intermediaries, there is no unique price of fish even for a particular quality, at one point of time, and at one particular location. Instead, there is a price which the fishermen/fish farmer receives which equals the price the first intermediary pays, and so on, the last being the price, the last intermediary receives or the one the consumer pays. Since each of these intermediaries incurs certain cost in the channel and have commercial motives behind their operations, the prices at several levels cannot be the same. In fact, each successive price in the channel is higher than the previous one, with the result there is a positive gap between the price the consumer pays and the one which farmer receives. It is often alleged that because of this gap, neither the fishermen receives a remunerative price for his produce nor the consumer gets his consumption basket at a reasonable price. Incidentally, it should be pointed out that the presence of intermediaries is not necessarily harmful, for they are productive as they add value to the fish by transporting it from places of supply to the places of demand and by storing the product between the time of harvest and the time of purchases by the consumer. Table-3 gives the maximum and minimum price realised by the fishermen in the country.

#### Pond fisheries

In direct sales to retailers the fish farmer received maximum of 90.3 percent of consumer price and minimum of 66.5 percent. The average share received by the fish farmers in the country was 81.5 percent of consumer rupee which is higher than the other two systems (riverine and reservoirs).

Table 3 : FISHERMEN'S REALISATION (1980-81)

System	Minimum (Rs/Kg)	Maximum (Rs/Kg)
1. Ponds	3.58	17.15
2. Reservoirs	2.00	6.00
3. Rivers	2.10	5.11

Source: U.K. Srivastava et. al., Inland fish Marketing in India,  
Op. Cit.

### Riverine fisheries

Producers share as percentage of consumer rupee varied between 66.1 percent to 79.3 percent for one member channel in direct sales through retailers. The all-India average, of one member channel sale was 72.6 percent. The average share of producer in more than one member channel was 61.3 percent, with the lowest at 36.5% and highest at 69.6%.

### Reservoir fisheries

The price offered to the fishermen in many reservoirs ranged from Rs. 2/kg to Rs. 6/kg, while the price paid by the consumer was very high. Thus in calculation, the consumer ultimately pay 5 or 6 times more than fishermen gets. In some places like Gobindsagar, though the fishermen's share is good yet the consumer at Calcutta pays four times more than what the fishermen gets. Thus the price of fish invariably goes up if it is despatched to outstations. Whenever there is departmental fishery then the fish price is very low for the fishermen. If the reservoirs is given on leasing system, the price is reasonably spread because of the direct link between fishermen and the contractors.

From the above discussion it is evident that there is no relation between the consumer price and fishermen's price realization. Though the consumer price of reservoir fish was very high the price realised by the fishermen was more or less same, even in some cases it was less than the price realised by riverine and pond fishermen. It is because the major share of the production from pond and riverine system were sold at production centres and nearby places, and also the length of the channel flow through which maximum share of fish flowed is smaller than reservoir fish.

## MARKET INFRASTRUCTURE

The discussion on market infrastructure is based on transit and terminal markets, and retail markets located in seven major inland fish consuming cities viz. Bangalore, Calcutta, Delhi, Hyderabad, Lucknow, Madras and Vijayawada. Of these centres exclusive wholesale markets were operating only at Calcutta (6) and Delhi (10). At all other centres, the wholesaling was done at wholesale-cum-retail markets. Madras had four wholesale-cum-retail markets. Bangalore had three and Hyderabad had two. At Delhi, Lucknow and Vijayawada, there were only one wholesale-cum-retail markets. All the wholesale markets had inadequate truck parking space, and the standards of health and hygiene were very poor. Delhi wholesale market was not approachable by any means of transport and all fish movements were on head-load upto main road.

### Retail Markets

In the above mentioned centres there were 132 markets where only retail operation was being carried out. In addition to these, there was 12 wholesale-cum-retail markets. Thus retailing was being done at 145 markets. Out of these centres, Calcutta had the highest number of retail markets (52) followed by Madras (41) and Delhi (25).

At all the markets the capacities of retail markets was lower than the actual number of retailers. Many retailers, therefore, sit at unorganised places or permanent pavements or over-crowded retail markets causing public nuisance and selling fish in unhygienic conditions.

Most of the retail markets at hinterland were unorganised. In many production centres there was no fish market at all and fish is sold some unorganised places. The existing condition of retail markets at hinterland was very poor, there was no provision for fresh water supply.

#### ROLE OF COOPERATIVE IN FISH MARKETING

A four-tier structure operated in fishery cooperatives: National Federation of Fishermen's Cooperatives, State Level Cooperatives, Central Cooperatives (mostly at district level), and Primary Cooperatives. The cooperatives at central and primary levels were divided into two sectors - marine and inland (some have jurisdiction covering both the marine and inland sectors).

Merchantile orientation was primarily limited to easy-to-handle input. Very few societies attempted to market fish. Those who marketed fish operated as follows :

- i) The major part of fish marketed by cooperatives came from reservoirs/ ponds under their own monopoly management (usually in the form of lease).
- ii) A negligible number of societies sold fish directly to retailers or vendors.
- iii) Only a few societies had their own outlets.
- iv) Majority of societies preferred to sell fish through contractors (wholesalers) on an annual or bi-annual fixed price contract system. In the way societies passed on all the risks of price fluctuations to wholesalers and similarly, passed on the possible profits.

- v) Wherever the societies themselves despatched the fish to terminal markets it was for sale through private commission agents. The fish was usually auctioned or sold in the absence of the supervision of cooperative personnel. Thus, the commission agents were in a position to manipulate the prices, especially due to the nature of fish market where price fluctuation significant on the same day. This was evident from the fact that actual commission earned was more than the contract rate of commission for all terminal markets.
- vi) Almost all societies selling fish dealt with private trade, and very rarely a primary society sold through central or apex society.

#### KEY AREAS FOR ACTION FOR IMPROVING THE MARKETING SYSTEM

The most important concern for improving the fish marketing system is to give larger share of consumer's rupee to fishermen/fish farmers. At the same time availability of fish to consumers including those located in the hinterland, need to be assured at reasonable prices. Keeping these two major concerns in view, following areas of actions can be suggested for improving inland fish marketing system :

##### 1. Market Regulations, Weights and Measurements

Market development included licensing of channel members, creation and management of marketing infrastructure, standardization of weights and measurements, and regulation of fair trade practices. The conclusions in this area were as follows:



- a. Make auction system compulsory at all the wholesale markets and regulate the markets.
- b. Introduce compulsory licence for all the market intermediaries.
- c. Standardize grading of fish by varieties, and make the weighing system compulsory.
- d. Constitute market committees, like agriculture produce market committee, at all major transit and terminal markets (such committee should manage health and hygiene, participate in market infrastructure planning, and regulate fair trade practices).
- e. Plan the market infrastructure on the basis of actual number of intermediaries instead of registered number of intermediaries.
- f. Eventhough construction and management of markets in the subject of local administration, a major role in infrastructure planning be played by Department of Fisheries.

2. Strengthening of Transit and Terminal Markets and Setting-up of Retail Markets

It was recommended by IIMA<sup>3</sup> studies that the infrastructural facilities at the transit and terminal markets be improved and development of retail markets be undertaken. In this connection the study is identified 175 small markets and 245 medium markets at important consuming centres for the speedy developments. These retail markets would provide the infrastructure for the smooth flow of inland fish to the consumers at required places.

---

<sup>3</sup> U.K. Srivastava and M. Dharma Reddy (Eds), Fisheries Development in India, Op. Cit., P. 170.

3. Packing and Transportation

Lack of transportation and poor standard of packing causes wastage of fish. This situation can be improved by providing sufficient transport facilities from production centres to district headquarters and using standard packing methods or else transporting fish in insulated vans.

4. Vertical Integration of Cooperatives from Primary to Transit and Terminal Markets

Another major thrust in the development of fish marketing is vertical integration of cooperatives. Presently, all the cooperatives function as a separate entity, and do not supplement/compliment each others functions. Vertical integration is required from primary despatch centre to transit and terminal markets. This only can improve the price realisation for the cooperatives and their members. Perhaps, National Federation of Fishermen's Cooperatives has to play more significant role in building such a cooperative structure for fisheries.